



APPENDIX 8-1

**PEAT STABILITY ASSESSMENT
(PROSPECTIVE DEVELOPMENT)
(FT, 2026)**

MEENBOG WIND FARM (PROSPECTIVE DEVELOPMENT)

PEAT STABILITY ASSESSMENT REPORT

Prepared for: **MKO Ltd**



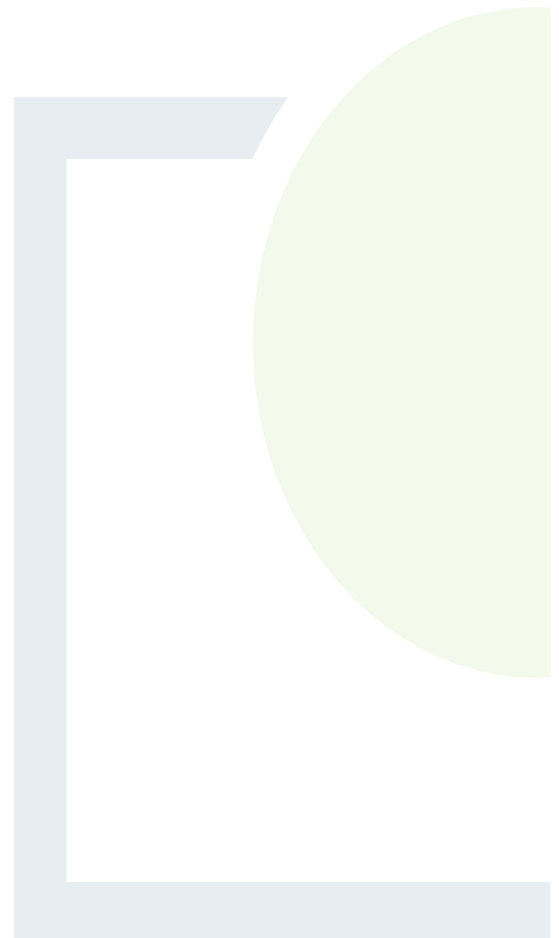
Date: June 2026

Document No:
P24234-FT-EGT-XX-RP-GE-0002

Unit 6, Bagenalstown Industrial Park, Bagenalstown,
Co. Carlow, R21 XW81, Ireland
T: +353 59 9723800 E: info@ftco.ie

CORK | DUBLIN | CARLOW

www.fehilytimoney.ie



PEAT STABILITY ASSESSMENT REPORT MEENBOG WIND FARM (PROSPECTIVE DEVELOPMENT)

User is responsible for Checking the Revision Status of this Document

Rev. No.	Description of Changes	Prepared by:	Checked by:	Approved by:	Date:
0	Draft for Comment	IH	TC	BdeH	05.12.2025
1	Update following Comments	IH	ATC	BdeH	01.04.2026
2	Update following Comments	IH	ATC	TC	21.05.2026
3	Final	IH	ATC	TC	19.06.2026

Client: MKO Ltd

Keywords: Geotechnical, Peat Stability, Peat Failure, Risk Assessment

Abstract: Fehily Timoney and Company (FT) were engaged by MKO Ltd to undertake a geotechnical assessment of the Meenbog Wind Farm site with respect to peat stability, to cover the works required to complete the Prospective Development.

TABLE OF CONTENTS

1.	NON-TECHNICAL SUMMARY	1
2.	INTRODUCTION	1
2.1	Fehily Timoney and Company	1
2.2	Project Description	1
2.3	Scope	2
2.4	Peat Stability Assessment Methodology	3
2.5	Sources of Information	4
3.	SITE SUMMARY	5
3.1	General	5
3.2	Site Description.....	5
3.3	Wind Farm Construction	5
4.	GROUND CONDITIONS	8
4.1	Baseline Ground Conditions	8
	4.1.1 Subsoils.....	8
	4.1.2 Peat	8
	4.1.3 Bedrock.....	8
	4.1.4 Geological Heritage Sites.....	9
	4.1.5 Topography	9
	4.1.6 Hydrology	10
	4.1.7 GSI Landslide Susceptibility Mapping.....	11
4.2	Summary of General Ground Conditions	11
4.3	Peat Ground Conditions	11
	4.3.1 Ground Investigation Pre-Construction	11
	4.3.2 Ground Investigations During Construction.....	12
	4.3.3 Summary of Peat Ground Conditions.....	12
	4.3.4 Ground Investigation (IDL, 2020)	13
4.4	Additional Ground Investigation (2021)	13
	4.4.1 Trial Pits	13
	4.4.2 Peat Cores and Peat Humification	15
	4.4.3 Comparison of Peat Strength Measurement	18

4.4.4	Comparison of Peat Strength Measurements and Degree of Humification	18
4.4.5	Summary of Comparison of Peat Strength Measurements	19
4.5	Baseline Sensitivity of Receiving Environment for the Wind Farm Site	20
5.	PEAT FAILURES ON SITE DURING CONSTRUCTION	22
5.1	November 2020 Peatslide	23
5.1.1	Contributory Causes of Failure	24
6.	PEAT STABILITY RISK ASSESSMENT.....	25
6.1	Geomorphology Risk Assessment	25
6.1.1	Peat Stability Hazard	25
6.2	Peat Stability Risk Assessment (Quantitative).....	28
6.2.1	Methodology for Peat Stability Assessment	28
6.2.2	Analysis to Determine Factor of Safety (Deterministic Approach)	30
6.2.3	Results of Analysis	32
6.2.3.1	Undrained Analysis for the Peat	32
6.2.3.2	Drained Analysis for the Peat	33
6.2.4	Floating Roads Stability Analysis (Load Condition 3/3a)	34
6.2.4.1	T01/T04 Junction and Downslope Berm.....	35
6.2.4.2	Access Road to T01	36
6.2.4.3	Access Road to T02	37
6.2.4.4	Access Road to T03	38
6.2.4.5	Access Road to T04	39
6.2.4.6	Access Road to T18	41
6.2.4.7	Main Spine Road/T06/T17 Low ODF results	42
6.2.4.8	Upgrade of Existing Floating Forestry Access Track to BMEP Site.....	42
6.2.4.9	New Floating Forestry Access Track to BMEP Site.....	43
6.3	Peat Stability Risk Assessment (Qualitative)	44
6.3.1	Change in Likelihood of a Peat Slide over the Project Life Span	48
6.4	Peat Stability Risk Rating – Current Baseline.....	48
7.	MITIGATION MEASURES.....	51
7.1	Mitigation Measures	51
8.	PEAT STABILITY RISK ASSESSMENT (POST MITIGATION MEASURES)	58
8.1	Peat Stability Risk Assessment – with Monitoring and Mitigation Measures.....	58

9. SUMMARY	60
10. REFERENCES.....	62

DRAWINGS

P24-234-0601-0001: Site layout and Peat Probe Locations

P24-234-0601-0002: Peat Depth Contour Plan

P24-234-0601-0003: Peat Depth Contour Plan, Biodiversity Enhancement Site

P24-234-0601-0004 to 0008: ODF Plan – Short Term Critical for Prospective Development (Undrained Load Condition 2)

P24-234-0601-0009: ODF Plan – Short Term Critical for Prospective Development (Undrained, Load Condition 3)

P24-234-0601-0010: ODF Plan – Short Term Critical for Biodiversity Enhancement Site (Undrained, Load Condition 2)

P24-234-0601-0011: ODF Plan – Short Term Critical for Biodiversity Enhancement Site (Undrained, Load Condition 3)

LIST OF APPENDICES

Appendix A: Ground Investigation Information/Inspection reports

Appendix B: Geomorphology Plans

Appendix C: Calculated ODF for Peat Slopes on Site

Appendix D: Peat Stability Risk Assessment

Appendix E: SlopeW Stability outputs

Appendix F: Site Photographs

LIST OF FIGURES

Figure 4-1: Contour Mapping

Figure 4-2: Landslide Susceptibility Mapping

Figure 4-3: Range of undrained peat strength

Figure 4-4: Undrained peat strength with depth

Figure 4-5: Further investigation – in-situ shear strength vane testing of peat at trial pit locations

Figure 4-6: Further investigation - shear strength testing of peat using a variety of methods

Figure 4-7: Further investigation - shear strength and humification

Figure 4-8: Further investigation – comparison of in-situ vane strength for different peat sites

Figure 5-1: Extent of peat failure of 12 November 2020

Figure 5-2: Aerial image of upper and lower scars

Figure 6-1: Berm Location, T01/T04 Junction

Figure 6.2: Peat Strength versus Depth, T01/T04 Junction

Figure 6.3: Peat Strength versus Depth, Floating Road to T01

Figure 6.4: Peat Strength versus Depth, Floating Road to T02

Figure 6.5: Peat Strength versus Depth, Floating Road to T03

- Figure 6.6: Peat Strength versus Depth, Floating Road to T04
 Figure 6.7: Peat Strength versus Depth, Founded Road to T18
 Figure 6.8: Peat Strength versus Depth, Existing Floating Forestry Road to BMEP
 Figure 6.9: Peat Strength versus Depth, New Floating Forestry Road to BMEP

LIST OF TABLES

Table 3.1:	Summary of main civil works to be completed (from MCE)	6
Table 4.1:	Summary of trial pit results.....	15
Table 4.2:	Degree of humification based on Von Post Classification (Hobbs, 1986).....	16
Table 4.3:	Summary of RPS	16
Table 4.4:	Summary of peat humification from RPS.....	17
Table 4.5:	Average undrained shear strength of peat using variety of test methods	18
Table 5.1:	Summary of likely causes of peat failures on the Wind Farm Site during construction	22
Table 6-1:	Geomorphological Units and Likelihood of Peat Instability	26
Table 6-2:	Peat Instability Ranges for Probability	27
Table 6.3:	List of Effective Cohesion and Friction Angle Values for Peat.....	29
Table 6.4:	ODF Limits for Slopes	30
Table 6.5:	Partial Factors for Material properties.....	30
Table 6.6:	Material Parameters	34
Table 6-7:	Slope Stability, T18 Access Road	42
Table 6-8:	Slope Stability, Spine Road, T06, T17	42
Table 6-9:	Total Hazard rating and Likelihood (L)of a peat Slide	46
Table 6-10:	Risk Rating	49
Table 6-11:	Risk Rating Levels and Response	49
Table 6.12:	Peat Stability Risk Rating (original 2019 and current 2026 baselines).....	50
Table 7-1:	Lessons Learned and Accompanying Mitigation Measures	51
Table 7-2:	Ground Monitoring Locations	54
Table 8.1:	Peat Stability Risk Rating (Post Mitigation Measures)	59



1. NON-TECHNICAL SUMMARY

Fehily Timoney and Company (FT) was engaged by MKO Ltd to undertake a geotechnical and peat stability assessment of the Prospective Development for the Meenbog Wind Farm, located in Co. Donegal. In accordance with the 'Draft Revised Wind Energy Development Guidelines' (Department of Housing, Planning and Local Government (DoHPLG) (December 2019)) (hereafter referred to as the 'Draft Guidelines (DoHPLG, 2019)'), where peat >0.5m thickness is present on a proposed wind farm development, a peat stability assessment is required.

The findings, which involved a stability analysis of over 250 locations, show that the Wind Farm Site and the BMEP Site has an acceptable margin of safety, a low to moderate risk of peat failure and is suitable for the Prospective Development with appropriate mitigation. The findings include mitigation and monitoring measures for construction work in peat lands to ensure that all works adhere to an acceptable standard of safety.

The Prospective Development comprises 19 no. wind turbines and associated infrastructure. A detailed description of the Prospective Development is included in Chapter 4 of the EIAR.

The elevation of the Wind Farm Site is between approximately 180 metres Ordnance Datum (OD) and 313 metres OD, with elevations on site generally decreasing and sloping in a north or north-westerly direction. A small section to the south of the Wind Farm Site slopes to the southeast. The Wind Farm Site is generally bordered on all sides by forestry plantations with the eastern and southern boundaries also being defined by the Northern Ireland border.

To date, over 3400 no. peat depth readings have been taken within the Wind Farm Site and the BMEP Site. Peat depths recorded during the site walkovers and from the ground investigation ranged from 0.0 to 7.3m with an average peat depth of 1.8m. 65% of the probes recorded peat depths of less than 2.0m. A number of localised readings recorded peat depths from 3.0 to 7.3m. In addition, a series of trial pits and Russian peat samples were taken at various locations across the Wind Farm Site.

A site-wide qualitative assessment of the potential peat stability using a geomorphological approach taking into account the findings from previous failures, and relevant reports and records has been carried out, and is described in Section 6.

A quantitative peat stability assessment for the Wind farm Site and the BMEP Site has been undertaken. The purpose of the stability analysis was to determine the stability i.e. Overdesign Factor (ODF), of the peat slopes. An ODF of less than 1.0 indicates that a slope is unstable; an ODF of greater than 1.0 indicates a stable slope. The stability analysis for the Prospective Development, which analysed the turbine locations, access roads and related infrastructure where works are proposed, is included in Section 6, resulted in ODF above the minimum acceptable value of 1.0 at the majority of locations and hence the Wind Farm Site has a satisfactory margin of safety, provided suitable mitigation measures (provided in Section 8) are undertaken.

A qualitative peat stability risk assessment has been undertaken at each of the works areas for the Prospective Development. This uses the results of the stability analysis in combination with qualitative factors, which cannot be reasonably included in a stability calculation but nevertheless may affect the occurrence of peat instability, to assess the risk of peat failure at the Wind Farm Site and the BMEP Site. The results of the risk assessment are given in Appendix D. The majority of locations are currently assessed as Low risk, with a slightly higher risk (Low to Medium) associated with the area around T7.



The improvement in site conditions due to the improved drainage across the site and consolidation of the peat beneath the floating roads and sidecasting areas has resulted in a Low and Low-Medium overall risk rating for the Site. This is considered 'Acceptable with Monitoring' or 'Regular Attention', as per Table 6.12. With further mitigation, such as full scale proof load testing of the roads it will be possible to reduce the risk rating to Low at the end of construction.

In summary, the Wind Farm Site and BMEP Site has an acceptable margin of safety and therefore is considered to be at **low** risk of peat failure subject to the specified mitigation measures (low to medium at T7) and is suitable for the Prospective Development.



2. INTRODUCTION

2.1 Fehily Timoney and Company

Fehily Timoney and Company (FT) is an Irish engineering, environmental science and planning consultancy with offices in Cork, Dublin and Carlow. The practice was established in 1990 and currently has c.100 members of staff, including engineers, scientists, planners and technical support staff. FT deliver projects in Ireland and internationally in our core competency areas of Waste Management, Environment and Energy, Civils Infrastructure, Planning and GIS and Data Management.

FT have been involved in over 100 wind farm developments in both Ireland and the UK at various stages of development i.e., preliminary feasibility, planning, design, construction, and operational stage and have established themselves as one of the leading engineering consultancies in peat stability assessment, geohazard mapping in peat land areas, investigation of peat failures and site assessment of peat.

This Report was written by Ian Higgins (FT Technical Director, PGeo, MSc in Geotechnical Engineering) Ian is a Technical Director with Fehily Timoney and has 25 years' experience in geotechnical engineering.

2.2 Project Description

FT was engaged in November 2024 by MKO Ltd. to undertake a geotechnical and peat stability assessment of the Prospective Development for the Meenbog Wind Farm.

The Wind Farm Site is located approximately 8km southwest of the twin towns of Ballybofey and Stranorlar and 12km northeast of Donegal Town.

Current land-use at the Wind Farm Site is comprised of the partially constructed Meenbog Wind Farm and areas of commercial forestry and blanket bog.

The substitute consent application seeks to regularise the Existing Development and seeks permission for the Prospective Development. The Prospective Development is addressed within this Environmental Impact Assessment Report (EIAR). The Existing Development is addressed within the remedial Environmental Impact Assessment Report (rEIAR), which accompanies this planning application.

As detailed in Section 1.1.1 in Chapter 1 of the EIAR, the various development components are described and assessed using the following references: 'Subject Development', 'Existing Development', 'Prospective Development', 'Permitted Development', 'Site', 'Wind Farm Site', 'Grid Connection Site', 'BMEP Site', 'Grid Connection', 'November 2020 Peat Slide', '2017 EIAR' and 'proposed turbines' or 'proposed turbine locations'.

Construction works at the Wind Farm Site commenced in November 2019 by Mid Cork Electrical (MCE). Most of the civil works, such as access roads, hardstands, turbine bases, peat cell and borrow pits at the Wind Farm Site were substantially complete at the time of the November 2020 peat slide.



The Prospective Development will comprise the following:

- 19 no. wind turbines, with an overall tip height of 156.5m, rotor diameter of 133m, and wind turbine hub height of 90m, and 1 no. meteorological mast with a height of 80m, and subsequent decommissioning of the wind turbines and meteorological mast, following a twenty five-year operational period from the date of full commissioning of the wind farm;
- The completion of upgraded access junctions, tracks and roads, and construction of new site access roads;
- The completion of construction of all 19 no. wind turbine foundations and hardstand areas, and the construction of a meteorological mast foundation;
- Completion of internal wind farm underground ducting and cabling;
- Continued use of and upgrade of 2no. temporary construction compounds;
- Continued use and extraction at the 3no. borrow pits;
- Peat and spoil management, including site landscaping;
- Forestry felling;
- Site drainage and sediment control measures;
- Biodiversity enhancement measures (including peatland habitat restoration and Hen Harrier habitat areas);
- Recreation and amenity works (including carpark, play, picnic & amenity areas and pedestrian access paths to the wind farm roads);
- Operational stage site signage; and
- All associated site development works.

A summary of the remaining civil works to be completed is provided in Table 3-1 and are shown on drawing P24-234-0601-0001. The remaining works are generally minor in nature and do not require extensive groundworks, except for the completion of the access road to T18, and the construction of the hardstand at T07.

2.3 Scope

The scope of this peat stability assessment for the Site includes the following:

- (1) Review of construction works at the Site, namely but not limited to turbine bases, access roads, hardstands, peat cells and borrow areas.
- (2) Review of ground conditions at the Wind Farm Site.
- (3) Site inspection of the ground conditions at the Site.
- (4) Quantitative and Qualitative assessment of peat stability at the Wind Farm Site.
- (5) Findings and mitigation measures.

In undertaking this assessment, FT carried out a number of key activities which included:

- Historical site visits to the Wind Farm Site in November and December 2020, and January and April 2021 along with a review of construction records and existing reports and published data.
- Site visits were also undertaken during construction works undertaken in 2022.
- An inspection of the current condition of the Wind Farm Site, undertaken in December 2024 and April 2025.



Previous site visits had been undertaken by AGECEC (in 2014 and 2017) as part of the assessment included in the 2017 EIAR.

2.4 Peat Stability Assessment Methodology

FT undertook the assessment following the principles in Peat Landslide Hazard and Risk Assessments: Best Practice Guide for Proposed Electricity Generation Developments (2nd edition, Scottish Government, 2017) (the Guide). The Guide is used in this report as it provides best practice methods to identify, mitigate and manage peat slide hazards and associated risks in respect of consent applications for electricity generation projects.

The aforementioned best practice guide was produced following peat failures in the Shetland Islands, Scotland in September 2003 but more pertinently following the peat failure in October 2003, during the construction of a wind farm at Derrybrien, County Galway, Ireland.

It is recognised that the Site has been previously subject to a peat stability assessment as part of the planning application (AGECEC, 2017) which also includes a hydrological assessment (MKO, 2017). Construction works have also been designed in accordance with the recognised standard for geotechnical works, I.S. EN 1997-1:2007 Eurocode 7 Geotechnical Design - Part 1: General Rules. The details included in these documents have been taken into consideration in the assessment included in this report. The assessment contained with this report also takes into account the findings of the report into the Meenbog failure and failures at Shass Mountain and Mount Eagle, written by FT on behalf of the GSI and NPWS in 2024.

The peat stability assessment includes the following key elements:

- (1) Assessment of desk study data, ground conditions and character of the peat land at the Wind Farm Site and the BMEP Site, which includes relevant hydrology and geomorphological factors.
- (2) A qualitative assessment of the potential peat stability using a geomorphological approach taking into account the findings from previous failures, and relevant reports and records (AGECEC, 2017 and construction records).
- (3) Identification of key receptors (such as water courses, human life) exposed to any peat instability.
- (4) A quantitative stability assessment of the peat slopes across the Wind Farm Site and the BMEP Site, including areas where permanent loading has been applied to the peat, such as floating roads and sidecasting of peat.

It is noted that whilst the Guide refers to a site-wide approach to particular ground investigation this is in relation to scoping of the Site to identify the optimum location of the proposed infrastructure (SEPA, 2017). As the infrastructure footprint at the Wind Farm Site has already been determined and is fixed by way of the previously granted planning permission then the site-wide approach is no longer relevant and as such there has been a focus in this report on assessing the stability within a zone of influence of the proposed infrastructure, that is an expanded infrastructure corridor.

Notwithstanding the above, in addition, a site-wide qualitative stability assessment has been included in this report, as this provides an improved understanding of the geomorphological features at the Wind Farm Site and allows for better identification of areas where there is potential for an elevated risk from peat instability.



2.5 Sources of Information

The following sources were used to assess the peat stability at the Wind Farm Site:

- (1) Published records (for example GSI and GSNI landslide databases)
- (2) Historical aerial photography
- (3) Observations from site inspections in November and December 2020, January 2021, December 2024 and April 2025
- (4) Ground investigation data (peat strength and depth) at selected locations
- (5) Detailed site inspection of the November 2020 Peatslide
- (6) Planning and design reports
- (7) Construction records



3. SITE SUMMARY

3.1 General

The Meenbog Wind Farm comprises 19 no. turbines and associated works located on Meenbog and adjacent townlands in Co. Donegal. The Wind Farm Site is located approximately 8km to the southwest Ballybofey and Stranorlar, Co. Donegal.

The developer for the wind farm is Planree Ltd, a subsidiary company of Enerco Energy Ltd. The wind farm was granted planning permission in June 2018.

Construction works at the Wind Farm Site commenced in November 2019 and was ongoing at the time of the November 2020 peatslide. Further construction works were undertaken in 2022; these works were halted further to proceedings issued by Donegal County Council.

3.2 Site Description

The Wind Farm Site measures approximately 892 hectares (ha), within the townlands of Meenbog and Croaghonagh. The Wind Farm Site borders County Tyrone in Northern Ireland, specifically the administrative division of Omagh West, Barony of Termonamongan and the townlands of Slievadoo, Meenakeeran, and Sixth Corgary or Second Croagh along the Southeast of the Wind Farm Site boundary. The Wind Farm Site lies within four Electoral Divisions (EDs); Golland, Dooish, Tawnawully and Clogher, in County Donegal. Current land-use at the Wind Farm Site is comprised of the partially constructed Meenbog Wind Farm and areas of commercial forestry and blanket bog. The surrounding land-use predominantly comprises peat bogs, commercial forestry and other seminatural areas with limited residential use along local roads.

The elevation of the Wind Farm Site is between approximately 180 metres Ordnance Datum (OD) and 313 metres OD, with elevations on the Wind Farm Site generally decreasing and sloping in a north or north-westerly direction. A small section to the south of the Wind Farm Site slopes to the southeast. The Wind Farm Site is generally bordered on all sides by forestry plantations with the eastern and southern boundaries also being defined by the Northern Ireland border. The Wind Farm Site drains directly to the Bunadownen River, and the Shruhangerve stream to the north, each of which are tributaries of the larger Mourne Beg River that proceeds to flow downstream into the River Derg. The Wind Farm Site also drains into the Glendergan River to the south-southeast, which is also a tributary of the River Derg.

3.3 Wind Farm Construction

Construction works at the Wind Farm Site commenced in November 2019 by Mid Cork Electrical (MCE). Most of the civil works, such as access roads, hard stands, turbine bases, peat cell and borrow pits at the Wind Farm Site were substantially complete at the time of the November 2020 Peatslide.

With respect to access roads, these have all been substantially completed (>90% complete) except the access road to T7 and T18. Whilst the road to T7 has not been completed, there is a linear peat stabilisation berm which will be repurposed to facilitate access to T7, which will avoid excavation and loading of peat. Substantially completed refers to the road having been constructed, that is the main body of road material has been placed, and the road has been used for construction traffic. Typically to complete the road only minor elements of work are required such as for example grading, final road surfacing and testing. As there is limited further excavation



and loading of the peat required for the access roads there is limited risk of peat instability. Where further works are required, these will be subject to the mitigation measures included in this report.

Hardstands are similarly substantially complete except at T7 and T18 (>85% complete overall). T07 has not been started. T18 and T19 are estimated at 50% complete. Hardstands comprise a suitable mass of crushed stone founded on a competent bearing stratum, such as competent mineral soil or bedrock below the peat. As there is limited further excavation required for hardstands there is limited risk of peat instability associated with these works. Again, where any further works are required, these will be subject to the mitigation measures included in this report.

Of the 19 turbine bases on the Wind Farm Site, all have been started except at T7. Of the 18 turbines bases that have been started all except T02, T16, T18 and T19 have been substantially completed (>80% complete overall), that is concrete has been poured. Turbine bases comprise gravity bases formed of reinforced concrete founded on a competent bearing stratum, typically bedrock. T02, T16, T18 and T19 are at various stages of completion ranging from exposure of formation, blinding, steel fixing and shuttering. Again, where any further works are required, these will be subject to the mitigation measures included in this report.

The meteorological (met) mast has yet to be completed. Any peat originally present at this location has been removed during construction of the main spine access road and junction to T10. Foundations for the mast will comprise a reinforced concrete base founded on a competent bearing stratum, such as competent mineral soil or bedrock below the peat. Such works are considered to have minimal impact on peat stability and will be subject to the mitigation measures included in this report.

A summary of the remaining civil works to be completed is provided in Table 3-1 and are shown on drawing P24-234-0601-0001. The remaining works are generally minor in nature and do not require extensive groundworks, except for the access road to T18, and the hardstand at T7, as mentioned above.

Table 3.1: Summary of main civil works to be completed (from MCE)

Location	Details of Works
All site roads	Placement of finished road surface (minimum 150mm thickness) onto existing founded and floating roads
Forestry track near substation	Construction of short section (approximately 93m length) of forestry track
T1-T2 Floating Road Barrage	The floating road will be reinforced by construction of berm downslope of the road. Berm to comprise a rockfill barrage founded on the glacial till below the peat.
T4 Road Replacement	Floating road section on approach to T4 to be removed and replaced with solid founded road.
T7	Excavation for hardstand and turbine foundation.
Hardstand shaping and extension (all hardstands)	Works vary across different hardstands, mainly limited to construction of assist crane pads, blade storage areas and hardstand extensions.
T7 Access Road	Removal of existing floated road section - floating road to be upgraded to solid. Road widening - Road bend to be widened to facilitate component deliveries. Layer of peat to be removed, rock to be placed. Coarse boulders (>0.5m) will be used in the base of the excavation and will be pushed into the base of the peat to the solid stratum below the peat. Roadside berm to be formed.



Location	Details of Works
T18 Access Road	Existing road (1,753m in length) to be excavated to solid and replaced.
Borrow Pit	Existing borrow pit to be modified for additional rock extraction and backfilled with peat. Section to West and South of existing borrow pit.
Main Access	Road to be widened - Road bend to be widened to facilitate turbine component deliveries. Layer of peat to be removed, rock to be placed. Roadside berm to be formed.
Main Access	Road to be widened - Road bend to be widened to facilitate turbine component deliveries. Layer of peat to be removed, rock to be placed. Roadside drainage to be formed.
T16 Access Road	Road to be widened. Existing founded access roads will be extended to the required width and finished with a layer of selected granular fill.
T18 Access Road	Road to be widened. Existing founded access roads will be extended to the required width and finished with a layer of selected granular fill.



4. GROUND CONDITIONS

4.1 Baseline Ground Conditions

4.1.1 Subsoils

A review of the GSI online mapping indicates that the Wind Farm Site is underlain by blanket peat (BkPt). Localised exposures of bedrock (Rck) are present in the south and east of the Wind Farm Site. See Chapter 8 of the EIAR for figures showing the subsoils and quaternary geology of the Wind Farm Site.

4.1.2 Peat

The majority of the Wind Farm Site is covered by blanket peat. The depth of peat across the Wind Farm Site is shown in drawings P24-234-0601-0002 and 0003. The depth of peat has been interpreted from the extensive number of peat probes that have been carried out across the Wind Farm Site.

During construction and for design purposes, ground investigation of particularly the peat strength and depth was carried out by Ionic. A total of approximately 3400 no. peat depth probes and in-situ hand shear vanes have been undertaken within the Wind Farm Site.

Peat depth recorded from the investigation both pre- and during construction ranged from 0 to very locally about 7m with an average depth of 1.8m. The majority of peat depths (about 65%) were less than 2m. Hand vane shear strength test results indicate undrained shear strengths in the range of 2 to 30kPa, with an average value of about 9kPa. This would equate to a description of extremely soft to soft, or extremely low to low strength.

In general, the depth of peat is proportional to the slope angles. The areas of deep peat up to 3-6 m deep, and locally >7.3m, correspond to the broad flat or gently sloping ground across the central and eastern sections of the Wind Farm Site. The slope angles in these areas are typically <2°.

Peat depths <2m are generally confined to the areas of steeper slopes up to 5.0-7.5°, with shallow peat <1.0 m on slopes typically up to 7.5-10.0°. Peat depths of 2-3 m typically occur on the intermediate slopes of 3-5°.

Based on gouge cores and window sampling, also carried out as part of the 2017 EIAR ground investigation, a thin mineral subsoil layer or intact bedrock was identified underlying the blanket peat. The mineral subsoil layer was typically recorded as 0.1 to 0.45m thick and described as soft to firm to stiff, to locally hard, grey sandy SILT/CLAY, occasionally cobbly or very gravelly. The mineral subsoil in most cases was likely weathered bedrock or a thin glacial till layer. The presence of recorded soft grey sandy SILT/CLAY at a few locations (T1, T9 and construction compound) suggests possible localised normally consolidated mineral subsoil.

4.1.3 Bedrock

The underlying bedrock was described by the Geological Survey of Ireland Memoir (GSI, 1999) and shown on sheet 3 and part of sheet 4 (Geology of South Donegal) of the memoir. In the area of the Wind Farm Site, sheet 3 and part of sheet 4 show two dominant bedrock formations. See Chapter 8 of the EIAR for a figure showing the bedrock geology of the Wind Farm Site.

The dominant bedrock formations are:



- Lough Eske Psammite Formation – feldspathic psammite, marble
- Lough Mourne Formation – quartz & feldspar pebbles, green matrix

Localised bedrock formations noted in the west of the Wind Farm Site include Barnesmore granite.

One mapped fault is shown running across the western area of the Wind Farm Site. The fault line has a north to south trend. No karst features were identified on the Wind Farm Site following a review of the GSI database

4.1.4 Geological Heritage Sites

The nearest Geological Heritage Site shown on the Geological Survey of Ireland Spatial Resources interactive map viewer is located at the entrance to the Wind Farm Site. This is the Barnesmore Gap, described as a deep glacial channel running northeast-southwest between Croaghconnellagh and Barnesmore Mountain, formed in quaternary sediments that follows the line of the Barnesmore fault.

4.1.5 Topography

The southern part of the Wind Farm Site is dominated by a ridge line that extends northeast from Carrickaduff Hill. Most of the turbines for the wind farm are located along this ridge line. The top of the ridge line varies in elevation from 180 to 310mOD (Figure 4.1). The northern part of the Wind Farm Site is essentially within the Bunadaowen River valley, which runs parallel to the ridge line.

The top of the Carrickaduff Hill ridge line comprises in many places a broad level surface. The broad level surface has notable depths of peat up to locally in excess of 4m. Eastwards the ridge line declines in elevation and a number of broad level benches are present, again with notable depths of peat. Slope gradients along the ridge line are typically from 1 to about 10 degrees, with locally up to about 20 degrees.

Adjacent to the high point (at 313mOD) of the ridge line there is an elongated small water body, Carrickaduff Lough. The lough is located within a short steep-sided narrow valley aligned along the axis of the ridge line. This valley feature is possibly controlled by the structural geology or is a relict glaciation feature.

The northern side of the ridge line comprises a relatively uniform slope which is drained by a number of tributary streams that flow into the Bunadaowen River. The southern side of the ridge line comprises a more varied slope profile with locally steeper sections as a result of rock near-surface. A limited number of streams are located on the southern slope and drain into the Glendergan River.

The peat cover on the ridge line comprises an almost continuous cover of blanket peat. Rock is exposed at the surface at a few locations. The peat cover shows little signs of erosion, though it has been heavily dissected due to forestry drainage and access roads.

The Bunadaowen River valley in the southern part of the Wind Farm Site is a high-level river valley with an elevation from about 150 to 230mOD. The valley floor comprises notably flatter ground running along the south side of the river. Peat depths of locally 6m have been recorded in the valley (AGEC, 2017). This indicates that the valley floor has been infilled with peat and that in the past the valley floor was at a lower level and was possibly a post-glacial lake. The extent of peat infilling in the valley floor is not known as there is limited construction in this area.

A geomorphological plan of the Wind Farm Site is included in Appendix B.



4.1.6 Hydrology

The vast majority of the Wind Farm Site is located in the Foyle River surface water catchment within Hydrometric Area No. 1. This river basin district is an international river basin district with ~3% of this district located in Northern Ireland. Meanwhile, a small area in the northwest of the Wind Farm Site is mapped in the Donegal Bay North regional surface water catchment, with Hydrometric Area No. 37 of the North Western River Basin District.

Within the Foyle River catchment, the Wind Farm Site is located in the Mourne Beg River sub-catchment (MourneBeg_SC_010). The Mourne Beg River, a tributary of the Mourne River, flows to the southeast from Lough Mourne, situated ~2km northeast of the Wind Farm Site entrance. The Mourne Beg River flows to the east, ~150m north of the Wind Farm Site before it crosses into Northern Ireland. Further downstream, this watercourse discharges into the River Derg, ~15km to the east. The River Derg continues to the east. The Mourne River is formed at the meeting of the River Derg and the River Strule, ~27km east of the Wind Farm Site. The Mourne River then flows to the north, through the town of Strabane, before it confluences with the Finn River to form the River Foyle.

In terms of WFD river sub-basins, the Wind Farm Site is located in a total of 5 no. WFD river sub-basins within the Mourne Beg River sub-catchment.

- The northwest of the Wind Farm Site is located in the Mourne Beg_010 WFD river sub-basin. This area is drained by the EPA mapped Croaghonagh Stream (EPA Code: 01C31). Note that this stream is referred to as the Mary Breen's Burn on local OSI mapping (note that the Mary Breen's Burn will be utilised for the remainder of this chapter). Mary Breen's Burn flows to the northeast and discharges into the Mourne Beg River (EPA Code: 01M01), ~1.8km northeast of the Wind Farm Site.
- A small area in the northeast of the Wind Farm Site is also mapped in the Mourne Beg_010 WFD river sub-basin. Here, the Mourne Beg River is located ~100m north of the Wind Farm Site.
- Much of the Wind Farm Site is located in the Bunadaowen_010 WFD river sub-basin. This area is drained by the Bunadownen River (EPA Code: 01B01) and several of its smaller tributaries. There is a high density of mapped watercourses in this area of the Wind Farm Site.
- A small area in the northeast of the Wind Farm Site is mapped in the Mourne Beg River (Derrygoonan) WFD river sub-basin. This area is drained by the Shruhanagarve Stream (EPA Code: 01S26) which flows to the northeast, before it discharges into the Mourne Beg River.
- The southeast of the Wind Farm Site is located in the Glendergan River WFD river sub-basin. An unnamed tributary of the Glendergan River flows to the south from the area of the Wind Farm Site. The Glendergan River itself forms the southeastern boundary of the Wind Farm Site. This watercourse discharges into the River Derg ~3.7km to the southeast.

Within the Donegal Bay North surface water catchment, the Wind Farm Site is mapped in the Eske River sub-catchment (Eske_SC_010). Within this area, a tributary of the Lowerymore River, referred to by the EPA as the Barrack Hill Stream (EPA Code: 37B16) flows to the southwest in the vicinity of the Wind Farm Site entrance. The Lowerymore River (EPA Code: 37L01) flows to the southwest, through Barnesmore Gap, before discharging into Lough Eske ~8.7km to the southwest.

A local hydrology map showing WFD river sub-basins is shown as Figure 9-5 in Chapter 9 of the rEIAR.



4.1.7 GSI Landslide Susceptibility Mapping

The Landslide Susceptibility Classification (GSI, 2026) provides an indication of the susceptibility of an area of land to landsliding. Based on the Landslide Susceptibility Classification the Wind Farm Site is classified by the GSI (2026) as 'low' to 'moderately low' and locally 'moderately high' susceptibility. The landslide susceptibility across the Wind Farm Site is shown in Figure 4.2.

For the Wind Farm Site, the 'moderately high' susceptibility areas are generally located where there are steeper slope gradients. This would tend to be areas where rock is closer to the surface and peat depth is less, which would not necessarily be for all cases where peat failures would be anticipated. It is recognised that the Landslide Susceptibility Classification is indicative and is used for guidance only. The classification was not specifically developed for peatland environments and is weighted towards areas with steeper topography.

It is noted that the initiation site of the November 2020 Peatslide is classified as 'Low' on the Landslide Susceptibility Classification. The initiation site comprises very gently sloping ground and as such would not generally be identified as having an elevated landslide susceptibility. However, it is noted that peat failures have been recorded at the boundary between low and moderately low risk classifications – as in Derrybrien and on this site.

4.2 Summary of General Ground Conditions

From the above, the general sequence of ground conditions at the Wind Farm Site is summarised as follows:

- (1) Blanket peat. Extensive covering of blanket peat, with peat depth typically in the range of 0.5 to 2m, though locally variable with areas of shallower and deeper peat (measured maximum depth of 7.3m).
- (2) Mineral soil or weathered rock. Underlying the blanket peat was a thin mineral subsoil layer recorded as 0.1 to 0.45m thick of likely glacial till or weathered bedrock, or locally normally consolidated mineral subsoil, which may have been deposited in a lacustrine environment.
- (3) Bedrock. Generally, bedrock at shallow depth either directly underlying the blanket peat or underlying the mineral soil/weathered rock layer. Bedrock is described as a strong to very strong thinly foliated fine and medium grained Phyllite with medium spaced (locally closely spaced) discontinuities.

4.3 Peat Ground Conditions

As part of the 2017 EIAR, an assessment of the peat condition at the Site was carried out (MKO, 2017 and AGECE, 2017). In addition, as part of detailed design for the works, further investigation of the peat was carried out in advance and during the construction period by the designer (Ionic Consulting).

4.3.1 Ground Investigation Pre-Construction

As part of the 2017 EIAR assessment as prepared by AGECE, the peat at the Wind Farm Site was described as very soft to firm brown/black fibrous PEAT (in the shallow peat areas) and spongy and plastic black amorphous PEAT (in the deeper peat areas). The blanket peat comprised typically shallow peat areas with deeper peat deposits in the flatter areas on the Wind Farm Site. The identified deeper peat areas were located outside of the wind farm development footprint to the southeast of T05, to the northwest of T10 and to the southeast of the substation location. The deeper peat deposits are locally present in the flatter areas on the Wind Farm Site



were identified and highlighted on the construction buffer zone plan (Figure 4 in the AGEC report (2017)). These identified deeper peat areas were avoided when optimising the wind farm layout for the Wind Farm Site.

Peat strength testing was carried out for the 2017 EIAR assessment by AGEC using an in-situ Geonor H-60 Hand-Field Vane Tester. Whilst it is recognised that this test gives indicative results for in-situ strength of peat it is generally considered best practice for the field assessment of peat strength (see Section 5). Strength testing was carried out at the selected locations across the Site, but most notably at turbine locations, to provide representative coverage of indicative peat strengths. The hand vane results indicated undrained shear strengths in the range of 5 to about 50kPa, with an average value of about 15kPa. The lower bound strengths recorded would be typical for deep weak saturated peat and were recorded in the deeper peat areas in the flatter areas of the Site.

Typically, strengths less than about 4kPa would indicate a higher potential for instability. The shear vane strengths quoted in this report are unfactored based on the findings of site-specific trials and strict guidelines on their interpretation. Shear vane results can be factored to allow for, as an example, possible entanglement of fibres in the shear vane. The factor used is typically shear vane x 0.5 (for example Edil (2001), Mesri & Ajlouni (2007), Boylan & Long (2014), Zwanenburg & Jardine (2015)).

4.3.2 Ground Investigations During Construction

During construction and for design purposes, ground investigation of particularly the peat strength and depth was carried out by Ionic. About 3400 no. peat depth probes and in-situ hand shear vanes have been undertaken in total within the Wind Farm Site and the BMEP Site.

Peat depth recorded from the investigation during construction ranged from 0 to very locally about 7m with an average depth of 1.8m. The majority of peat depths (about 65%) were less than 2m. Hand vane shear strength test results indicate undrained shear strengths in the range of 2 to 30kPa, with an average value of about 9kPa.

The results are shown in Figure 4-2 and are compared to the pre-construction results and for results obtained from the upper scar of the November 2020 Peatslide. The results from the 12 November failure for the upper scar area are notably less than those recorded from the other ground investigations.

4.3.3 Summary of Peat Ground Conditions

In general, the results of the pre-construction investigations showed higher vane shear strength test results when compared to during construction investigations with average results of 15 and 9kPa, respectively. The reason for this is that during construction investigation, particularly after the November 2020 Peatslide, focused on critical areas of potentially weaker peat.

The pre-construction results show a more erratic distribution of peat strength, which is attributed to testing being carried out at essentially turbine bases, where there were notable variations in peat conditions (Figure 4-3). The majority of the investigation during construction was predominantly along access roads where there was a more uniform change in peat conditions. The undrained peat strength with depth (Figure 4-4) also shows similar results for both investigations.

The vane shear strength test results for the upper scar of the November 2020 Peatslide showed significantly lower results than the pre-construction and during construction investigations (Figure 4-3). The upper scar of the peat failure showed an undrained shear strength range from 2 to 9kPa, with an average of slightly less than about 5kPa. These values are notably low and are likely at the lower limit of what can be practically measured



with the hand vane. The results show a reasonably consistent strength with depth and represent the lower bound strength profile with depth for all the test results.

The test results for the upper scar of the November 2020 Peatslide show no appreciable strength gain with depth which would be typical of a saturated peat mass that has remained essentially water-logged over time. These results represent a body of very weak and saturated peat that was not identified in the previous investigations.

Peat strength at sites of known peat failures (assuming undrained loading failure) are generally consistently very low, for example the operational undrained shear strength at the Derrybrien failure (AGEC, 2004) as derived from back-analysis, though some testing was carried out, was estimated at 2.5kPa.

4.3.4 Ground Investigation (IDL, 2020)

A total of 9 no. rotary core boreholes were undertaken at various infrastructure locations (substation and 8 no. turbines) across the Site during May 2020 by Irish Drilling Ltd. (IDL). Bedrock was recorded in all locations at depths of between 1.1 to 5.0m bgl. Bedrock was described as strong to very strong foliated fine and medium grained Phyllite with medium spaced discontinuities.

4.4 Additional Ground Investigation (2021)

Further investigation was carried out principally due to the difficulties in testing peat to determine the operational peat strength. The Guide (Scottish Government, 2017) recognises the difficulties in determining peat strength and as such is intentionally non-prescriptive with respect to the testing carried out. Whilst the peat assessment uses vane testing in peat this is recognised as being an index tool (Boylan, Jennings & Long, 2008) though remains the most practical means of assessing peat strength and has been used extensively for testing peat on many wind farm sites.

A number of alternative peat strength testing methods were carried out as part of the further ground investigation to provide a comparison between the alternative approaches, and the applicability of using an in-situ shear vane.

The further ground investigation has comprised the following:

- (1) Trial pits
- (2) Peat cores and peat humification
- (3) Comparison of peat strength measurements
- (4) Comparison of peat strength measurements and degree of humification

The location of the further ground investigation is included on the layout plan P24-234-0601-0001.

4.4.1 Trial Pits

A number of trial pits (4 no.) were carried out at selected locations across the Site. The purpose of the trial pitting was to investigate in more detail the variation in peat classification and strength with depth and to retrieve peat samples for laboratory testing. For each trial pit the following was carried out:

- (1) Detailed logging of peat with depth both before and during trial pitting



- (2) Extraction of undisturbed block samples for laboratory (triaxial), shear vane testing and index testing
- (3) Localised controlled failure of pit side wall, where safe to do so
- (4) Back-analysis of localised failure of pit side wall

The proposed trial pit locations were inspected prior to carrying out trial pitting, with many locations not being suitable due to the presence of disturbed peat, mainly due to tree roots left in-situ from cleared forestry and an unsuitable depth and strength of peat for testing. Trial pits (4 no.) were located close to T04, T05, T07 and T18.

In-situ shear vane testing of peat, including sampling of peat using a Russian Peat Sampler (RPS), which is a hand-held sampler which takes a 50mm diameter half core sample of 500mm length in peat, was carried out at each of the trial pit locations prior to excavation of the pit. In-situ shear vane testing was carried out at each corner and at the centre of the proposed pit. Peat sampling using the RPS was also carried out at the centre of the pit and logged to provide a detailed trial pit stratigraphy (this allowed for a more accurate log than could be obtained using excavated material from the trial pit).

Undisturbed (U100) samples were obtained of the in-situ peat. To limit sample disturbance the sampling tube was pushed at a slow rate into the in-situ peat within the pit excavations. In total 8 no. undisturbed samples and 11 no. disturbed samples were obtained from the trial pits.

Trial pit logs (T4-TP1, T7-TP1, T18-TP2 and T5-TP1) and the associated RPS logs are included in Appendix A.

The results of the in-situ shear vane testing of peat at the location of the trial pits are included in Figure 4-4 (a) to (d). The results of the in-situ shear vane testing and a summary of the results of trial pits is included in Table 4-1.

Prior to excavating the trial pits the upper fibrous peat layer (acrotelm) was severed using a saw. Several saw-cuts were placed along the length of the pits at various distances from the trial pit edge. The purpose of the saw-cuts was to ensure that side wall failure was controlled by the underlying more humified layer (catotelm). Side wall failure occurred in 3 no. of the trial pits (T4-TP1, T7-TP1 and T5-TP1), with failure typically occurring as slumping of the side wall with notable deformation of the surrounding ground surface and inward deformation of peat from the base and sides of the pit.

The theoretical limit for a vertical height for an undrained face to remain stable is determined from the following formula:

$$H_c = 4 \times c_u / \gamma - Z_t \text{ (Potts, 2004)}$$

Where:

H_c	height of vertical sidewall at failure (m)
c_u	undrained strength (kPa)
γ	bulk unit weight of peat, taken as 10kN/m ³
Z_t	depth of tension crack (m), this is equivalent to the depth of the saw-cuts which is taken as 0.5m

Using the above formula and the average in-situ shear vane test results the theoretical failure height of the side wall (in m) was determined to assess the adequacy of using in-situ vane strength to measure the operational strength of the peat. The results (Table 4-1) from the trial pits are as follows:

- (1) In general, there is a reasonably good correlation between the actual failure height of the side wall and the theoretical failure height of the side wall, particularly for the average in-situ shear vane strength of the full peat depth.



- (2) Where the average in-situ shear vane strength within the depth of the failure height is used (that is within 2m below ground level), then the shear vane tends to underestimate the actual failure height. The in-situ shear vane strength underestimates the strength of the peat in this instance.
- (3) The above results indicate that the in-situ shear vane strength provides a reasonable indication of the operational shear strength of peat, particularly at the lower shear strength peat encountered within the trial pits.

Table 4.1: Summary of trial pit results

Trial Pit	Depth of Peat (m)	Depth of Trial Pit (m)	Actual Failure Height of Side Wall (m)	Average In-situ Shear Vane Strength c_u of Peat (kPa)		Theoretical Failure Height of Side Wall (m)	
				Full Peat Depth	Within Failure Height	Full Peat Depth	Within Failure Height
T4-TP1	3.3	1.5	1.5	4.4	3.9	1.24	1.08
T7-TP1	3	1.5 to 1.7	1.6	5.1	4.8	1.55	1.41
T18-TP1	2.5	NA	NA	NA	NA	NA	NA
T18-TP2	1.5	1.5	DNF	13.3	13.3	4.83	4.83
T5-TP1	3.5	1.5	1.5	5.1	4.1	1.55	1.15

Notes

- (1) T18-TP1 was not excavated as in-situ vane testing prior to pitting indicated that the peat was notably strong and that side wall collapse would not occur.
- (2) T18-TP2 was excavated to base of peat at 1.5m and did not fail (DNF).
- (3) Average in-situ shear vane strength c_u of peat is data that excludes all outliers and tests within the acrotelm. The average in-situ shear vane data was determined from data within the failure height to 2m below ground level.

4.4.2 Peat Cores and Peat Humification

Peat core samples were retrieved to confirm the general nature and characteristics of peat on the Site. Peat cores were retrieved using the RPS. Samples are obtained such as to provide a continuous log with depth. Retrieved samples were logged using the Von Post classification (Hobbs, 1986) to determine particularly the degree of peat humification. A shear vane test was also carried out at each RPS location to give strength data for the peat descriptions. All the samples were bagged and sealed for moisture content testing.

Humification of peat results in the decomposition of vegetative fibres resulting in a more amorphous peat which is generally encountered at greater depth within the peat mass. Amorphous peat tends to exhibit lower shear strength and permeability. A qualitative assessment of the humification was assessed using the Von Post classification ranks peat from H1 (no decomposition) to H10 (complete decomposition), see Table 4.2.

The purpose of the peat coring was to determine in particular the gradation of humification with depth. Fibres are dominant in humification classes H1 to H3, with H4 being transitional between fibre and amorphous dominated peat.

Peat sampling using the RPS was carried out at turbine locations with a summary included in Table 4.3 and logs included in Appendix A. The Von Post classification included in the RPS logs comprises essentially the fuller version of the classification and not just the degree of humification.



Table 4.2: Degree of humification based on Von Post Classification (Hobbs, 1986)

Degree of Humification	Decomposition	Plant Structure	Amorphous Material Present	Material Extruded on Squeezing	Nature of Residue
H ₁	None	Easily identified	None	Clear, colourless water	Not pasty
H ₂	Insignificant	Easily identified	None	Yellowish water	Not pasty
H ₃	Very Slight	Still identifiable	Slight	Brown, muddy water; no peat	Not pasty
H ₄	Slight	Not easily identified	Some	Dark brown, muddy water; no peat	Somewhat pasty
H ₅	Moderate	Recognisable, but vague	Considerable	Muddy water and some peat	Strongly pasty
H ₆	Moderately strong	Indistinct (more distinct after squeezing)	Considerable	About one third of peat squeezed out; water dark brown	Very strongly pasty
H ₇	Strong	Faintly recognisable	High	About one half of peat squeezed out; any water very dark brown	
H ₈	Very Strong	Very indistinct	High	About two thirds of peat squeezed out; also some pasty water	
H ₉	Nearly Complete	Almost unrecognisable	Very High	Nearly all peat squeezed out as fairly uniform paste	
H ₁₀	Complete	Not discernible	Complete	All peat passes between fingers; no free water visible	

Table 4.3: Summary of RPS

Turbine	No.	Depth (m)
T1	RPS-T1-1	2.50
	RPS-T1-2	1.60
T2	RPS-T2-1	2.00
	RPS-T2-2	2.00
T3	RPS-T3-1	3.50
	RPS-T3-2	2.50
T4	RPS-T4-1	4.00
	RPS-T4-2	2.00
	RPS-T4-3	2.00
T5	RPS-T5-1	2.90
T7	RPS-T7-1	2.00
	RPS-T7-2	3.00
	RPS-T7-3	3.20
T10	RPS-T10-1	2.50
T14	RPS-T14-1	1.70



Turbine	No.	Depth (m)
T16	RPS-T16-1	2.70
T18	T18-TP1-RPS	2.50
T19	RPS-T19-1	2.70

The degree of humification as determined from the RPS ranged from no humification (H1) within about the upper 0.5m to H9 at depth, see Table 4.4. In general, there is an increase in humification with depth, which is to be expected, though the gradation in humification with depth will tend to vary at each location depending on the terrain, drainage, and the dominant peatland vegetation.

The typical range of humification ranges from H3 to H7. Below about 1.5m depth the humification is dominantly H5 or greater, which would signify a considerable amount of amorphous material is present.

About half the RPS results show humification of H8 to H9 at the lower depths. Complete decomposition (H10) is considered rare, as there is invariably some more resistant fibrous material present.

Table 4.4: Summary of peat humification from RPS

Depth (m)	RPS -T1-1	RPS -T1-2	RPS -T2-1	RPS -T2-2	RPS -T3-1	RPS -T3-2	RPS -T4-1	RPS -T4-2	RPS -T4-3
0.5 to 1	H2	H5	H4-H5	H3	H2-H3	H3	H3	H4	H3
1 to 1.5	H2-H3	H6-H7	H4	H5-H6	H4	H4-H5	H4-H5	H5	H4-H5
1.5 to 2	H3	H8-H9	H5	H7	H4-H5	H5-H6	H4-H5	H6	H6
2 to 2.5	H3-H4		H7	H8-H9	H5-H6	H7-H9	H5-H6	H8-H9	
2.5 to 3					H7-H8		H5-H6		
3 to 3.5					H8-H9		H4-H5		
3.5 to 4							H4-H6		

Depth (m)	RPS-T5-1	RPS -T7-1	RPS -T7-2	RPS-T7-3	RPS-T10-1	RPS-T14-1	RPS-T16-1	RPS-T19-1	RPS-T18-TP1
0.5 to 1	H3	H3-H4	H3	H3	H3	H3	H4	H3	H4-H5
1 to 1.5	H4	H4-H6	H4	H3-H4	H5	H5	H5-H6	H4	H4-H5
1.5 to 2	H5-H6	H7	H5	H5	H8-H9	H8-H9	H6-H7	H4-H5	H3
2 to 2.5	H6-H7		H6-H7	H6			H7	H6-H7	H4
2.5 to 3	H7		H7-H9	H7			H9	H8-H9	
3 to 3.5				H9					
3.5 to 4									

Humification Legend	Amorphous Material Present
H1-H2	None
H3-H4	Slight to some
H5-H6	Considerable
H7-H8	High
H9-H10	Very high to complete



4.4.3 Comparison of Peat Strength Measurement

A number of different methods were employed to determine the likely operational strength of in-situ peat at the location of the 4 no. trial pits (T4-TP1, T7-TP1, T18-TP2 and T5-TP1). These methods comprised the following:

- (1) In-situ shear vane
- (2) Laboratory shear vane
- (3) Laboratory unconsolidated undrained (UU) triaxial testing
- (4) Back-analysis of failure of side wall of trial pits

For practical reasons it was not possible to carry out all the above testing at all trial pit locations, for example at T5-TP1 the retrieved samples were unsuitable for testing due to sample disturbance.

A comparison of the results obtained for the above test methods is summarised in Table 4.5 with the results shown graphically in Figure 4-6 (a) to (d).

Table 4.5: Average undrained shear strength of peat using variety of test methods

Trial Pit	In-situ Shear Vane (Full Peat Depth) (kPa)	Laboratory Shear Vane (kPa)	Laboratory Unconsolidated Undrained (UU) Triaxial Testing (kPa)	Back-analysis of Failure of Side Wall of Trial Pits (kPa)
T4-TP1	4.4	3.2 (5.1)*	1.4	5
T7-TP1	5.1	2.8	1.8	5.3
T18- TP1	NA	NA	NA	NA
T18-TP2	13.3	7.8	5.8	NA
T5-TP1	5.1	5.5	NS	5

Notes

- (1) T18-TP1 was not excavated as in-situ vane testing prior to pitting indicated that the peat was notably strong and that side wall collapse would not occur.
- (2) T18-TP2 was excavated to base of peat at 1.5m and did not failure (DNF).
- (3) In-situ shear vane strength c_u of peat (kPa) is data that excludes all outliers and tests within the acrotelm. The average in-situ shear vane data within the failure height uses data to 2m below ground level.
- (4) * Laboratory shear vane includes a notably higher value (11kPa) that skews results – the average value with higher results is shown in brackets.
- (5) T5-TP1 peat sample was unsuitable for testing due to disturbance.

4.4.4 Comparison of Peat Strength Measurements and Degree of Humification

In addition to the above, the humification (fibre content) of the peat with depth was recorded at the trial pit locations to allow comparison of in-situ and laboratory shear strength with humification. The results (Figure 4-6) show humification increasing with depth. Where humification is H3 or less, which is typically in the upper 1m, then there is an increase in shear strength with the in-situ shear vane though the laboratory triaxial test results appear to be unaffected by the degree of humification. Laboratory triaxial test results are considered to have been affected by disturbance of the sample during retrieval and the difficulties in testing very weak peat samples in the laboratory. As such, laboratory test results are insensitive and do not reflect any notable strength change with the degree of humification. It would be expected that the more fibrous the peat (lower H values) the greater the relative shear strength.



Where humification is greater than about H4 to H5 then there is no appreciable change in measured vane strength. Note that when using the in-situ shear vane high readings are typically encountered in the less humified peat at shallow depth, and also possibly towards the base of the peat where more resilient relict plant matter (such as tree fragments) may be encountered. These higher readings should only be used in design with caution, see below. In general, the shear strength test results for the vane only appear to be affected by say humification of H3 or less.

4.4.5 Summary of Comparison of Peat Strength Measurements

A summary of the results for the various test methods is given below:

- (1) The laboratory test results give notably lower bound results. This is likely due to a number of factors such as disturbance of the sample during retrieval and the difficulties in testing very weak peat samples particularly in the laboratory unconsolidated undrained (UU) triaxial test.
- (2) The laboratory unconsolidated undrained (UU) triaxial test results for T4-TP1 and T7-TP1 provide strength results which are unrealistic with respect to the observed performance of the peat within the trial pits and are less than 2kPa. The laboratory strength tests results of less than 2kPa would typically represent the undrained strength of remoulded peat. Laboratory test results in this case do not provide a practical means of determining undrained peat strength.
- (3) The laboratory shear vane results give a lower test result than the in-situ shear vane, again this is likely due to disturbance of the sample. As such, the in-situ shear vane would be considered to provide a more realistic result as the in-situ peat is less disturbed.
- (4) As mentioned above, in general there is a good correlation between the theoretical undrained strength at which failure of the side wall occurs, and the undrained strength measured by the in-situ shear vane over the full peat depth for the low range of peat strength present.
- (5) The effect of peat humification (fibre content) on peat strength test results was assessed. It would be expected that the more fibrous the peat (lower H values) the greater the relative shear strength. The results show that the laboratory test results were insensitive to the degree of humification. The in-situ vane showed where humification is H3 or less, which is typically in the upper 1m, then the in-situ vane recorded an increase in shear strength.
- (6) Based on the above results, the in-situ shear vane strength compared to the other tests provides the most reasonable indication of the operational shear strength of peat particularly at the lower shear strength peat encountered within the trial pits. Notwithstanding, the in-situ shear vane has limitations and its application for design needs to be used cautiously, see below.

The above shows that in-situ shear vane results provide a reasonable correlation with back-analysed results of operational undrained strength of peat. Application of a factor to in-situ vane results at this Wind Farm Site is therefore not considered necessary provided the use and interpretation of the shear vane is carried out cautiously following the guidelines below. Shear vane strengths have been applied without factoring in previous work on Irish peat (see for example Hanrahan, 1964, Piggott et al, 1992). Factoring of vane results is generally applied in the absence of site-specific correlation; these factors need to be applied judiciously as they can provide misleading results (Jardine, 1998).

Guidelines on the use and interpretation of in-situ shear vane with respect to the Wind Farm Site based on the results of the further investigation at the Site and general previous experience and empirical use are as follows:

- (1) Careful scrutiny should be applied in interpreting vane results, particularly where anomalous higher results are obtained due to say high fibre content, presence of wood fragments, rod friction. Upper bound values which are outliers and would likely not control the operational strength of the peat should be discarded.



- (2) Lower bound recorded vane strength should be adopted at any location for design purposes. A cautious estimate of the mean strength should not be used for design.
- (3) The vane strength should be obtained for the full depth of the peat layer to ensure that zones of weaker peat within the profile have been identified. Notwithstanding, strength profiles with depth in weaker peat generally show that below the acrotelm layer there is a generally an increase in peat strength with depth, see Figure 4-8 which shows results for a number of blanket peat sites.
- (4) There is generally notable variation in in-situ vane results. It is likely that the lower bound values will control the operating shear strength of peat and general previous experience indicates that consistent lower bound results of less than 4 to 5kPa in an area represent greater potential for undrained peat failure (Figure 4-8). The lower bound vane strengths in any area shall be considered when assessing peat stability.

Other alternative methods for assessing in-situ strength of peat such as cone penetration testing (CPT) using a variety of different shaped cone tips has been examined, for example Long et al (2014). Previous use of CPT on peat sites (such as at the Derrybrien Wind Farm site) have provided mixed results with a notable scatter of data, and it has proven difficult to establish reliable site-specific correlation factors.

4.5 Baseline Sensitivity of Receiving Environment for the Wind Farm Site

The significance of the effects of impacts on soils, geology and land on the Wind Farm Site has been assessed as a function of the sensitivity of the receiving environment. The sensitivity of the receiving environment is classified on a 7-point scale from Negligible to High as a function of the characteristics of the soils, geology and land that are directly impacted by the project or potentially impacted by a peat failure (EPA, 2022).

For this Wind Farm Site, the majority of the significant effects on soils, geology and land relate to the upland blanket bog that covers most of the Wind Farm Site and surrounding area. Therefore, the characteristics of the blanket bog in the area govern the classification of the sensitivity of the receiving environment for assessing the significance of effects on soils, geology and land on this project. For stability impacts, consideration has also been given to the sensitivity of the blanket bog outside the Wind Farm Site that could be directly impacted by a peat slide at the Wind Farm Site. The potential impact of the Prospective Development on Geological Heritage Sites has also been taken into account.

For this project the sensitivity of the receiving soils, geology and land has been classified as **MEDIUM** based on a combination of factors, i.e.:

- Geological Heritage Sites that could be impacted by the project;
- The ecological importance of the blanket bog;
- The significance of the peat for carbon sequestration; and
- The use and value of the land impacted by the project;

The habitat impacted by the Prospective Development is predominately conifer plantation on upland blanket bog that had been degraded by drainage and by the planting of the trees, and is therefore of low ecological value. Based on the relatively low ecological value of the land, the sensitivity of the receiving environment could be characterised as Medium to Low. However, when combined with the additional environmental value of the land as a carbon store and the relatively low commercial value of the land for forestry/agriculture, this is sufficient to raise the combined level of sensitivity of the peat to “**MEDIUM**”.

For the assessment of stability impacts the sensitivity of the receiving soils, geology and land that could be impacted by a peat slide has also been classified as **MEDIUM** based on the scale of the November 2020 peat slide, and by the land that that was directly impacted by the slide, i.e.:



- The land that was disturbed by the peat slide covered an area of approximately 3.7 ha, and it was comprised of coniferous forests of low ecological and commercial value;
- Approximately 86,240m³ of peat was displaced in the slide, but about 45,500m³ of this is still present within the failure scar; and
- The majority of the displaced peat was transported down the channel of the Shruhingarve Stream to the Mourne Beg River and was deposited within the stream and river channel. A small volume of material was deposited on agricultural land.

To accurately assess stability impacts on soils, geology and land, consideration has also been given to the scale and characteristics of the smaller, more localised peat failures that occurred on the Wind Farm Site during construction. For example, around the perimeter of the open excavations for the turbine foundations, the risk of peat instability was limited to localised shear failure or very small-scale peat slides where the side slopes were not adequately supported, which had a significantly lower impact on the receiving soils, geology and land.



5. PEAT FAILURES ON SITE DURING CONSTRUCTION

Prior to the peat failure of November 2020 Peatslide there were other minor peat failures on the Wind Farm Site that occurred during construction of the wind farm on 3 June 2020 or before. Details of the peat failures based on site inspection observations, construction records and drone surveys are given in the FT 2021 “Meenbog Wind Farm – Assessment of Site with Respect to Peat Stability” report (included as Appendix 8-3 of this EIAR), with the likely causes of these failures are summarised in the table below. The failures essentially occurred within the forestry plantations that covers much of the area and remained within the boundary of the Wind Farm Site. The locations of these failures are shown on the geomorphological plans in Appendix B.

Table 5.1: Summary of likely causes of peat failures on the Wind Farm Site during construction

Location	Ground Conditions	Likely Cause of Failure
Peat failure reference 1 at borrow pit between T5 and T6	Based on MCE (2020), peat depth of 3m is quoted, though the area appears to have exposed mineral soil/rock at shallow depth.	The mechanism of the failure was triggered by excessive excavated arisings (peat) being placed on in-situ peat. The placed excavated peat caused excessive loading that resulted in an undrained loading failure of the in-situ peat which then due led to progressive failure of in-situ peat downslope. The failure initially travelled only a short distance.
Peat failure reference 2 at borrow pit between T5 and T6	Assumed similar to peat failure reference 3.	Taking into account the back-analysis at nearby peat failure reference 3, the likely cause of failure was excessive loading due to surcharging of failed debris from peat failure reference 1 causing undrained shear failure of the underlying peat leading to progressive downslope failure. Downslope run-out distance was controlled by forestry furrows with the failed material coming to rest as in-situ peat downslope shallowed/increased in strength.
Peat failure reference 3 at borrow pit between T5 and T6	Ionic recorded peat depth to the west of T6 varied from 0.2 to 1.9m. Peat strength varied from 3kPa to 20kPa with an average, which discounts outliers of about 6kPa.	Given the recorded peat strength in the area and taking into account the back-analysis at this location, the most likely cause of failure was excessive loading of arisings on the downslope side of the access road causing undrained shear failure of the underlying peat leading to progressive downslope failure. Initial downslope run-out distance was controlled by forestry furrows. Further downslope the failed debris entered a shallow elongate drainage feature with deeper and weaker peat, which caused the failure to change direction and follow the feature further downslope.
Failure at T12 (reference 4)	Ionic results are available for the area around T12. Peat depth varied from 1.5 to 2m. Peat strength varied from 8kPa to 15kPa.	Given the recorded peat strength in the area and taking into account the back-analysis from peat failure reference 3, the most likely cause of failure was excessive loading of arisings on the downslope side of the access road. Downslope run-out distance was controlled by forestry furrows with the failed material coming to rest as in-situ peat downslope shallowed/increased in strength.
Minor instability at T5	Nearby Ionic testing showed a strength of 4 to 7kPa with peat depth 2.6 to 3.7m.	The cause of the instability was inappropriate support to the excavation for T5. This resulted in the initiation of an incipient translational slide within the adjacent peat upslope with the onset of tension cracks. The construction of the turbine base and infilling of the excavation essentially stabilised the adjacent in-situ peat.



Location	Ground Conditions	Likely Cause of Failure
Minor instability at T16	In-situ shear testing of peat at this location by Ionic showed a strength of less than 4kPa with peat depth 1.4m.	The instability likely occurred during excavation of the access road into the turbine base for T16. The combination of loading from excavated peat placed onto the peat surface from a perimeter drain in combination with undercutting of the peat slope likely caused the instability.
Minor instability S-bends Roadworks	Ground conditions are not known but understand that stockpile of placed crushed rock caused a localised ground movement in the peat below the stockpile.	The likely cause of failure was excessive loading of placed material on peat causing undrained shear failure of the underlying peat leading to failure.

5.1 November 2020 Peatslide

A detailed description of the peat failure and the likely mechanism of the failure is provided in the FT report “Meenbog Wind Farm – Assessment of Site with respect to Peat Stability” (FT, 2021). A summary is provided below.

The failure site comprises the upper and lower scars, as shown on the plan in Figure 5-1 and 5-2. The primary source of the failed material, which was essentially peat, was the upper scar. The upper scar is located on a flat plateau area at an elevation of about 266mOD that extends northwards from the high point of the Wind Farm Site, which is at an elevation of 313mOD. The estimated total area of the upper scar is about 2.4ha. The lower scar is rectilinear and essentially follows the slope gradient. The lower scar was about 260m long by about 43m wide. The head of the lower scar is taken at the downslope mouth of the upper scar and essentially coincides with the upslope boundary of a recently felled forestry plantation. The lateral perimeter of the scar essentially follows the existing forestry furrows. The estimated total area of the lower scar is about 1.18ha. The total volume of the failure is estimated at 86,240m³.

The sequence of ground conditions at the failure site, that is the upper and lower scars, based on site observations and some limited in situ testing is given below.

- (1) Blanket peat. Peat depth is typically in the range of 1.5 to greater than 3.5m. The upper scar has notably deeper peat with an average depth of 2.7m, though locally greater than 3 to 3.5m. The lower scar has an average peat depth of 1.8m.
- (2) Mineral soil or weathered rock. Underlying the blanket peat a mineral subsoil layer was observed in the floor of the scars which is likely glacial till or weathered bedrock.
- (3) Bedrock. Within the floor of particularly the lower scar localised bedrock was observed. In situ testing around the upper scar also indicated possible bedrock directly underlying the peat.

As the primary source of the failed material, which was essentially peat, was the upper scar the results from this location are of most interest. The hand vane results indicate undrained shear strengths in the range 2 to 19kPa, with an average value of about 6kPa. The higher vane results in the upper scar are typically at the interface of the base of the peat with the underlying mineral soil, or where roots have caught the vane. If these higher results are ignored, then the undrained shear strength ranges from 2 to 9kPa, with average reducing to slightly less than about 5kPa.



5.1.1 Contributory Causes of Failure

The following are considered to be the key contributory causes of the November 2020 peatslide. For the peat failure to occur all or at least most of these key contributory factors were required to be present. One or a few of these factors only are highly unlikely to cause the scale of the peat failure that occurred.

- (1) Construction of floating road. The construction works for the floating road triggered a localised initial peat failure within the underlying in-situ peat. It would not be uncommon for sections of floating road to undergo excessive movement due to localised weakening within the underlying peat, however at this location a number of other contributory factors caused an escalation of the initial localised failure.
- (2) Body of very weak peat immediately upslope. Essentially immediately upslope of the floating road was a flat plateau area that was partly formed of essentially a large body of notably saturated and very weak peat. This body of saturated and very weak peat relied for lateral stability on the peat slope upon which the floating road was being constructed. Hand vane results by FT post-failure showed undrained shear strengths in the range 2 to 9kPa, with an average value of slightly less than about 5kPa. These low recorded peat strengths are significantly lower than the site-wide results and would represent a body of very weak peat (Figure 4-3).
- (3) Rainfall intensity and pattern. A combination of preceding heavy rainfall and the pattern of weather recorded over the preceding months likely contributed to the failure. The failure was not triggered by an intense rainfall event. Whilst there was no clear significant peak rainfall duration period immediately prior to the peat failure, the combination of a significant dry spell (April and May 2020) followed by relatively high daily rainfall amounts (from June 2020 onwards) likely contributed to the peat failure. The significant and sustained dry spell would have caused drying leading to shrinkage and cracking of the near surface acrotelm layer in the peat particularly along forestry furrows and drainage lines. Subsequent run-off from rainfall would have then gained ingress to the peat at depth via the cracking.
- (4) Drainage and surface water ingress into peat. The existing forestry drainage pattern, which is present in the 1995 aerial photographs of the Wind Farm Site, in the flat plateau area directed surface water from rainfall towards the body of very weak peat that ultimately failed, notably along a series of parallel drainage ditches aligned south-north which run for about 230m and flow towards the southern limit of the upper scar (Figure 5-1).
- (5) Topography. The initiation of the failure occurred at a convex break in the peat slope, at the location of the floating road. A convex break in slope is commonly cited as the location for peat failures for a number of reasons. In this particular case, the convex break in slope marks the transition from a plateau area upslope containing deeper and very weak and saturated peat compared to downslope where the peat is not as deep and has relatively greater strength.
- (6) Downslope felled forestry on peat. The area downslope of the floating road comprised a forestry plantation that had been felled a few years in advance of the wind farm construction. The area comprised forestry furrows and drains aligned downslope on peat slopes with a peat depth of about 1.8m. The failure through this area exploited the existing forestry furrows which are lines of weakness as they have severed the acrotelm layer.
- (7) Existing drainage and extent of failure. The existing forestry drainage within the peat is considered to have directed and concentrated surface run-off to the upper scar located in the flat plateau area. To the south of the upper scar a series of parallel drainage ditches (less than about 1m deep) feed water northwards towards the failure scar (Figure 5-2). Following the failure, inspection of these ditches showed water feeding into the scar. Whilst not a direct cause of the peat failure the existing drainage ditches and forestry furrows significantly controlled the extent of the upper scar (Figure 5-2). The extent of the lower scar was essentially controlled by existing forestry furrows aligned downslope in the direction of peat failure movement. Adjacent to the scar the existing forestry furrows have generally acted as tension cracks with the furrows opening up.



6. PEAT STABILITY RISK ASSESSMENT

6.1 Geomorphology Risk Assessment

A site-wide geomorphological plan was produced by FT in 2021. The geomorphological plan principally shows the morphology of the terrain which is presented as symbols and individual units. The individual units are intended to represent areas of similar character with respect to ground conditions.

The geomorphological plan provides a basis for zoning the Wind Farm Site into areas of similar character, and where peat failures or indicators of instability are present, allows a determination of any local specific factors that control their spatial distribution, as noted in the Guide (Scottish Government, 2nd Edition, 2017).

Preparation of the geomorphological plan requires a level of subjectivity based on the knowledge and experience of the compiler as recognised by the Guide. This approach forms part of a qualitative assessment of the peat stability hazard.

The peat stability hazard assessment provides guidance only with respect to site-wide peat stability. A more detailed deterministic approach in identifying peat stability hazard has been carried out (Section 6.2) at areas where works are proposed (zone of influence). The deterministic approach requires a significant amount of specific ground data input to provide a meaningful result, and for this reason is adopted along the proposed infrastructure corridor.

The results of the peat stability hazard assessment are used to provide an assessment of the risk that may arise as a result of peat instability; this is covered below.

6.1.1 Peat Stability Hazard

The geomorphological plan has been compiled using LiDAR survey data for the Wind Farm Site with a 1m contour that shows the layout of the wind farm works. The geomorphological plans of the Wind Farm Site are included in Appendix B (P24-234-0601-0011 to 0014). The following geomorphological information has typically been included, where present, on the plans:

- (1) Position of major and minor slope breaks (e.g. convexities and concavities).
- (2) Position and alignment of major and minor natural drainage features (e.g. rivers, streams, peat gullies).
- (3) Location and extent of peat erosion complexes where present (e.g. hags and groughs, areas of bare peat).
- (4) Outlines of past peat landslides (including source areas and deposits).
- (5) Location, extent and orientation of cracks, fissures, ridges and other pre-failure indicators.

Based on the association of particular geomorphological units to known failures the individual units have been qualitatively ranked with respect to their likelihood to contribute to peat instability.

An estimated probability using expert judgement, whereby general principles are used to assign probabilities to peat stability, has been adopted. This approach uses a ranking system that relates ground factors to the probability of the occurrence of peat instability, e.g. the presence or absence of instability features within certain geomorphological units.



The basis of the expert judgement is provided below (Table 6-1) which identifies the key considerations in determining the qualitative likelihood of peat failure based on the experience of the compiler but also taking into account the factors that contributed to peat failures that have occurred on the Wind Farm Site, including some examples of failures from other sites.

The hazard ranking in terms of probability given to the individual geomorphological units is shown in Table 6-2; this is based on that provided in the Guide. Note that the descriptive terms are relative and should be taken as guidance only. In assigning hazard ranking, it is assumed that inappropriate construction activity or extreme weather events do not occur.

Table 6-1: Geomorphological Units and Likelihood of Peat Instability

Key Geomorphological Unit	General Description	Hazard Description	Likelihood
Elevated plateaux areas	Typically, elevated level extensive areas. Associated with convex break in slope which is cited as potential location for initiation of peat failures. Location for deep and weaker peat. Elevated plateaux surrounded or partly surrounded with downslopes.	Source area of November 2020 Peatslide. Similar terrain as Dawn of Hope failure (June 2020). Presence of deep and notably weak peat increases likelihood of failure.	Probable
Potential headwaters of natural drainage features	Typically, location of possible spring line or concentrated focus of water. Very localised deep and weaker peat. Generally encountered at upper elevation on slopes. Possibly location of previous failures; though none are recorded on the Wind Farm Site	Example of peat failures associated with this terrain are Garvagh Glebe (2008), Derrybrien (2003), Boleynagee (1931). Similar to the above, but more localised deep and notably weak peat increases likelihood of failure.	Probable
Elongate shallow depressions	Typically, location of relict or activate stream lines or concentrated focus of water. Very localised linear deep and weaker peat. Generally encountered running perpendicular downslope.	Example of peat failures associated with this terrain are Garvagh Glebe (2008), Derrybrien (2003). Larger failure at T5 partly followed path of elongate shallow depression. Localised deep and notably weak peat increases likelihood of particularly travel distance of failure.	Probable
Elevated level ridges	Similar to elevated plateaux but comprises top of flat ridge lines or isolated level benches. Localised deep and weaker peat. Elevated benches surrounded or partly with downslopes.	Similar to source area of November 2020 Peatslide. Similar terrain as Dawn of Hope failure (June 2020). Presence of deep and notably weak peat increases likelihood of failure.	Probable
Elevated lobate level areas	Similar to elevated plateaux but comprises lobate level features. Localised deep and weaker peat. Elevated area with slope on downslope.	Similar but smaller than source area of November 2020 Peatslide. Presence of deep and notably weak peat increases likelihood of failure.	Probable



Key Geomorphological Unit	General Description	Hazard Description	Likelihood
Low-level lobate and level areas	Localised likely very deep and weaker peat in proximity to water course. Likely infilled hollows (relict lake) leading to deeper and weaker peat deposits. Proximity to watercourse with potential for erosion of slope toe.	Localised likely very deep and weaker peat in proximity to water increases likelihood of failure.	Probable
Upper slope	Undulating relief with variable slope angles. Peat depth variable. Proximity to areas of relatively greater likelihood of peat failure. Elevated position would increase potential for run-out of any failures. Potential for concentrated water within undulating relief. Undulating and rough relief could signify potential previous failures or areas of deeper peat.	Potential for some localised deep and weaker peat though not extensive.	Likely
Lower slope adjacent to water course	Undulating relief with variable slope angles. Peat depth variable but locally potential for notable depth. Proximity to watercourse with potential for erosion of slope toe. Lower position on slope increases potential for possible infilled hollows leading to deeper and weaker peat deposits. Potential for concentrated water within undulating relief. Undulating and rough relief could signify potential previous failures or areas of deeper peat.	Potential for some localised deep and weaker peat though not extensive.	Likely
Mid-slope	Relatively uniform slope with slope angles typically 3 to 5 degrees but locally steeper. Peat depth typically 1 to 2m. Relatively well drained slope. Relief has relatively few undulations and roughness that could signify previous failures or areas of deeper peat.	Reduced to limited potential for some localised deep and weaker peat.	Unlikely

Notes

- (1) Likelihood description is for guidance only and assumes that no mitigation measures are in place.
- (2) Hazard ranking assumes that inappropriate construction activity or extreme weather events do not occur.
- (3) Only key geomorphological units are considered.

Table 6-2: Peat Instability Ranges for Probability

Scale	Likelihood	Probability of occurrence
5	Almost certain	> 1 in 3
4	Probable	1 in 10 to 1 in 3
3	Likely	1 in 10 ² to 1 in 10
2	Unlikely	1 in 10 ⁷ to 1 in 10 ²
1	Negligible	< 1 in 10 ⁷



Notes

- (1) Likelihood description is for guidance only and assumes that no mitigation measures are in place.
- (2) Probability of occurrence values are for guidance only and assumes that no mitigation measures are in place.

The geomorphological plans showing zonation of hazards for the Wind Farm Site is included in Appendix B. The hazard levels vary from 'Unlikely' to 'Probable'.

A number of locations associated with the Prospective Development are classed as being in areas of 'Probable' hazard. These include the existing floating roads to T01, T02, T03 and T04, as well as the upgrade road to T18. This higher probability has also been considered within the Qualitative Risk Assessment in Section 6.3. Mitigation measures are required in these areas to reduce the risk levels. These mitigation measures are discussed in Section 7.

6.2 Peat Stability Risk Assessment (Quantitative)

The peat stability assessment includes an assessment of the stability of the natural peat slopes for individual parcels across the Wind Farm Site and the BMEP Site including at the turbine locations and along the access roads where works are proposed as part of the Prospective Development (see Table 3-1). This analysis has been undertaken using EC7 partial factors. The remainder of the Wind Farm Site has been assessed in the report "Peat Stability Assessment report, (Existing Development) (FT, 2026).

6.2.1 Methodology for Peat Stability Assessment

The stability of a peat slope is dependent on several factors working in combination. The main factors that influence peat stability are slope angle, shear strength of peat, depth of peat, pore water pressure and loading conditions.

An adverse combination of factors could potentially result in peat sliding. An adverse condition of one of the above-mentioned factors alone is unlikely to result in peat failure. The infinite slope model (Skempton and DeLory, 1957) is used to combine these factors to determine a factor of safety for peat sliding. This model is based on a translational slide, which is a reasonable representation of the dominant mode of movement for peat failures.

To assess the factor of safety for a peat slide, an undrained (short-term stability) and drained (long-term stability) analysis has been undertaken to determine the stability of the peat slopes on the Wind Farm Site.

1. The undrained loading condition applies in the short-term during construction and until construction induced pore water pressures dissipate.
2. 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.

Undrained shear strength values (c_u) for peat are used for the total stress analysis. Based on the findings of the 2003 Derrybrien failure and other failures in peat, undrained loading during construction was found to be the critical failure mechanism.

A drained analysis requires effective cohesion (c') and effective friction angle (ϕ') values for the calculations. These values can be difficult to obtain because of disturbance experienced when sampling peat and the difficulties in interpreting test results due to the excessive strain induced within the peat. To determine suitable



drained strength values a review of published information on peat was carried out. Table 6.7 shows a summary of the published information on peat together with drained strength values.

From Table 6.3 the values for c' ranged from 1.1 to 8.74kPa and ϕ' ranged from 21.6 to 43°. The average c' and ϕ' values are 4.5kPa and 30° respectively. Based on the above, it was considered to adopt a conservative approach and to use design values below the averages. For design the following general drained strength values have been used for the Wind Farm Site:

$$c' = 4\text{kPa}$$

$$\phi' = 25^\circ$$

Table 6.3: List of Effective Cohesion and Friction Angle Values for Peat

Reference	Cohesion, c' (kPa)	Friction Angle, ϕ' (deg)	Testing Apparatus/ Comments
Hanrahan et al (1967)	5 to 7	36 to 43	From triaxial apparatus
Rowe and Mylleville (1996)	2.5	28	From simple shear apparatus
Landva (1980)	2 to 4	27.1 to 32.5	Mainly ring shear apparatus for normal stress greater than 13kPa
	5 to 6	-	At zero normal stress
Carling (1986)	6.5	0	-
Farrell and Hebib (1998)	0	38	From ring shear and shear box apparatus. Results are not considered representative.
	0.61	31	From direct simple shear (DSS) apparatus. Result considered too low therefore DSS not considered appropriate
Rowe, Maclean and Soderman (1984)	1.1	26	From simple shear apparatus
	3	27	From DSS apparatus
McGreever and Farrell (1988)	6	38	From triaxial apparatus using soil with 20% organic content
	6	31	From shear box apparatus using soil with 20% organic content
Hungr and Evans (1985)	3.3	-	Back-analysed from failure
Dykes and Kirk (2006)	3.2	30.4	Test within acrotelm
Dykes and Kirk (2006)	4	28.8	Test within catotelm
Warburton et al (2003)	5	23.9	Test in basal peat
Warburton et al (2003)	8.74	21.6	Test using fibrous peat
Hendry et al (2012)	0	31	Remoulded test specimen
Komatsu et al (2011)	8	34	Remoulded test specimen



Zwanenburg et al (2012)	2.3	32.3	From DSS apparatus
Den Haan & Grognet (2014)	-	37.4	From large DSS apparatus
O'Kelly & Zhang (2013)	0	28.9 to 30.3	Tests carried out on reconstituted, undisturbed and blended peat samples

6.2.2 Analysis to Determine Factor of Safety (Deterministic Approach)

The purpose of the analysis was to determine the 'Overdesign' factor (ODF) of the peat slopes using infinite slope analysis. The analysis was carried out at the turbine locations, along the proposed access roads, below the existing floating access roads and at various locations across the Wind Farm Site where works are proposed.

The 'overdesign' factor is a measure of the stability of a particular slope, with higher values indicating greater stability; a minimum value of 1.0 is required to confirm stability, in accordance with Eurocode 7, allowing for the in-built partial material and load factors.

Table 6.4: ODF Limits for Slopes

Overdesign Factor (ODF)	Degree of Stability	Degree of Risk
Less than 1.0	Unstable (red)	High
1.0 to 1.5	Acceptable (yellow)	Medium
>1.5	Acceptable (green)	Low

The calculations are carried out in accordance with IS EN 1997-1 Design Approach 1 Combination 2, which is the governing case, with the applicable partial material reduction factor of $\gamma_M = 1.4$ applied to the measured peat strengths, along with the applicable partial load factors for permanent loads ($\gamma_G = 1.0$) and variable loads ($\gamma_Q = 1.3$). Note that the calculations were also carried out for Design Approach 1 Combination 1, which does not govern in this particular scenario. Tables presenting the partial factors used in the analyses are included below.

Table 6.5: Partial Factors for Material properties

Overdesign Factor (ODF)	Partial Factor (DA1C1)	Partial Factor (DA1C2)
Soil Unit Weight	1.0	1.0
Soil cohesion	1.0	1.25
Soil phi angle ($\tan \phi$)	1.0	1.25
Undrained shear strength of soil	1.0	1.4

A conservative value for the undrained shear strength, c_u for the peat has been used. This has been determined based on shear strength testing undertaken by AGECE, FT and Ionic across the Wind Farm Site. The shear strength values used in the analysis are specific to the location being analysed, rather than being sitewide values. Where



location specific results are not available either the nearest available result or a sitewide value of 5kPa has been used.

The formula used to determine the factor of safety for the undrained condition in the peat (Bromhead, 1986) is as follows:

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

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

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

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

Where:

- F = Factor of Safety
- c' = Effective cohesion
- γ = Bulk unit weight of material (Peat)
- 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

For the drained analysis the level of the water table above the failure surface is required to calculate the factor of safety for the slope. Since the water level in blanket peat can be variable and can be recharged by rainfall, it is not feasible to establish its precise location throughout the Wind Farm Site. Therefore, a sensitivity analysis using water level ranging between 0% and 100% of the peat depth was conducted, where 0% equates to the peat being completely dry and 100% equates to the peat been fully saturated.

The following general assumptions were used in the analysis of peat slopes at each location:

- (1) Peat depths are based on the maximum peat depth recorded at each location from the walkover surveys and from probing undertaken during construction by Ionic.



- (2) The slope angles used in the peat stability assessment were obtained using a combination of readings taken during the site reconnaissance by FT using handheld equipment and from contour survey plans for the Wind Farm Site. It should be noted that slope angles derived from contour survey plans would be considered approximate, as such surveys are dependent on the density of survey data and do not always reflect local variations in ground topography.
- (3) Slope angle at base of sliding assumed to be parallel to ground surface.
- (4) A lower bound undrained shear strength, c_u for the peat has been used. This has been determined based on shear strength testing undertaken by FT and Ionic across the Wind Farm Site. The shear strength values used in the analysis are specific to the location being analysed, rather than being sitewide values.

For the stability analysis three load conditions were examined, namely:

- Condition (1): no surcharge loading, general stability analysis of peat slopes
- Condition (2): accidental surcharge loading of 10kPa used as a sensitivity analysis of peat slopes. No sidecasting of deposition of peat or spoil on existing peat slopes is permitted as part of the Prospective Development.
- Condition (3/3a): surcharge of 26kPa, equivalent to a 1.3m thick floating access road (1.15m existing plus 0.15m additional surfacing) plus an additional live load of 10.3kPa (construction traffic loading). Applies to the access roads to T01-T04. Within the BMEP Site this load is reduced to a surcharge of 16kPa (0.8m thick floating road) with a 10kPa live load. Condition 3a applies to the drained case, where the dead load from the road is applied but no live load is included in the analysis.

The load included in Condition (2) is modelled as an additional 1m load of peat. The loading for Condition 3 is split into two – a dead load (permanent) and a live load (transient). The dead load represents the load from the access road itself. The live loading for Load Condition (3) above is derived from the loading from a 750t capacity mobile crane, such as a Liebherr LTM1750, with the crane load spread across the width and length of the vehicle axles (17m x 3m), and assuming a 1v:1h load spread through the geogrid reinforced floating road. This crane surcharge is based on the crane in transport mode with a max. load of 108 tonnes/12 tonnes per axle.

For areas of floating roads (Load Condition 3/3a), and where ODF results of <1.0 have been recorded in the infinite slope analysis, a separate check of the stability of these areas has been undertaken using SlopeW slope stability software (Section 6.2.4). This allows for an analysis of the potential for a circular slip failure while also allowing for an assessment of the effect of inclusion of geogrid reinforcement, used in the construction of the floating roads across the Wind Farm Site.

6.2.3 Results of Analysis

6.2.3.1 *Undrained Analysis for the Peat*

The results of the undrained analysis for the natural peat slopes on the Wind farm Site and the BMEP Site in the areas where works are proposed as part of the Prospective Development are presented in Appendix C and the results of the undrained analysis for these locations for load condition (2) (DA1C2) are shown in Drawings P24-234-0601-0004 to P24-234-0601-0008 and 0010. The analysis results for the Existing Development are provided in the report Peat Stability Assessment report (Existing Development) (FT, 2026).

The undrained analysis for load condition 2 (DA1C2) is considered the most critical load case across the majority of the Wind Farm Site as most peat failures occur in the short term upon loading of the peat surface. Load condition 3 is considered to be the worst case for the sections of floating road within the Wind Farm Site.



Analyses were also undertaken for the BMEP Site, where load condition 1 and 2 were assessed, along with a reduced load version of load condition 3. All of these results had an ODF of >1.0 for both load conditions analysed (1 and 2).

The calculated ODF for load condition 1 is in excess of 1.0 at all of the 259 locations analysed with a range of ODF of 1.03 to 327.41, indicating a low to medium risk of peat instability.

The calculated ODF for load condition 2 is in excess of 1.0 for 258 of the 259 locations analysed with a range of ODF of 0.8 to 135.57, again indicating a generally low risk of peat instability with localised areas of higher risk. One location recorded a value of 0.8 to the southwest of T07, in an area of deep peat where no development is proposed.

For the areas of existing floating road where an additional surfacing layer is required, a specific stability analysis has been undertaken (load condition 3). The results of this analysis are shown in Drawing P24-234-0601-0009. This assessment includes the existing floating road with a design thickness of 1.15m, equating to a static load of 23 kPa, and that an additional 0.15m of material will be placed on top, increasing the static load on the peat from 23kPa to 26kPa. A worst-case live load for a 750T crane has been added to this, equating to an additional 10.3kPa load. For this case, data points directly below the road and in a corridor 10m either side of the road have been considered. For the locations directly below the road an increase in the shear strength of the peat can be expected over time due to the effect of the static load of the road compressing the peat.

A small number of results are <1.0 for these areas (9 results from a total of 68 within the Wind Farm Site), located mainly along the floating road to T04. Additional, more detailed stability analyses where the impact of geogrid reinforcement in the floating roads can be included have been undertaken in these areas and are described in Section 6.2.4 below. All of the results from the BMEP Site were >1.0 .

All sections of floating road will be proof load tested (see Section 8) prior to any turbine deliveries to the Wind Farm Site to confirm the stability of floating roads under the design live load surcharge for the 750-tonne mobile crane. Additionally, in-situ shear vane testing of the peat directly below the floating roads will be undertaken for the locations around the section of floating road at the T01 and T02/T04 junction, a stabilising berm will be constructed downslope of the road to act as a mitigation measure to provide additional resistance to prevent peat movement. No peat instability is anticipated in this area as a result of the Prospective Development works following these mitigation measures.

6.2.3.2 *Drained Analysis for the Peat*

The results of the drained analysis for the peat are presented in Appendix C. As stated previously, the drained loading condition examines the effect of in particular, rainfall on the existing stability of the natural peat slopes and represents the post construction phase of the development.

The calculated ODF for load condition 1 is in excess of 1.0 for all of the 259 locations analysed with a range of ODF of 1.35 to 141.73, indicating a relatively low risk of peat instability in the long term.

The calculated ODF for load condition 2 is in excess of 1.0 for 255 of the 259 locations analysed with a range of ODF of 0.82 to 94.49, indicating a low to medium risk of peat instability. One of the low ODF results was recorded along the main spine road, two close to T06 and one close to T17. No side casting is proposed as part of the Prospective Development at any of these areas, and as such this condition should not arise. However, a separate slope stability analysis has been undertaken for these areas and is reported in Section 6.2.4 below.



For the areas of existing floating road an additional stability analysis has been undertaken to consider the loading from the road (load condition 3a). This assessment includes the existing floating road with a design thickness of 1.15m equating to a static load of 23kPa, and that an additional 0.15m of material will be placed on top, increasing the static load on the peat from 23kPa to 26kPa. The live load from the crane is not included in this assessment, as this is a transient load. This stability assessment assumes that the peat is fully saturated (groundwater is at ground level). A significant number of results (14 of 66) recorded an ODF <1.0, with a range of 0.63 to 3.16. The ODF results of <1.0 were along the roads to T02 and T04. A separate slope stability analysis was undertaken for each of these access roads and is reported below. It should be noted that each of these floating roads has already been used in the construction of the Existing Development without failures occurring. These roads have been in place for 6 years.

6.2.4 Floating Roads Stability Analysis (Load Condition 3/3a)

A global stability analysis was undertaken using data from the Ionic (2021) stability assessment as well as data from previous AGECE peat probes. A slope stability assessment using SlopeW software was undertaken at each location where a low ODF (<1.0) has been calculated, using Eurocode partial factors, and the results of these are included in Appendix E. This software allows for the assessment of the effect of the geogrid reinforcement within the floating roads, which is not possible in the infinite slope calculations. The peat strengths used in these stability analyses are typical values recorded in the areas where an ODF <1.0 was calculated in the infinite slope analyses.

While the undrained case would only apply for a short time after the floating road is constructed, or in this case has additional fill placed on top of the already constructed floating road, it is considered to be the most critical case, as over time the placed peat will drain and the in-situ peat below this will consolidate due to the applied load. Parameters for the materials recorded across the Wind Farm Site are summarised in the table below, with values based on recorded strengths from shear vanes and known soil correlations. For the peat below the existing access roads, an increase in undrained strength has been assumed based on the length of time the roads have been present, which will have led to a degree of consolidation of the underlying peat. For a road thickness of 1m, a load of 20kPa would be applied to the surface of the peat. A typical ratio for the increase in shear strength to applied load is 0.25 x applied load. Taking a worst case where the road is saturated/submerged, this would result in a 2.5kPa increase in strength in the peat. This would only apply directly below the loaded area (the road). Shear strength versus depth plots for each section of floating road analysed are included in the following sections.

For this stability analysis, the live load from the crane is taken at the top of the road, which is the equivalent of a 21kPa load acting over a 3m wide section of the road. This is applied to the undrained case only, as the load is transient and as such does not apply to the drained (long-term) case.

Table 6.6: Material Parameters

Material	Unit Weight (kN/m ³)	Shear Strength (c _u)(kPa)	Friction Angle (φ)	Cohesion (c')
Road Fill	20	-	40	0
In-situ Peat	10.5	4-7.5*	25	4
In-situ Peat (below road)	10.5	6-10*	25	4
Placed Peat	10.5	3	5	2
Cohesive Glacial	20	50	32	1



*Varies depending on location, as described below

The results for specific areas are summarised below, with outputs from the analyses included in Appendix E.

6.2.4.1 T01/T04 Junction and Downslope Berm

A slope stability check has been undertaken on the section of floating road at the T01-T04 junction (Figure 6-1) and the stability of the berm proposed downslope of this. A variable live load of 21kPa has been applied to the floating road, to model the effect of the 750t capacity crane travelling across this section of road.

The ground model for this area is based on probes taken by both IONIC and FT. Peat depths of between 1.5 and 7.3m were recorded. For the purposes of this assessment, a peat depth of between 2.5m and 5m was used. A review of the peat depths indicate that the peat depth becomes shallower on the downslope side of the road, indicating that the base of the peat slope is shallower than the ground surface. As such, a slope angle of 3 degrees, reducing to 0 degrees, has been used in the analysis. Peat strengths recorded in this area ranged from 2 to 12 kPa and are shown on Figure 6.2. A design line for the peat below the road (blue line on Figure 6.2) to account for the increase in strength of the peat under the road since the road was constructed in 2020, of 6.5kPa to 2m bgl, increasing to 8.5kPa, and 4kPa to 2m bgl increasing to 6kPa for areas outside of this (black line on Figure 8.2), has been used for analysis purposes.

For the undrained condition an ODF of 1.11 (DA1C2) was recorded for this analysis. For the drained condition an ODF of 2.09 was recorded (Appendix E).



Figure 6.1: Berm Location, South of T01/T04 Junction

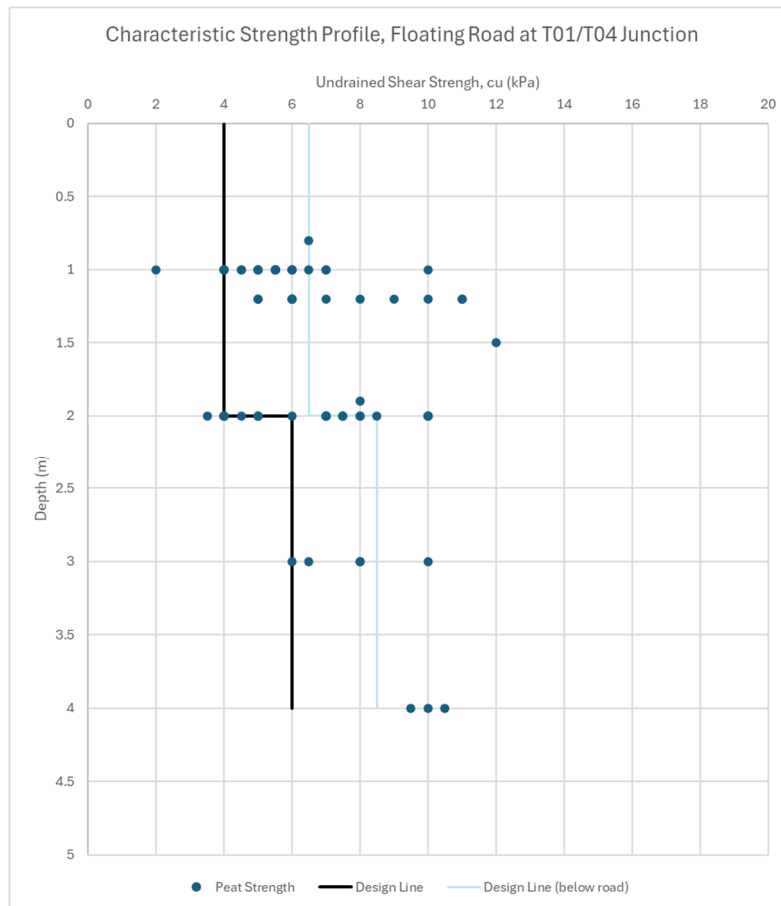


Figure 6.2: Peat Strength versus Depth, T01/T04 Junction

6.2.4.2 Access Road to T01

A slope stability check has been undertaken on the section of floating road towards the T01 hardstand. A variable live load of 21kPa has been applied to the floating road, to model the effect of the 750t capacity crane travelling across this section of road.

The ground model for this area is based on probes taken by both IONIC and FT. Peat depths of between 0.5 and 3.5m were recorded. For the purposes of this assessment, a peat depth of 2.5m was used, with a slope angle of 3 degrees. A review of the peat depths indicate that the peat depth is relatively consistent throughout this area, indicating that the base of the peat slope is similar to the ground surface. Peat strengths recorded in this area ranged from 4 to 16 kPa and are shown on Figure 6.3. A design line for the peat below the road (blue line on Figure 6.3) to account for the increase in strength of the peat under the road since the road was constructed in 2020, of 7.5kPa to 3m bgl, and 5kPa for areas outside of this (black line on Figure 6.3), has been used for analysis purposes.

For the undrained condition an ODF of 1.04 (DA1C2) was recorded for this analysis. For the drained condition an ODF of 2.38 was recorded.

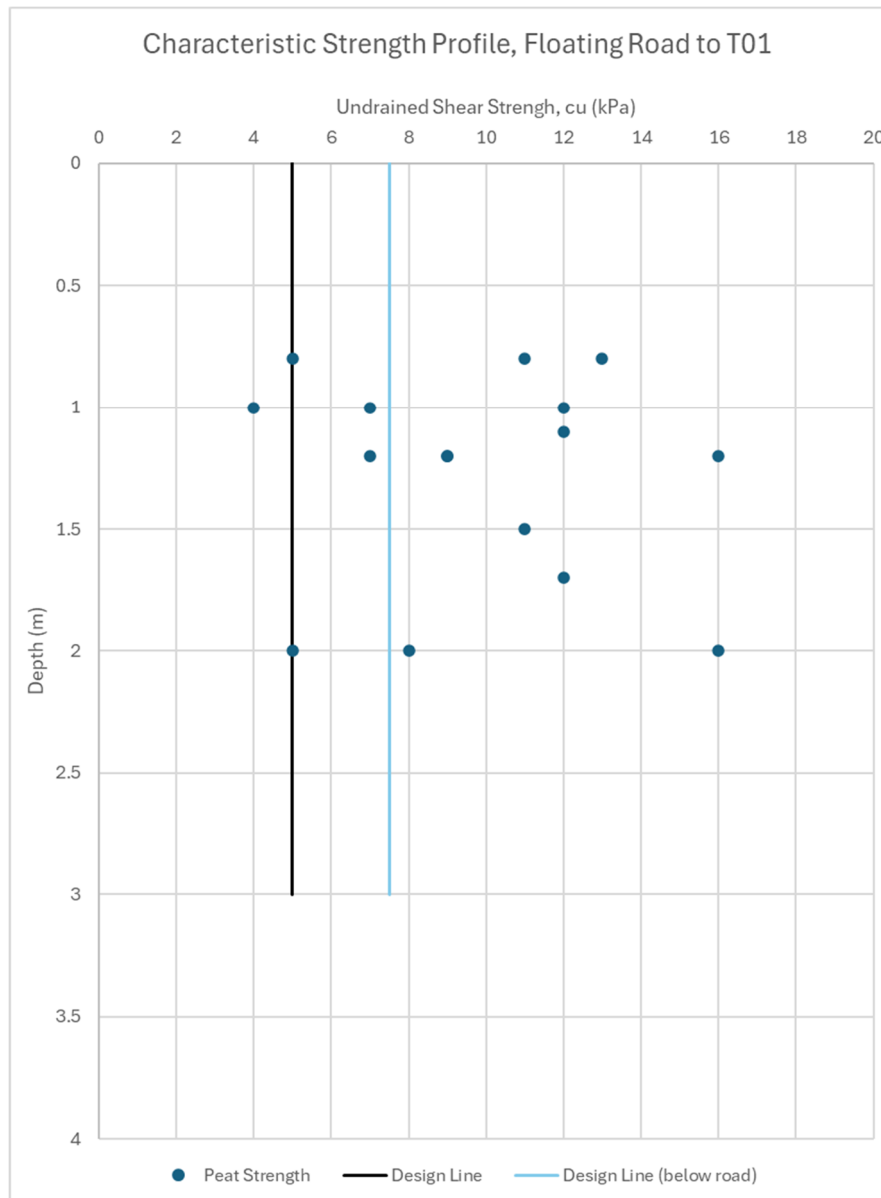


Figure 6.3: Peat Strength versus Depth, Floating Road to T01

6.2.4.3 Access Road to T02

A slope stability check has been undertaken on the section of floating road towards the T02 hardstand. A variable live load of 21kPa has been applied to the floating road, to model the effect of the 750t capacity crane travelling across this section of road.

The ground model for this area is based on probes taken by both IONIC and FT. Peat depths of between 0.7 and 3.2m were recorded. For the purposes of this assessment, a peat depth of 2.75m was used, with a slope angle of 3 degrees. A review of the peat depths indicate that the peat depth is relatively consistent throughout this area, indicating that the base of the peat slope is similar to the ground surface. Peat strengths recorded in this area ranged from 5 to 16kPa and are shown on Figure 6.4. A design line for the peat below the road (blue line on Figure 6.4) to account for the increase in strength of the peat under the road since the road was constructed in 2020, of 7.5kPa to 2.5m bgl, and 5kPa for areas outside of this (black line on Figure 6.4), has been used for analysis purposes.



For the undrained condition an ODF of 1.25 (DA1C2) was recorded for this analysis. For the drained condition an ODF of 2.55 was recorded.

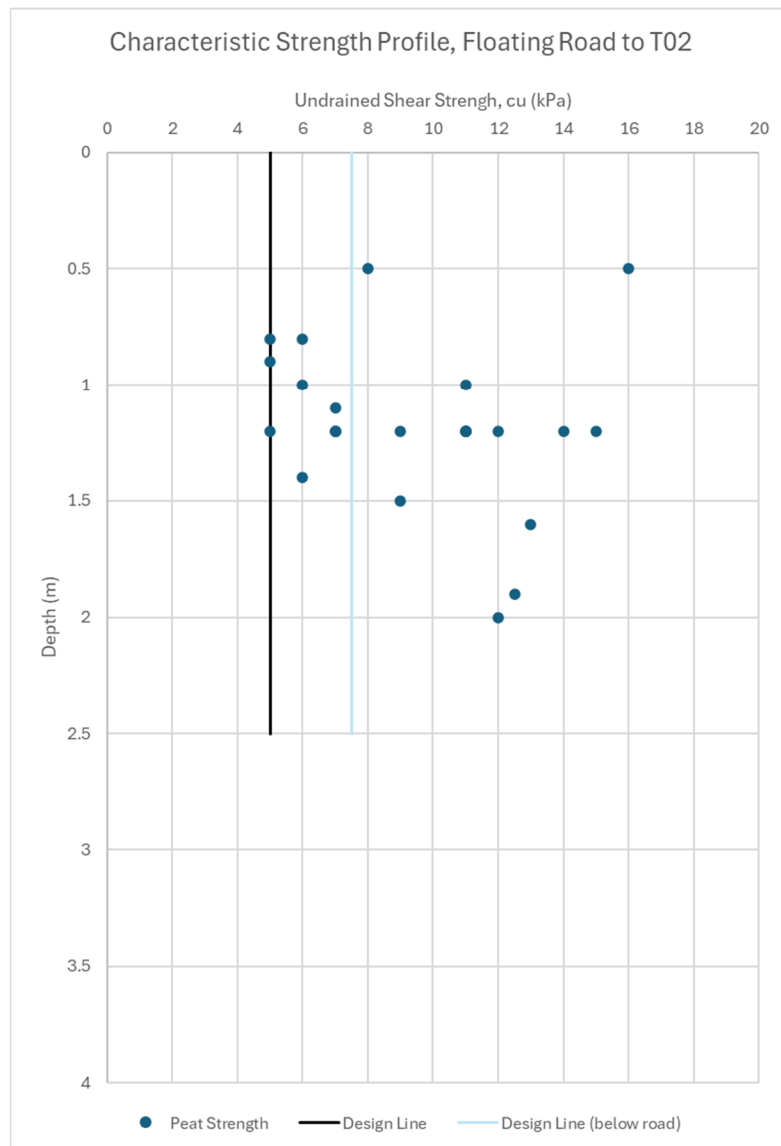


Figure 6.4: Peat Strength versus Depth, Floating Road to T02

6.2.4.4 Access Road to T03

A slope stability check has been undertaken on the section of floating road towards the T03 hardstand. A variable live load of 21kPa has been applied to the floating road, to model the effect of the 750t capacity crane travelling across this section of road.

The ground model for this area is based on probes taken by both IONIC and FT. Peat depths of between 1.9 and 3.6m were recorded. For the purposes of this assessment, a peat depth of 3m was used, with a slope angle of 3 degrees. A review of the peat depths indicate that the peat depth is relatively consistent throughout this area, indicating that the base of the peat slope is similar to the ground surface. Peat strengths recorded in this area ranged from 3 to 16kPa and are shown on Figure 6.5. A design line for the peat below the road (blue line on Figure 6.5) to account for the increase in strength of the peat under the road since the road was constructed in



2020, of 7.5kPa to 1.0m bgl, 6kPa from 1.0-2.0m bgl, and 7.5kPa from 2.0 to 4.0m bgl has been used for analysis purposes. For areas outside of the road footprint, a design line of 5kPa to 1.0m bgl, 3.5kPa from 1.0-2.0m bgl and 5kPa from 2.0 to 4.0mbgl, has been used (black line of Figure 6.5).

For the undrained condition an ODF of 1.06 (DA1C2) was recorded for this analysis. For the drained condition an ODF of 2.51 was recorded.

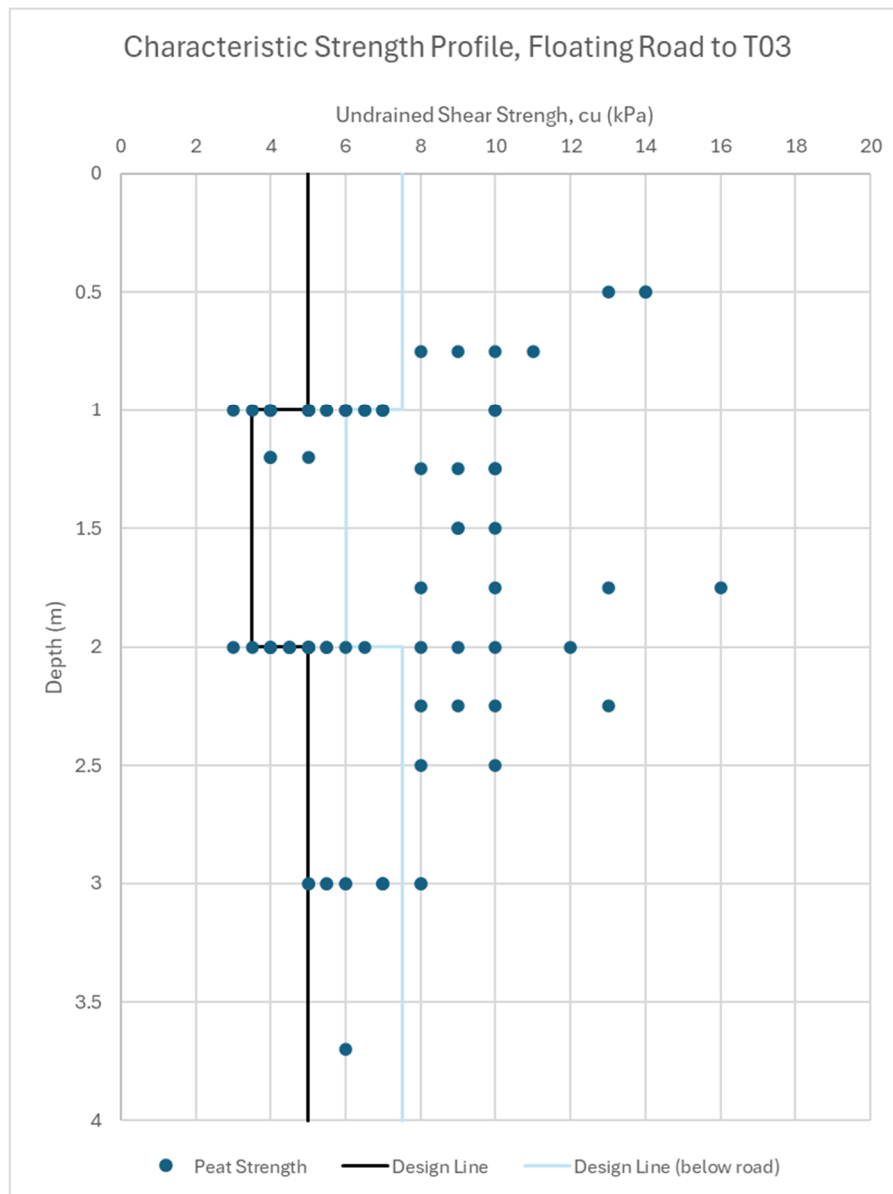


Figure 6.5: Peat Strength versus Depth, Floating Road to T03

6.2.4.5 Access Road to T04

A slope stability check has been undertaken on the section of floating road towards the T04 hardstand. A variable live load of 21kPa has been applied to the floating road, to model the effect of the 750t capacity crane travelling across this section of road.



The ground model for this area is based on probes taken by both IONIC and FT. Peat depths of between 1.9 and 3.6m were recorded. For the purposes of this assessment, a peat depth of 3m was used, with a slope angle of 2 degrees. A review of the peat depths indicate that the peat depth is relatively consistent throughout this area, indicating that the base of the peat slope is similar to the ground surface. Peat strengths recorded in this area ranged from 3 to 17kPa and are shown on Figure 6.6. A design line for the peat below the road (blue line on Figure 6.6) to account for the increase in strength of the peat under the road since the road was constructed in 2020, of 7.5kPa to 2.0m bgl, and 10.0kPa from 2.0 to 3.0m bgl has been used for analysis purposes. For areas outside of the road footprint, a design line of 5kPa to 2.0m bgl and 7.5kPa from 2.0 to 3.0mbgl, has been used (black line on Figure 6.6).

For the undrained condition an ODF of 1.16 (DA1C2) was recorded for this analysis. For the drained condition an ODF of 2.99 was recorded.

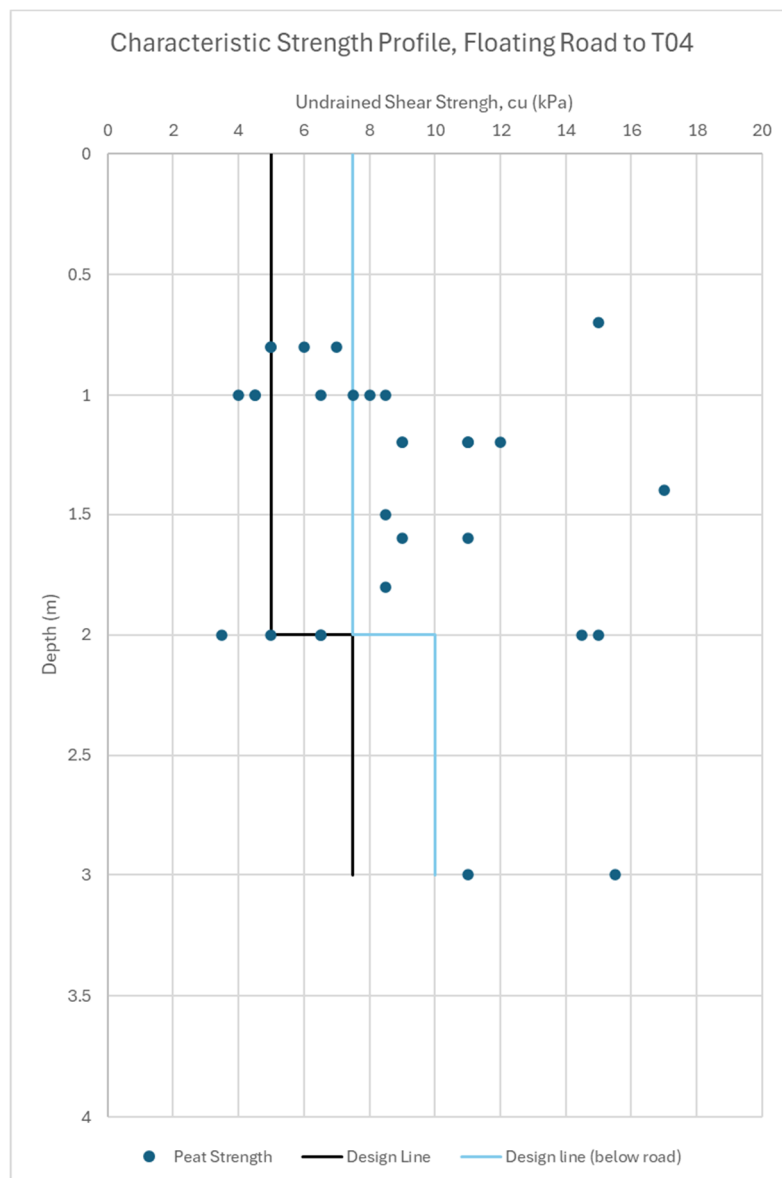


Figure 6.6: Peat Strength versus Depth, Floating Road to T04



6.2.4.6 Access Road to T18

The existing floating section of access road from the junction with the main spine road to the existing section of founded road to T18 will be excavated and replaced with a founded road. A stability check of this road has been undertaken using SlopeW software to check the stability of the road in both the undrained (short term) and drained (long term) cases. A surcharge load of 21kPa has been applied to the road to model the effect of the 750t capacity crane travelling across this section of road. A 10kPa live load has been applied to the peat downslope to model an accidental loading case (undrained loading only).

The ground model for this area is based on probes taken by both IONIC and FT. Peat depths of between 0.4 and 3.1m were recorded. For the purposes of this assessment, a peat depth of 2m was used, with a slope angle of 3 degrees. A review of the peat depths indicate that the peat depth is relatively consistent upslope and downslope of the access road, indicating that the base of the peat slope is similar to the ground surface. Peat strengths recorded in this area ranged from 4.5 to 22kPa and are shown on Figure 6.7. Results of the analyses are summarised in the table below.

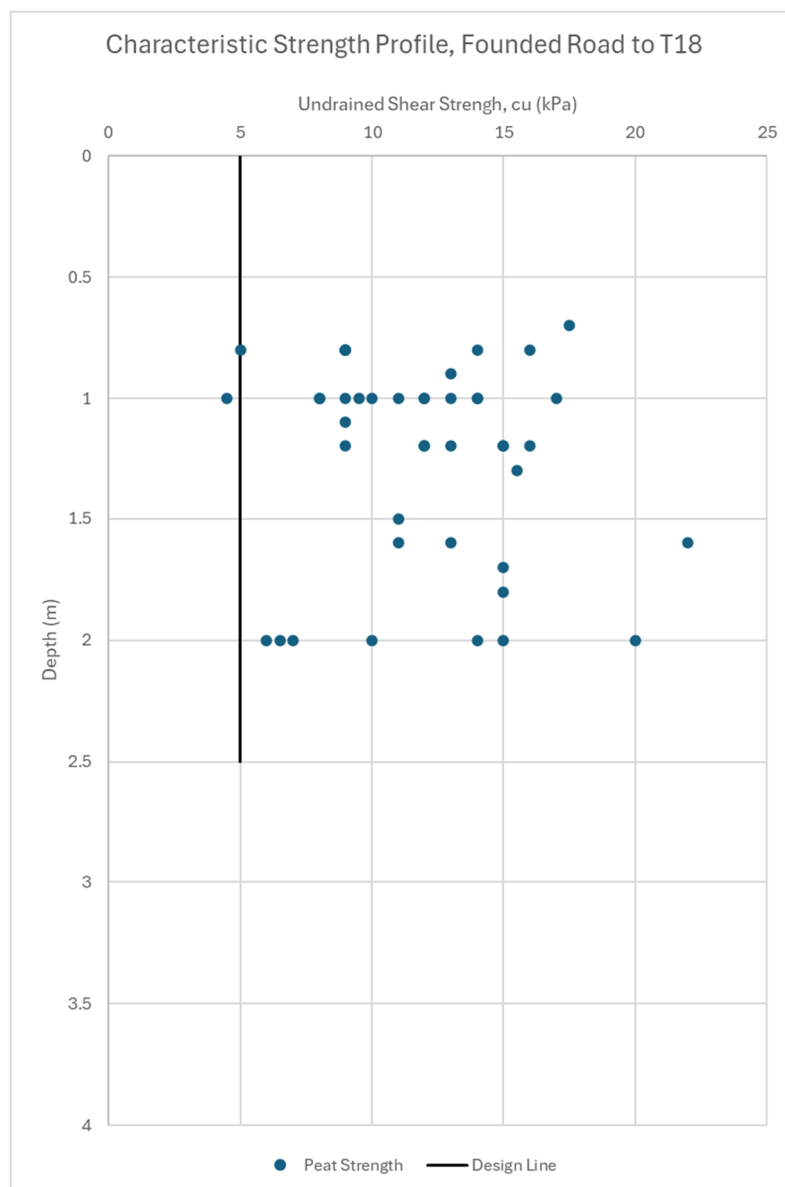


Figure 6.7: Peat Strength versus Depth, Founded Road to T18



Table 6-7: Slope Stability, T18 Access Road

T18 Founded Road	DA1C2 (undrained)	DA1C2 (drained)
Road Stability	1.62	2.50
Peat Stability	1.27*	7.26

*With 10kPa accidental loading

6.2.4.7 Main Spine Road/T06/T17 Low ODF results

A small number of low ODF results (3 no. locations) were recorded for load condition 2 in the drained infinite slope analyses. As a check of these locations, even though no additional side casting is proposed as part of the Prospective Works, a SlopeW analysis has been undertaken to analyse the current stability of these areas. This is a drained analysis to model the long-term stability of these areas. The results are summarised below. Peat depths at these locations were 2.0m for the Main Spine Road, 2.0m for T06 and 1.6m for T17. Slope angles analysed were 5 degrees for the Main Spine Road, 9 degrees for T06 and 8 degrees for T17.

Table 6-8: Slope Stability, Spine Road, T06, T17

Location	DA1C2 (drained)
Main Spine Road	1.54
T06	1.14
T17	1.14

6.2.4.8 Upgrade of Existing Floating Forestry Access Track to BMEP Site

The existing floating section of forestry access track leading to the BMEP Site from the junction with the public road to new section of floating road will be widened to 4m in width. The location of this track is shown on drawing P24-234-0601-0003. A stability check of this track has been undertaken using SlopeW software to check the stability of the track in both the undrained (short term) and drained (long term) cases. A surcharge load of 20kPa has been applied to the track to model the effect of the forestry machinery and timber transport vehicles (for the undrained analysis only).

Peat depths of between 0.5 and 2.0m were recorded during peat probing. For the purposes of this assessment, a peat depth of 2m was used, with a slope angle of 2.5 degrees. Peat strengths recorded in this area ranged from 9 to 21kPa and are shown on Figure 6.8. For design purposes a shear strength of 8kPa has been used. As the history of the existing forestry access track is not known, no increase in shear strength for the underlying peat has been included.

For the undrained condition an ODF of 1.32 (DA1C2) was recorded for this analysis. For the drained condition an ODF of 1.15 was recorded.

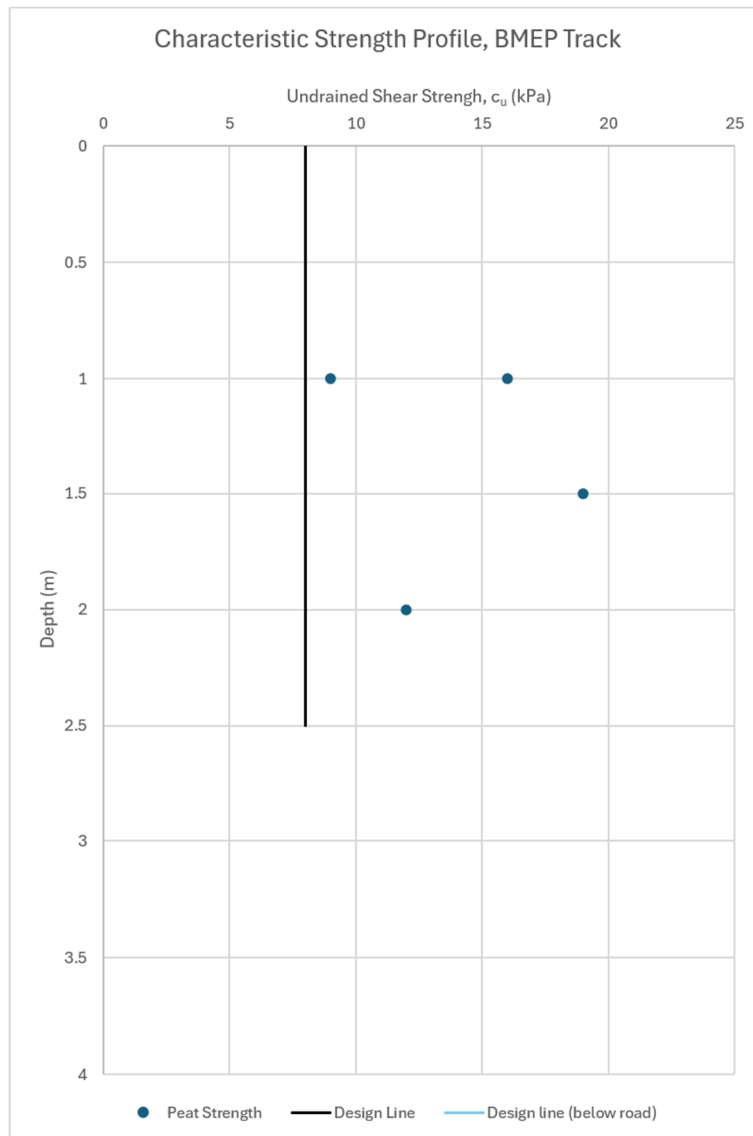


Figure 6.8: Peat Strength versus Depth, Upgraded Floated Forestry Track to BMEP

6.2.4.9 New Floating Forestry Access Track to BMEP Site

A new floating section of access track leading to the BMEP Site is proposed from the end of the existing floating forestry track. The location of this track is shown on drawing P24-234-0601-0003. A stability check of this track has been undertaken using SlopeW software to check the stability of the road in both the undrained (short term) and drained (long term) cases. A surcharge load of 20kPa has been applied to the road to model the effect of the forestry machinery and timber transport vehicles (for the undrained analysis only).

Peat depths of between 0.2 and 1.5m were recorded during peat probing. For the purposes of this assessment, a peat depth of 1.5m was used, with a slope angle of 2.5 degrees. Peat strengths recorded in this area ranged from 9 to 21kPa and are shown on Figure 6.9. For design purposes a shear strength of 8kPa has been used.

For the undrained condition an ODF of 2.16 (DA1C2) was recorded for this analysis. For the drained condition an ODF of 2.93 was recorded.

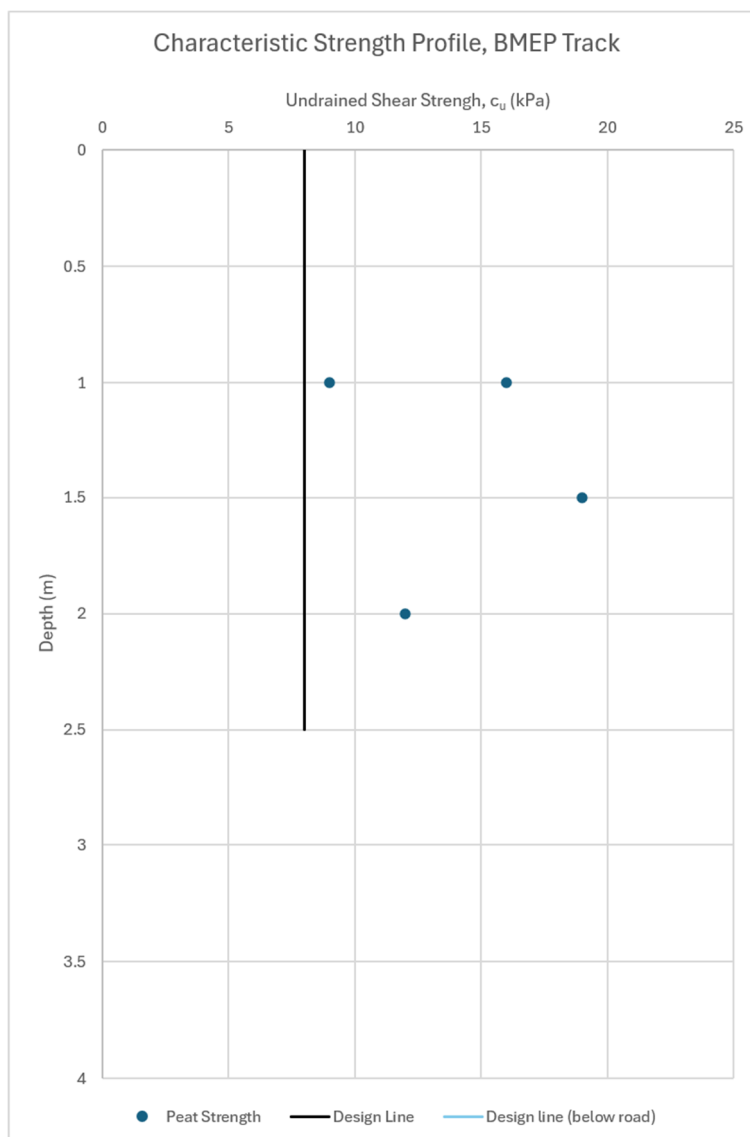


Figure 6.9: Peat Strength versus Depth, New Floated Forestry Track to BMEP

6.3 Peat Stability Risk Assessment (Qualitative)

A Peat Stability Risk Assessment (PSRA) has been carried out for the Wind Farm Site and the BEMP Site to characterise the relative risk of peat instability in defined zones across the Wind Farm Site in 2019 (prior to construction works commencing), in 2026 to cover the current site conditions and also following the implementation of further mitigations measures prior to construction works for the Prospective Development. The purpose of the PSRA is to identify where there are elevated risk factors that determine where mitigation measures are required to ensure that the risk of peat instability can be reduced to an acceptable level for each site activity.

A qualitative risk assessment has been carried out for each zone to assess the Risk Rating (R) for a peat slide based on the interpreted Likelihood (L) (i.e. probability) of occurrence and Impact (I) of failure.

The **Likelihood (L)** of a peat slide in each zone has been interpreted by evaluating factors related to the peat and subsoil conditions, topography, site hydrology/hydrogeology and other significant contributory factors such



as peat harvesting or slide history to determine where there are conditions that could lead to an elevated risk of a peat slide.

Zones of potential peat instability can be very localised, i.e. where there is a specific combination of factors on the Wind Farm Site that can lead to an elevated risk of a peat slide under uncontrolled conditions, e.g. at the head of a watercourse. Therefore, the factors assessed are generally specific to the proposed location of the work element, i.e. along the alignment of the access track, or at the location of the turbines, crane hardstandings, borrow pits or peat storage locations. In this way representative combinations of peat depth, shear strength and slope angles are used in the assessment.

The Likelihood of a peat slide occurring has been interpreted for each turbine location across the Wind Farm Site and along the floating roads using the worksheets in Appendix D. In addition to the Wind Farm Site conditions summarised in Section 3 of this report, the following information has been used to complete the worksheets:

- Peat and subsoils condition
- Topography
- Infinite Slope (ODF) calculations
- Hydrology
- Other contributory factors

For the peat and subsoil conditions the depth, undrained shear strength, water content and degree of decomposition (humification) of the peat are considered, along with the characteristics of the subsoil and the interface with the peat.

Topographical characteristics that are significant to peat stability include relatively steep slope angles (e.g. $>5^\circ$), or the location of the site activities or infrastructure relative to a convex break in slope, or to a broad flat area directly upstream from a watercourse, where there is a higher risk of concentrated subsurface groundwater flow within or at the base of the peat that could contribute to a peat slide.

Topography is particularly significant where it is combined with other risk factors such as areas of deep low strength peat. Therefore, this is assessed by calculating an Overdesign Factor (ODF) against shear failure at the base of the peat as an index of peat stability on the slopes. This is done by infinite slope analysis (Section 6.2), which assesses the resistance to shear failure on the inclined plane at the base of the peat under the downslope component of the gravitational loading due to the self-weight of the peat.

Hydrology risk factors that are known to contribute to peat slides would include areas of poor drainage with ponded surface water, and areas where there is evidence of subsurface groundwater flow through open conduits called “pipes” within the peat, or along permeable layers of gravel or fractured rock at the base of the peat, which are typically identified in trial pits or exposures on the Wind Farm Site. The orientation of drains relative to the slope is also significant as drains that are cut across a peat slope in areas of deep peat have been known to contribute to peat instability by damaging the integrity of the vegetated crust of the peat and by restricting downslope surface runoff.

The PSRA also considers indirect contributory factors or site characteristics that can be used to identify sites or zones that could be particularly susceptible to peat slides, such as:

- Poor tree growth or wetlands vegetation and flushes associated with poor drainage;
- A history of previous slides on the Wind Farm Site or in the general area;
- Peat workings such as manual harvesting in turbary plots or mechanical harvesting with a saw-cutter or sausage cutter;



- Evidence of peat slides, subsurface drainage or general anomalies such as disturbed peat or drainage patterns from aerial photographs; and
- The stability of peat and groundwater ingress in trial pit excavations on the Wind Farm Site.

The hazard likelihood is calculated by providing a hazard rating for each factor considered in the assessment, rated from Negligible (0) to Very High (20). The total hazard rating is the sum of each factor, from a total of 100. This is not a probability of occurrence of a peat slide. It is an index that takes into account the interaction between different risk factors to assess the relative risk of peat instability between zones across the Wind Farm Site and to identify zones where there are compounding risk factors that could make them particularly susceptible to peat slides.

Table 6-9: Total Hazard rating and Likelihood (L) of a peat Slide

Total Hazard Rating	Likelihood (L)		Probability (Evet/km.yr)
0	0	Not Applicable (<0.5m peat)	<1/100,000
1-19	1	Negligible	1/100,000 to 1/10,000
20-39	2	Low	1/10,000 to 1/1,000
40-59	3	Possible	1/1,000 to 1/100
60-79	4	Very Possible	1/100 to 1/10
80-100	5	Likely	>1/10

The probability ranges in Table 6-9 are intended as indicative frequencies of failure for comparative purposes in a Qualitative Risk Assessment. They are not precise probabilities of occurrence calculated from a recorded database of case histories of peat slides that have occurred under similar conditions. Therefore, they should not be used for a Quantitative Risk Assessment.

It should also be noted that the failure frequencies listed in Table 6-9 do not reflect the scale of peat failures, which could range from small, localised shear failures in areas of shallow peat on the Wind Farm Site, to large scale peat slides or bog bursts in deeper peat in high-risk zones. This is taken into account in the assessment of the Impact of a peat slide.

The potential **Impact (I)** of a peat slide in each zone has been interpreted by evaluating factors related to the potential volume of a peat slide, degree of contamination, sensitivity of the receiving environment, access for intervention, and land use and existing infrastructure within the potential run-out distance.

The volume of peat in a slide is assessed from the potential area that could be impacted by a slide and the depth of peat within that area. The following bands are proposed based on past experience with peat slides in Ireland:

- Localised (<100 m³)
- Very small (100-1,000m³)
- Small (1,000-5,000 m³)
- Medium (5,000 - 25,000 m³)
- Large (25,000 - 100,000 m³)
- Very Large (>100,000 m³)

The following characteristics of the Wind Farm Site are considered relevant in assessing the impact of a peat slide:



- Nearest SAC/SPA – the Wind Farm Site borders the Croaghonagh Bog SAC and is directly upstream of the Finn River SAC.
- Potential Impact on Mourne Beg River
- Existing Site infrastructure – as the Existing Development has been completed, the existing site access roads could be directly impacted by a peat slide.
- Volume of peat in potential slide
- Possible run-out distance
- Sensitivity of the receiving environment & habitat
- Potential degree of contamination
- Access for intervention (onsite/offsite)
- Public / private infrastructure in potential peat flow path & within run-out distance (e.g. Roads, buildings, overhead power lines or telephone lines)
- Existing site infrastructure in potential peat flow path & within run-out distance (Access tracks, turbines, cable trenches, substations etc.)
- Land usage in potential peat flow path & within run-out distance

A peat slide would have a significant commercial impact on the project. In addition to the costs of remedial works to mitigate the effect of the peat slide on the receiving environment, the commercial impact could include the loss of wind farm infrastructure, damage to local or regional public infrastructure (bridges, roads etc), and/or loss of commercial forestry and agricultural land. It could also lead to sustained periods of power outages where the wind farm is shut down or disconnected from the grid. During construction a peat slide would also cause significant delays to the programme.

The potential Impact of a peat slide on the Wind Farm Site has been qualitatively assessed on a scale of 1-5 based on the factors listed above. The upper limit of 5 on the Impact identifies zones where there are compounding risk factors which suggest that a peat slide would have a severe impact on cost and time aspects of the project and also on the surrounding environment.

The peat slide that occurred during construction on the Wind Farm Site involved approximately 86,000m³ of peat, which would be classified as Large. The peat that was mobilised in the slide became fluidised and travelled a significant distance along the watercourses downstream from the Wind Farm Site. On the basis of these factors, the potential **Impact** of a large peat slide similar in scale and nature to the November 2020 Peatslide has been classified as **High (I=5)** for all zones on the Wind Farm Site.

A baseline **Risk Rating** ($R=L \times I$, Table 6-11) has then been calculated for each zone (on a scale of 1 to 25, Table 6-11), initially for the original condition prior to construction works starting in 2019, prior to the implementation of risk mitigation measures to characterise the risk of peat instability across the Wind Farm Site to identify where specific design, construction & operational mitigation measures are required to mitigate the risk of peat instability to an acceptable level.

The results of the baseline PSRA are presented in Table 6-12, with the individual assessments included in Appendix D. The summary table provides both the original 2019 baseline and the updated 2026 baseline, as well as the risk rating following the mitigation measures provided in this report. The 2019 baseline was undertaken to analyse the risk based on the conditions present on the Wind Farm Site prior to construction commencing.

It should be noted that the Risk Ratings in these tables represent the interpreted risk of a peat slide based on Wind Farm Site conditions prior to the implementation of risk mitigation measures. It identifies areas of the Wind Farm Site where there is an elevated risk of peat instability so that appropriate design and construction mitigation measures can be identified to reduce the risk of a peat slide to an acceptable level for site activities.



The qualitative risk assessment methodology is simply a tool that is used to identify where appropriate risk mitigation measures need to be implemented to reduce the risk of a peat slide to an acceptable level. This is consistent with the approach in the ICE Publication – Managing Geotechnical Risk (Clayton, 2001).

6.3.1 Change in Likelihood of a Peat Slide over the Project Life Span

The impact of site activities on peat stability will have reduced significantly over the project life cycle from the initial conditions prior to construction through to the second phase of construction after the peat slide. This is due to changes to the likelihood or probability of occurrence of a peat slide as a result of:

- Changes to the characteristics of the project-related site activities (i.e. the highest level of activity and initial loading on the peat was during the first phase of construction).
- The majority of the construction works have been completed so only minimal works will be required to complete the Prospective Development, lowering the potential impact on peat stability.
- Implementation of effective design mitigation measures and alternative construction methods (e.g. alternative methods of spoil management following the failure).
- Additional geotechnical investigations, stability analyses, testing, monitoring and geotechnical supervision (e.g. geotechnical assessment and full-scale proof testing of the floating roads).
- Changes to the site characteristics due to improved drainage and an increase in the strength of the peat under sustained dead load surcharges (i.e. under the floating roads and material sidecast areas).

The improved site conditions since construction are largely due to the improved drainage and the increase in the strength of the peat under the sustained dead load surcharges from the floating roads and material sidecast areas on the intact peat slopes. For these elements of the project the highest stability risk was in the short-term condition when the load was initially placed on the slopes during construction. Since then, the peat has increased in strength as it consolidated and compressed under the applied loads so that the probability of a peat slide has reduced significantly over time.

The increase in strength and stiffness of the peat as it consolidated under sustained load is a fundamental and well-established geotechnical principle. Taking account of the reduced likelihood of a peat slide at this stage in the project life cycle is also consistent with the 'Guidelines on the Information to be Contained in Environmental Impact Assessment Reports' (EPA, 2022), which includes the probability of occurrence as an input parameter for impact assessments.

However, the potential Impact of a peat slide at a particular location cannot be reduced significantly unless positive measures are taken to effectively contain peat or sediment along potential flow paths prior to construction. For the Wind Farm Site no further measures are currently scheduled to mitigate the Impact of a potential peat slide during the construction works or over the remaining operational life of the wind farm. Therefore, it has been assumed that the Impact rating will be maintained at the highest level (I=5) throughout this assessment, even after the mitigation measures are taken into account.

6.4 Peat Stability Risk Rating – Current Baseline

The results of the PSRA for the original baseline (2019) and current conditions (2026) are presented in Table 6-12. It should be noted that the Risk Ratings on these figures and tables represent the interpreted risk of a peat slide based on site conditions prior to the implementation of further risk mitigation measures. It identifies areas of the Wind Farm Site where there is an elevated risk of peat instability so that appropriate design and construction mitigation measures can be identified to reduce the risk of a peat slide to an acceptable level for



site activities. The updated 2026 baseline reflects the fact that the majority of the Wind Farm Site has been constructed and that it has been stable for a number of years.

The assessment identifies one area close to turbines/hardstands where the Risk Rating, R, prior to mitigation is characterised as Low to Medium (R=10), which is classed as regular attention. This zone is in an area where there are elevated risk factors in relation to peat stability, such as:

- Deposits of deep (>3m) peat, weak peat (<4kPa), with low infinite slope Factor of Safety (<1.0)
- Area adjacent to the previous slide that have similar characteristics (T07).

The remaining areas across the Wind Farm Site the Risk Rating, R, prior to mitigation measures would be characterised as Low (R=5) or Low to Medium (R=10), which would require early or regular attention with appropriate mitigation measures to reduce the risk of peat instability or to manage the risk on the Wind Farm Site and the BMEP Site. These were in areas where there were mitigating conditions that reduced the baseline risk of peat instability. For example:

- Areas of shallow (<1.0m) or relatively shallow (1-2m) peat;
- Areas of gently sloping ground (<3°) set well back from any convex break in slope to slopes >5°;
- Areas of relatively high infinite slope ODF >1.0;
- Zones where there is well-developed drainage and which are not directly upslope from the rivers and streams outside the Wind Farm Site.

Although there are areas of the Wind Farm Site that have an elevated risk of peat instability, based on our current experience with managing peat stability under similar conditions this would not be considered an abnormal or exceptional risk for a wind farm project on an upland blanket bog in Ireland.

Table 6-10: Risk Rating

Likelihood (L)	Impact (I)				
	1	2	3	4	5
1	1	2	3	4	5
2	2	4	6	8	10
3	3	6	9	12	15
4	4	8	12	16	20
5	5	10	15	20	25

Table 6-11: Risk Rating Levels and Response

Risk Rating (R = L x I)		Response
0 to 5	Low (Trivial)	Monitor
6 to 10	Low to Medium (Tolerable)	Regular Attention
11 to 15	Medium (Significant)	Early Attention
16 to 20	Medium to High (Substantial)	Unacceptable
21 to 25	High (Intolerable)	Unacceptable



Table 6.12: Peat Stability Risk Rating (original 2019 and current 2026 baselines)

							Baseline Risk Rating - 2019 (Original Condition Prior to Construction)					Risk Rating After Mitigation Measures and Construction (Current Baseline)				
Turbine No.	Peat/Subsoil	Topography	ODF	Hydrology	Contributing Factors	Total Hazard Rating	Hazard Likelihood (L)	Impact (I)	Risk rating (R=LxI)	Risk Classification	Response	Hazard Likelihood (L)	Impact (I)	Risk rating (R=LxI)	Risk Classification	Response
T01	10	15	10	10	10	55	3	5	15	Medium	Early Attention	1	5	5	Low	Monitor
T02	10	10	15	10	10	55	3	5	15	Medium	Early Attention	1	5	5	Low	Monitor
T03	15	10	15	10	10	60	4	5	20	Medium to High	Unacceptable	1	5	5	Low	Monitor
T04	15	10	15	10	10	60	4	5	20	Medium to High	Unacceptable	1	5	5	Low	Monitor
T05	15	15	15	10	10	65	4	5	20	Medium to High	Unacceptable	1	5	5	Low	Monitor
T06	10	15	15	10	15	65	4	5	20	Medium to High	Unacceptable	1	5	5	Low	Monitor
T07	15	15	15	10	20	75	4	5	20	Medium to High	Unacceptable	2	5	10	Low to Medium	Regular Attention
T08	10	10	10	10	15	55	3	5	15	Medium	Early Attention	1	5	5	Low	Monitor
T09	10	10	10	15	15	60	4	5	20	Medium to High	Unacceptable	1	5	5	Low	Monitor
T10	10	10	10	15	10	55	3	5	15	Medium	Early Attention	1	5	5	Low	Monitor
T11	15	10	10	10	10	55	3	5	15	Medium	Early Attention	1	5	5	Low	Monitor
T12	10	10	10	15	20	65	4	5	20	Medium to High	Unacceptable	1	5	5	Low	Monitor
T13	10	10	5	10	10	45	3	5	15	Medium	Early Attention	1	5	5	Low	Monitor
T14	10	10	5	10	10	45	3	5	15	Medium	Early Attention	1	5	5	Low	Monitor
T15	10	10	5	10	10	45	3	5	15	Medium	Early Attention	1	5	5	Low	Monitor
T16	15	10	10	10	10	55	3	5	15	Medium	Early Attention	1	5	5	Low	Monitor
T17	10	10	5	10	10	45	3	5	15	Medium	Early Attention	1	5	5	Low	Monitor
T18	10	15	5	15	10	55	3	5	15	Medium	Early Attention	1	5	5	Low	Monitor
T19	15	10	10	15	10	60	4	5	20	Medium to High	Unacceptable	1	5	5	Low	Monitor
Floating Road to T01	15	15	15	10	15	70	4	5	20	Medium to High	Unacceptable	2	5	10	Low to Medium	Regular Attention
Floating Road to T02	15	15	15	10	15	70	4	5	20	Medium to High	Unacceptable	2	5	10	Low to Medium	Regular Attention
Floating Road to T03	15	15	15	10	15	70	4	5	20	Medium to High	Unacceptable	2	5	10	Low to Medium	Regular Attention
Floating Road to T04	15	15	15	10	15	70	4	5	20	Medium to High	Unacceptable	2	5	10	Low to Medium	Regular Attention
Floating Road to T07	15	15	10	10	20	70	4	5	20	Medium to High	Unacceptable	2	5	10	Low to Medium	Regular Attention
Floating Road to T18	10	15	10	15	15	65	4	5	20	Medium to High	Unacceptable	1	5	5	Low	Monitor
Floating Road to BMFP	10	10	5	10	5	40	2	5	10	Low to Medium	Regular Attention	2	5	10	Low to Medium	Regular Attention



7. MITIGATION MEASURES

7.1 Mitigation Measures

Following an assessment of the Wind Farm Site with respect to peat stability as presented in this report it is considered that the construction of the Prospective Development can be completed safely without further peat instability provided the mitigation measures given below are adhered to. The majority of the works associated with the Site are complete, the works remaining to complete the Prospective Development are relatively minor in nature.

The mitigation measures are based on the findings and lessons learned from the stability assessment of the Wind Farm Site together with examination of the cause of the November 2020 Peatslide and other instabilities identified on the Wind Farm Site. A summary of the lessons learned, and accompanying mitigation measures are included in Table 7-1. Details of the mitigation measures are provided below.

Table 7-1: Lessons Learned and Accompanying Mitigation Measures

Peat Stability - Lessons learned	Mitigation Measures
Excessive loading of in-situ peat	- No construction of new floating roads is to be carried out at the Wind Farm Site, although some of the existing floating roads will be used for the completion of the Prospective Development following proof load testing of the roads. - A single section of new floating road will be constructed on the BMEP Site and will be subject to the mitigation measures listed in the text below. - No loading of in-situ peat (sidecasting). Instability recorded on the Wind Farm Site can be attributed to various degrees to excessive placed construction loading onto the in-situ peat surface. - Loading from mobile crane moving around the Wind Farm Site to be controlled to ensure the crane load is not higher than the load used to proof load the floating roads (crane to be moved derigged).
Identifying body of weak peat in proximity to proposed works	Confirmatory re-testing and assessment in zone of influence in advance of construction works. Further confirmatory re-testing to be completed immediately prior to works recommencing in each area of the Wind Farm Site to ensure no change in ground conditions.
Accidental excessive loading of in-situ peat during construction	- Site supervision and permit to work with respect to peat stability. All construction on the Wind Farm Site shall be managed and controlled by the construction management team to ensure that all activities have been appropriately assessed with respect to peat stability and related health and safety. - All excavated material to be stored within the borrow pits. No sidecasting of excavated peat/spoil.
Identifying areas of potential weak peat in advance of works completion of works	- Monitoring of ground movement and constructed works. In order to monitor the performance of the constructed works within the peat areas, and any further construction works to be carried out, a series of monitoring points shall be established throughout the Wind Farm Site. - Proof testing of floating roads. Full-scale proof load tests to be carried out on existing floating roads to verify their capacity under the design



Peat Stability - Lessons learned	Mitigation Measures
	loads for the construction traffic and for largest loading to be experienced by the road.
Degradation of work due to inclement weather	Construction and weather conditions. Restrictions on work during or after periods of heavy or sustained rainfall. Heavy intense rainfall can result in degradation of the works resulting in localised instability, and in extreme cases can trigger large-scale peat failure.
Construction of stabilising berm downslope of T01/T04 junction	- Downslope of the junction between the spur road to T01 and T02/04 a berm will be constructed downslope of the existing floating road, due to the relatively low ODF values recorded when a crane load is applied. Berm designed in accordance with Eurocode 7 design requirements. - Berm will be excavated to a solid stratum at between 1.5 and 2.5m bgl and backfilled with a coarse rock fill. Excavation extents will be limited to <5m to reduce the likelihood of any instability. In area where the peat is >1.5m deep, or where minor instability is the sidewalls of the excavation are noted, placement of rock will be by controlled displacement, where larger rock is pushed through the lower part of the peat layer to rest on the underlying firm stratum.

The following mitigation measures are given:

- (1) Remaining construction works. The remaining construction works are summarised in Table 3-1. The remaining works are generally minor in nature and do not require extensive groundworks, except for the works at T07 and the upgrade of the access road to T18. All works designed to Eurocode 7 requirements and partial factors.
 - (a) Any remaining works will be subject to the mitigation measures given below, or any other such related requirements.
 - (b) Where there are further works not included in the above, that may adversely affect ground stability, then these further works will also be subject to the mitigation measures given below, or any other such related requirements.
 - (c) All works have been subject to detailed design to Eurocode 7.
- (2) No construction of new floating roads is to be carried out at the Wind Farm Site, although some of the existing floating roads will be used to complete the Prospective Development. Alternative methods of construction will be adopted for new roads within the Wind Farm Site.
 - (a) Where alternative methods of construction are proposed these shall be subject to the mitigation measures given below, or any other such related requirements.
 - (b) Appropriate method statements will be produced to mitigate against the risk of peat and ground instability.
 - (c) Alternative road construction would typically comprise road founded on competent strata below peat which will require excavate and replacement techniques. For alternative road construction the following items, which are non-exhaustive, will be included:
 - (i) No temporary or permanent side casting of arisings onto in-situ peat surface. All arisings to be placed into designated contained areas (Peat Cells or Borrow Pits).
 - (ii) Use of low permeability plugs along line of road at suitability spaced intervals to avoid longitudinal transmission of surface water.
 - (iii) Observational approach adopted to monitor side-wall stability of peat in excavations.



- (iv) Construction programmed to minimise the time peat excavations are exposed prior to filling with suitable fill.
 - (v) Construction of the road to T18 will start at the end of the existing founded section of the road to T18, with excavated material transported to one of the peat cells/borrow pits. The movement of plant along the existing floating forestry track to T18 should be minimised.
 - (vi) Completion of the access road to T7 will involve the lowering of the existing stone berm to create a wide enough access road to allow for the construction of the hardstand and erection of the turbine. Where additional excavation is required to widen this road, it will be undertaken on the downslope side of the existing berm where the peat is shallower. The hardstand and associated laydown areas will not encroach on the area of deep peat to the west of the proposed hardstand location.
- (3) Construction of a section of floating track on the BMEP Site:
- (a) Any works will be subject to the mitigation measures given below, or any other such related requirements.
 - (b) Confirmatory testing as per bullet (7) below will be undertaken along the route of the track prior to construction commencing, including inspection, peat probing and hand shear vane testing.
 - (c) Full-scale proof load testing as per bullet (9) below will be undertaken following construction of the new floating track.
- (4) No loading of in-situ peat (sidecasting):
- (a) The remaining works on the Wind Farm Site and the BMEP Site will be carried out without placing of any arisings or loading on to the in-situ peat. Placing of any load particularly onto the downslope margin of any works within peat will be avoided.
 - (b) It is recommended that the tracking of construction machinery onto the in-situ peat is kept to a minimum and limited to the installation or maintenance of site drainage using appropriate low ground pressure plant. In the event that construction machinery has to track onto the in-situ peat then the peat shall be inspected and assessed by a competent person to avoid excessive loading. If the competent person is in any doubt as to the suitability of the peat for tracking of machinery, no tracking of machines onto the peat should take place.
 - (c) The definition of excessive loading shall be determined by the competent person and will take into account the nature and type of loading and the nature and type of the in-situ peat and general ground conditions.
 - (d) Where required the assessment will include visual inspection and appropriate testing of in-situ peat with respect to depth and strength to full peat depth. For example, thin peaty soil (less than 0.5m thick) over mineral soil would not represent a notable risk of peat instability. The results of the assessment, pending satisfactory findings, shall be completed prior to any works commencing. A record of all such assessments shall be maintained.
 - (e) The above excludes areas of landscaping that will be required around hardstands and alongside roads, where peat will be used to 'dress' cut and fill slopes and areas of disturbed ground.
- (5) Spoil Management. All excavated peat and spoil to be stored in appropriated designed locations, such as within the existing borrow pits (BP1 and 2) and the proposed extension to the borrow pit (BP3). No material will be sidecast on the peat slopes for either temporary or permanent storage (excluding landscaping requirements). See Peat & Spoil Management Plan (Prospective Works) (FT, 2026) for details.
- (6) Monitoring of ground movement and constructed works. In order to monitor the performance of the constructed works within the peat areas, and any further construction works to be carried out, a series of monitoring points shall be established throughout the Wind Farm Site.



- (a) Monitoring is proposed to provide advance warning of potential instability or possible longer-term movement, that may represent potential for degradation of the works over time that could lead to instability.
- (b) Monitoring shall be sited at critical locations typically adjacent to the constructed works as given in Table 7-2. The exact location of the monitoring will be determined following inspection. Other locations may be included as required by the designer or contractor.
- (c) Monitoring will consist of a series of wooden posts (say 4 no.) inserted into the ground to create a straight line, ideally obliquely across the slope. A string line will be tied to the first and last post. The line of posts will be placed such that they can be sighted along from the position of the road. Any deviation of the posts would indicate potential movement of the peat.
- (d) The monitoring is intended to be easy to install, readily read without any equipment, and where required can be readily maintained and replaced.
- (e) The monitoring locations will be read weekly or following heavy rainfall. Readings will be carried out until completion of the works.
- (f) A record of the readings shall be maintained. The record will include time, date, movement of any posts (or no movement), any follow-up inspections. Accidental movement of the posts will be noted and the posts moved back into alignment, where possible.
- (g) Trigger levels will be taken as indicatively 100mm or continued rate of creep movement, as determined by the designer. Where trigger levels have been reached, the designer will be notified and the reason for the movement established to determine whether the movement warrants further investigation.
- (h) Where there are remaining works to be completed then monitoring will be installed adjacent to the works at critical locations. Operatives will be made aware of the monitoring and will be required to observe the monitoring at a regular interval and to report any unusual observations to the construction management team.
- (i) Where monitoring shows ground movement has occurred in an area where construction works is underway then works will cease in that area and operatives and plant moved to a safe location, the designer notified and the reason for the movement established prior to re-commencing works.
- (j) Inspection of constructed works indicated a number of locations where monitoring is required, these are included below.

Table 7-2: Ground Monitoring Locations

No	Location	Comments
1	Junction of access road to T1 with spur to T2 and T4 along downslope margin.	Area of deepest peat in close proximity to concave break in slope. Downslope of road but upslope of proposed berm.
2	Along access to T3 about 50m from hardstand along downslope margin.	Area of deeper peat in close proximity to concave break in slope.
3	Along access to T2 about 100m from hardstand along downslope margin.	Area of deeper peat in close proximity to concave break in slope.
4	Along access to T4 about 200m from hardstand along downslope margin.	Area of deeper peat in close proximity to concave break in slope.
5	Along access from T5 to T3 about 200m from T5 along downslope margin.	Area of deeper peat in close proximity to concave break in slope.
6	Junction of access road to T7 about 250m along access to T7 along downslope margin.	Area of deeper peat in close proximity to concave break in slope, within potential area of 12 November failure.



No	Location	Comments
7	South side of upper scar of 12 November failure.	Upper scar of November 2020 Peatslide failure. Potential for retrogression of failure scar.
8	On downslope margin of T7 base and hardstand prior to construction. Also, in area of deep peat to the west and southwest of T07.	To be installed in advance of any works.
9	On downslope margin of T10 base and hardstand.	Area of peat in close proximity to concave break in slope.
10	Along access to T14 about 100m from hardstand along downslope margin.	Area of peat in close proximity to concave break in slope.
11	Along access to T18 at about chainage 1600m along downslope margin.	Area of deeper peat close to river.
12	Along access to T16 about 50m from hardstand along downslope margin.	Area of deeper peat in close proximity to concave break in slope and minor instability.
13	Peat failures at Borrow Pit between T5 and T6.	Comprises 3 peat failures at this location. Monitoring at the head of each failure.
14	Instability at T5.	Series of concentric tension cracks within the in-situ peat
15	Downslope of new floating track to BMEP Site.	To be installed in advance of any works.

- (7) Confirmatory testing and assessment in zone of influence in advance of construction works is to be completed. The peat stability assessment within this report and the Ionic report have concluded that the Wind Farm Site and BMEP are safe and the remaining works can be completed safely in accordance with the recommendations and mitigation measures contained herein. Notwithstanding, the following confirmation testing and assessment will be carried out immediately in advance of construction. The confirmation testing and assessment is in addition to that already carried out in the peat stability assessment.
- In advance of the construction of any remaining works, a zone of influence extending 50m minimum in all directions from the proposed works area will be re-inspected and assessed by a competent person in advance of any works.
 - Where deemed necessary by the competent person, the zone of influence will be extended to include any ground that is considered to be affected by the works.
 - The assessment within the zone of influence will include visual inspection and appropriate testing of in-situ peat with respect to depth and strength to full peat depth. The assessment will include but not be limited to recording morphology, vegetation cover, drainage, proximity of drains and natural watercourses. The results of the assessment will be considered by the designer.
 - The further confirmatory testing of in-situ peat with respect to depth and strength to full peat depth will comprise the following within the zone of influence and will be carried out immediately in advance of works commencing:
 - Peat depth determined at typically at 20m spacing using peat probes or alternatively using continuous depth profiling such as ground penetrating radar (GPR).
 - In-situ shear vane testing, or similar technique that measures the operational shear strength of the peat, typically at 20m spacing depending on the encountered peat condition. Testing



also to be undertaken below the sections of floating road to be used as part of the Prospective Development. The use of the Geonor H10 field vane is recommended for this.

- (iii) Spacing of probes and in-situ shear vane testing, or similar, to be reduced where areas of deeper peat are encountered.
 - (e) A hydrological assessment carried out by appropriate experienced and competent person, which will include but not be limited to drainage, proximity of drains and natural watercourses will be carried out in advance of construction works.
 - (f) The results of the assessment, pending satisfactory findings, will be completed prior to any works commencing. Works will only commence following a permit to work being issued.
 - (g) A record of all such assessments will be maintained.
- (8) Site supervision and permit to work with respect to peat stability. All construction on the Wind Farm Site will be managed and controlled by the construction management team to ensure that all activities have been appropriately assessed with respect to peat stability and related health and safety. Procedures will be put in place to clearly demonstrate how this has been achieved, for example:
- (a) Procedures that provide an auditable chain of command shall be put in place to clearly demonstrate that peat stability and related health and safety have been assessed in the construction management.
 - (b) For any construction activity where peat stability and related health and safety have been assessed, then a permit to work shall be issued to the construction operative by the appropriate personnel.
 - (c) No construction works will be started until a permit to work has been issued to the construction operative by the appropriate personnel.
 - (d) All works that may affect the stability of the Wind Farm Site will be routinely inspected and supervised on Wind Farm Site by appropriate personnel. Regular geotechnical inspection of the works associated with the Prospective Development will be undertaken by a suitably experienced geotechnical engineer.
 - (e) The above procedure will be independently audited by a suitably competent and experienced person(s). The competent person shall have suitable professional qualifications and have experience of carrying out similar roles for construction projects in peatland.
 - (f) All persons involved in the assessment of peat stability on the Wind Farm Site will have sufficient expertise, competency, and experience for the tasks to which they have been assigned.
- (9) Proof testing of floating roads. Full-scale proof load tests to be carried out on floating roads to verify their capacity under the design loads for the construction traffic and for largest loading to be experienced by the road. A suggested outline methodology is given below.
- (a) Rolling load test for all floating roads. Tests to be carried out using a fully laden dump truck with sufficient load to mimic the load of the mobile crane. The weight of any truck should be recorded at a weighbridge. Typical test procedure as follows:
 - Condition and deflection of the floating road observed visually as the truck travels continuously over the floating road at a constant low speed.
 - The performance of the floating road will be qualitatively classified as Good, Fair or Poor based on the condition of the road and the observed deflection under the weight of the truck.
 - (b) The results of the proof testing shall be analysed by the designer and any mitigation measures, which may include replacement with founded road on competent strata, to be incorporated into the design. All tests will be carried out under controlled conditions to ensure that the road is not adversely damaged and that instability does not occur.



- (10) Construction of berm downslope of T01/T04 Junction. This will involve the excavation of peat and placement of rockfill.
- (a) Excavation of peat and immediate backfill with rockfill.
 - (b) The lateral extent of excavation will be limited to 3m (effective lateral reach of an excavator) before being backfilled. Rock fill from the on-site borrow pits will be transported to the berm using A25 dumpers, with the coarse rock tipped onto the constructed section of berm before backfilling. Material will not be end-tipped into the excavation.
 - (c) No material will be side cast or stored on the peat surface during the construction of the berm.
 - (d) Where the sides of the peat are spalling or squeezing then the stability of the peat will be maintained by controlled displacement of the very weak peat with coarse rockfill and boulders pushed down onto the underlying glacial till to form a stable base
 - (e) Monitoring will be required both upslope and downslope of the berm during the construction works.
 - (f) A detailed method statement for these works will be prepared prior to construction commencing.
 - (g) Excavation works will be monitored by the Project Geotechnical Engineer.
- (11) Construction and weather conditions. Restrictions on work during or after periods of heavy or sustained rainfall as recorded from weather station located on the Wind Farm Site, or from Met Eireann weather forecasts. Heavy intense rainfall can result in degradation of the works resulting in localised instability, and in extreme cases can trigger large-scale peat failure.
- (a) Following periods of heavy intense rainfall, such as 10mm/hr, >25mm in a 24-hour period, or >50% of monthly average in a 7-day period and in following 24 hours, no groundworks may take place, and any ongoing works should be restricted to hardstanding areas.
 - (b) When periods of heavy intense rainfall are predicted then works will be ceased in advance and any construction works in critical areas with respect to stability are secured in advance.

Following periods of heavy intense rainfall, the Wind Farm Site will be inspected prior to resumption of construction works by a competent person to ensure that all drainage is working, and critical areas with respect to stability are stable with no signs of ground movement.



8. PEAT STABILITY RISK ASSESSMENT (POST MITIGATION MEASURES)

8.1 Peat Stability Risk Assessment – with Monitoring and Mitigation Measures

The following general principles were adopted in the assessment of the Likelihood and Impact of a peat slide after the implementation of the site monitoring and risk mitigation measures:

- Effective design, construction & operational risk mitigation measures and improvements in site conditions can be used to reduce the Likelihood of a peat slide to a low or negligible level, even in high-risk zones.
- The Likelihood of a peat slide can also be reduced by an improvement in site conditions due to improved drainage or an increase in the strength of the peat under sustained surcharge loads over time.
- The potential Impact of a peat slide at a particular location cannot be reduced significantly unless positive measures are taken to effectively contain the peat or sediment along potential flow paths prior to construction.

With the appropriate monitoring and mitigation measures detailed in this report, it was possible to reduce the Likelihood of Occurrence, L, of a peat slide to 1 (Negligible) or 2 (Low) across the Wind Farm Site. The higher Likelihood of 2 (Low) was interpreted for the turbine and hardstand area at T07, where the likelihood of a peat slide prior to the implementation of the mitigation measures was interpreted as High (L=4). This is to reflect a slightly higher residual risk in this area. The remainder of the Wind Farm Site is classified as Negligible likelihood.

Due to the sensitivity of the receiving environment and the potential scale of a peat slide, we have conservatively assumed that the Impact of a peat slide remains the same even after the mitigation measures have been implemented. Therefore, with appropriate implementation of the monitoring and risk mitigation measures the Risk Rating across the Wind Farm Site reduces to Low (R = 5) or Low to Medium (R=10) as a function of the interpreted Likelihood of a slide.

Where the Risk Rating is Low it would be classified as Trivial (Clayton, 2001) which is acceptable with Monitoring during construction. Where the Risk Rating is Low to Medium (only at T07), it would be classified as Tolerable (Clayton, 2001) and can be addressed with Regular Attention during construction.



Table 8.1: Peat Stability Risk Rating (Post Mitigation Measures)

	2026 Risk Rating After Original Mitigation Measures and Construction (Current Baseline)					2026 Risk Rating After Further Mitigation Measures for the Prospective Development				
Turbine No.	Hazard Likelihood (L)	Impact (I)	Risk rating (R=LxI)	Risk Classification	Response	Hazard Likelihood (L)	Impact (I)	Risk rating (R=LxI)	Risk Classification	Response
T01	1	5	5	Low	Monitor	1	5	5	Low	Monitor
T02	1	5	5	Low	Monitor	1	5	5	Low	Monitor
T03	1	5	5	Low	Monitor	1	5	5	Low	Monitor
T04	1	5	5	Low	Monitor	1	5	5	Low	Monitor
T05	1	5	5	Low	Monitor	1	5	5	Low	Monitor
T06	1	5	5	Low	Monitor	1	5	5	Low	Monitor
T07	2	5	10	Low to Medium	Regular Attention	2	5	10	Low to Medium	Regular Attention
T08	1	5	5	Low	Monitor	1	5	5	Low	Monitor
T09	1	5	5	Low	Monitor	1	5	5	Low	Monitor
T10	1	5	5	Low	Monitor	1	5	5	Low	Monitor
T11	1	5	5	Low	Monitor	1	5	5	Low	Monitor
T12	1	5	5	Low	Monitor	1	5	5	Low	Monitor
T13	1	5	5	Low	Monitor	1	5	5	Low	Monitor
T14	1	5	5	Low	Monitor	1	5	5	Low	Monitor
T15	1	5	5	Low	Monitor	1	5	5	Low	Monitor
T16	1	5	5	Low	Monitor	1	5	5	Low	Monitor
T17	1	5	5	Low	Monitor	1	5	5	Low	Monitor
T18	1	5	5	Low	Monitor	1	5	5	Low	Monitor
T19	1	5	5	Low	Monitor	1	5	5	Low	Monitor
Floating Road to T01	2	5	10	Low to Medium	Regular Attention	1	5	5	Low	Monitor
Floating Road to T02	2	5	10	Low to Medium	Regular Attention	1	5	5	Low	Monitor
Floating Road to T03	2	5	10	Low to Medium	Regular Attention	1	5	5	Low	Monitor
Floating Road to T04	2	5	10	Low to Medium	Regular Attention	1	5	5	Low	Monitor
Upgrade of Floating Road to T07	2	5	10	Low to Medium	Regular Attention	1	5	5	Low	Monitor
Upgraded Road to T18	1	5	5	Low	Monitor	1	5	5	Low	Monitor
Floating Road to BMEP	2	5	10	Low to Medium	Regular Attention	1	5	5	Low	Monitor



9. SUMMARY

FT was engaged by MKO Ltd. to undertake a geotechnical and peat stability assessment of the Prospective Development.

The findings of the peat assessment showed that the Prospective Development will have a low risk of peat failure, with the exception of T7 which is classified as Low to Medium risk. The findings include mitigation and monitoring measures for construction work in peat lands, all of which will be implemented in full to ensure that all works adhere to an acceptable standard of safety.

The Wind Farm Site is typically covered in blanket peat with undulating terrain of open peatland and commercial forestry.

During construction and for design purposes, ground investigation of particularly the peat strength and depth was carried out by Ionic, FT and MKO. A total of about 3400 no. peat depth probes and in-situ hand shear vanes had been undertaken within the Wind Farm Site. Peat depth recorded from the investigations ranged from 0 to very locally about 7m with an average depth of 1.8m. The majority of peat depths (about 65%) were less than 2m. Hand vane shear strength test results indicate undrained shear strengths in the range of 2 to 30kPa, with an average value of about 9kPa. A total of 9 no. rotary core boreholes were undertaken at various infrastructure locations (substation and 8 no. turbines) across the Wind Farm Site during May 2020 by Irish Drilling Ltd. (IDL). Bedrock was recorded in all locations at depths of between 1.1 to 5.0m bgl. Bedrock was described as strong to very strong foliated fine and medium grained Phyllite with medium spaced discontinuities.

An analysis of peat sliding was carried out at the Prospective Development works locations for both the undrained and drained conditions. The purpose of the analysis was to determine the Overdesign Factor (ODF) of the peat slopes.

An undrained analysis was carried out, which applies in the short-term during construction. For the undrained condition, the calculated ODF for load conditions 1 (no loading) and 2 (10kPa accidental loading) for the locations analysed, showed that all locations have an acceptable ODF of greater than 1.0, indicating a low risk of peat failure. The undrained analysis is considered the most critical condition for the peat slopes. A single ODF of <1.0 was recorded for condition 2, however this is located in an area where no works are proposed.

Along the sections of floating road, an assessment was undertaken to assess the impact of placing an additional layer of rock as a finishing layer on the surface of these roads along with the live load from construction traffic. An ODF of >1.0 was recorded in 60 of the 67 locations analysed. The low (<1.0) ODF results were all clustered around the access road junction to T01 and T02/T04, as well along the road to T01 and T04. These results are based on strength testing undertaken during the construction works, and do not take into account the increase in peat strength over time since the construction of the road from the consolidation effect of the road on the underlying peat. A check on the stability of these areas has been undertaken using SlopeW slope stability software, to include for the effect of using geogrid reinforcement within the floating roads, with ODF values of >1.0 recorded for all locations. It is not anticipated that there will be any peat stability issues at this location, however, it is proposed to construct a berm on the downslope side of this section of access road to prevent any peat movement during the Prospective Development Works.

A drained analysis was also carried out, which indicates the long-term stability of the peat slopes on the Wind Farm Site. For the drained condition, the calculated ODF for load conditions (1) & (2) for the locations analysed, showed that all locations have an acceptable ODF of greater than 1.0.



A drained analysis for load condition (3) indicated some low ODF values from the infinite slope assessment. A check on the stability of these areas (along the Main Spine Road, close to T06 and close to T17) has been undertaken using SlopeW slope stability software, to include for the effect of using geogrid reinforcement within the floating roads, with ODF values of >1.0 recorded for all locations.

The qualitative peat stability risk assessment at each infrastructure location and along floating access roads identified a number of mitigation/control measures to reduce the potential risk of peat failure. See Section 8 for details of the required mitigation and monitoring measures for the Prospective Development.

The findings include mitigation and monitoring measures for construction work in peat lands, all of which will be implemented in full to ensure that all works adhere to an acceptable standard of safety.

The mitigation measures include:

- No further construction of floating roads is to be carried out at the Wind Farm Site
- No loading of in-situ peat (no sidecasting)
- All excavated material to be stored in the peat cells/borrow pits
- Confirmatory re-testing and assessment in zone of influence in advance of construction works
- Site supervision and permit to work with respect to peat stability
- Monitoring of ground movement and constructed works
- Proof testing of floating roads
- Construction and weather conditions. Restrictions on work during or after periods of heavy or sustained rainfall
- Downslope of the junction between the spur road to T01/04 a berm will be constructed downslope of the existing floating road



10. REFERENCES

- Applied Ground Engineering Consultants (AGEC) (2004). Derrybrien Wind Farm Final Report on Landslide of October 2003.
- AGEC (2017). Peat Stability Assessment Report for Meenbog Wind Farm, Co. Donegal. December 2017.
- Boylan, N, and Long, M (2014). Evaluation of peat strength for stability assessments. Proceedings of the Institution of Civil Engineers - Geotechnical Engineering, Volume 167 Issue 5, p. 421 - 430.
- Bromhead, E.N. (1986). The Stability of Slopes.
- Carling, P.A. (1986). Peat slides in Teesdale and Weardale, northern Pennines, July 1983: Description and failure mechanisms. Earth Surface Processes and Landforms, 11.
- Clayton, C.R.I. (2001). Managing Geotechnical Risk. Institution of Civil Engineers, London.
- Den Haan EJ and Grognet M (2014). A large direct simple shear device for the testing of peat at low stresses. Géotechnique Letters 4(4): 283–288, <http://dx.doi.org/10.1680/geolett.14.00033>.
- Derg Media (2020). Meenbog Peat Bog Slide. 14 November 2020. YouTube.
<https://www.youtube.com/watch?v=xbQe55YnW5g&feature=youtu.be>
- Dykes, A P and Kirk, K J (2001). Initiation of a multiple peat slide on Cuilcagh Mountain, Northern Ireland. Earth Surface Processes and Landforms, 26, 395–408.
- Dykes, A.P. and Kirk, K.J. (2006). Slope instability and mass movements in peat deposits. In Martini, I.P., Martinez Cortizas, A. and Chesworth, W. (Eds.) Peatlands: Evolution and Records of Environmental and Climatic Changes. Elsevier, Amsterdam.
- Edil, T B (2001). Site characterization in peat and organic soils. Proceedings of the international conference on in situ measurement of soil properties and case histories (eds P. P. Rahardjo and T. Lunne), pp. 49–59. Bali, Indonesia: Parahyangan Catholic University.
- Farrell, E.R. & Hebib, S. (1998). The determination of the geotechnical parameters of organic soils. Proceedings of International Symposium on problematic soils, IS-TOHOKU 98, Sendai, Japan.
- Fehily Timoney (2021). Meenbog Wind Farm – Assessment of Site with respect to Peat Stability.
- Geological Survey of Ireland (2006). Landslides in Ireland. Geological Survey of Ireland -Irish Landslides Group. July 2006.
- Geological Survey of Ireland (2025). Online dataset public viewer, September 2025.
- Hobbs, N B (1986). Mire morphology and the properties and behaviour of some British and foreign peats. Quarterly Journal of Engineering Geology, London, 1986, vol. 19, pp. 7-80.
- IONIC Consulting (2021). Meenbog Wind Farm. Peat Stability Quantitative Assessment Rev C, August 2021.
- I.S. EN 1997-1:2007 Eurocode 7: Geotechnical Design - Part 1: General Rules.



I.S. EN 1997-1:2007 Eurocode 7 - Geotechnical Design - Part 2: Ground Investigation and Testing.

Jennings, P and Kane G (2019). Assessment of peat slides and failure mechanism of blanket peat at Flugland, Ireland. Proceedings of the XVII ECSMGE-2019.

Hanrahan, E T (1964). A Road Failure on Peat. Geotechnique, vol. 14, no. 3, pp. 185-202.

Hobbs, N B (1986). Mire morphology and the properties and behaviour of some British and foreign peats. Quarterly Journal of Engineering Geology, London, 1986, vol. 19, pp. 7-80.

Jardine, R J (1998). Stability and instability: soft clay embankment foundations and offshore continental slopes. Proc. Int. Symp. on Problematic Soils, IS-TOHOKU 98, Sendai, Japan.

Long, M (2004). Review of peat strength, peat characterisation and constitutive modelling of peat with reference to landslides.

MacCulloch, F. (2005). Guidelines for the Risk Management of Peat Slips on the Construction of Low Volume/Low Cost Roads over Peat. RoadEx 11 Northern Periphery.

Mesri, G, and Ajlouni, M (2007). Engineering properties of fibrous peats. Journal of Geotechnical and Geoenvironmental Engineering, ASCE, 133(7), p. 850 - 866.

Meyerhof, G G (1957). The mechanism of flow slides in cohesive soils. Geotechnique, Vol. VII, No.1, March 1957.

Mid Cork Electrical (2020). Meenbog Wind Farm Site Peat Movement Investigation Report.

MKO (2017). Meenbog Wind Farm - Environmental Impact Assessment Report. 160502- EIAR - 2017.11.22 - F.

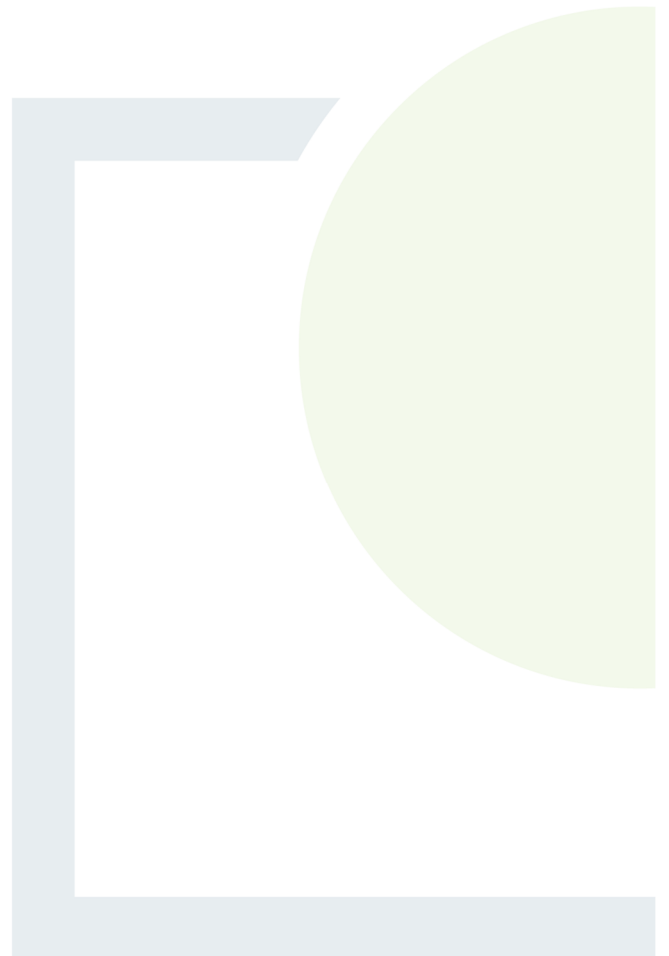
Scottish Government (2017). Peat Landslide Hazard and Risk Assessments: Best Practice Guide for Proposed Electricity Generation Developments. Prepared for Energy Consents Unit Scottish Government. Second Edition, April 2017.

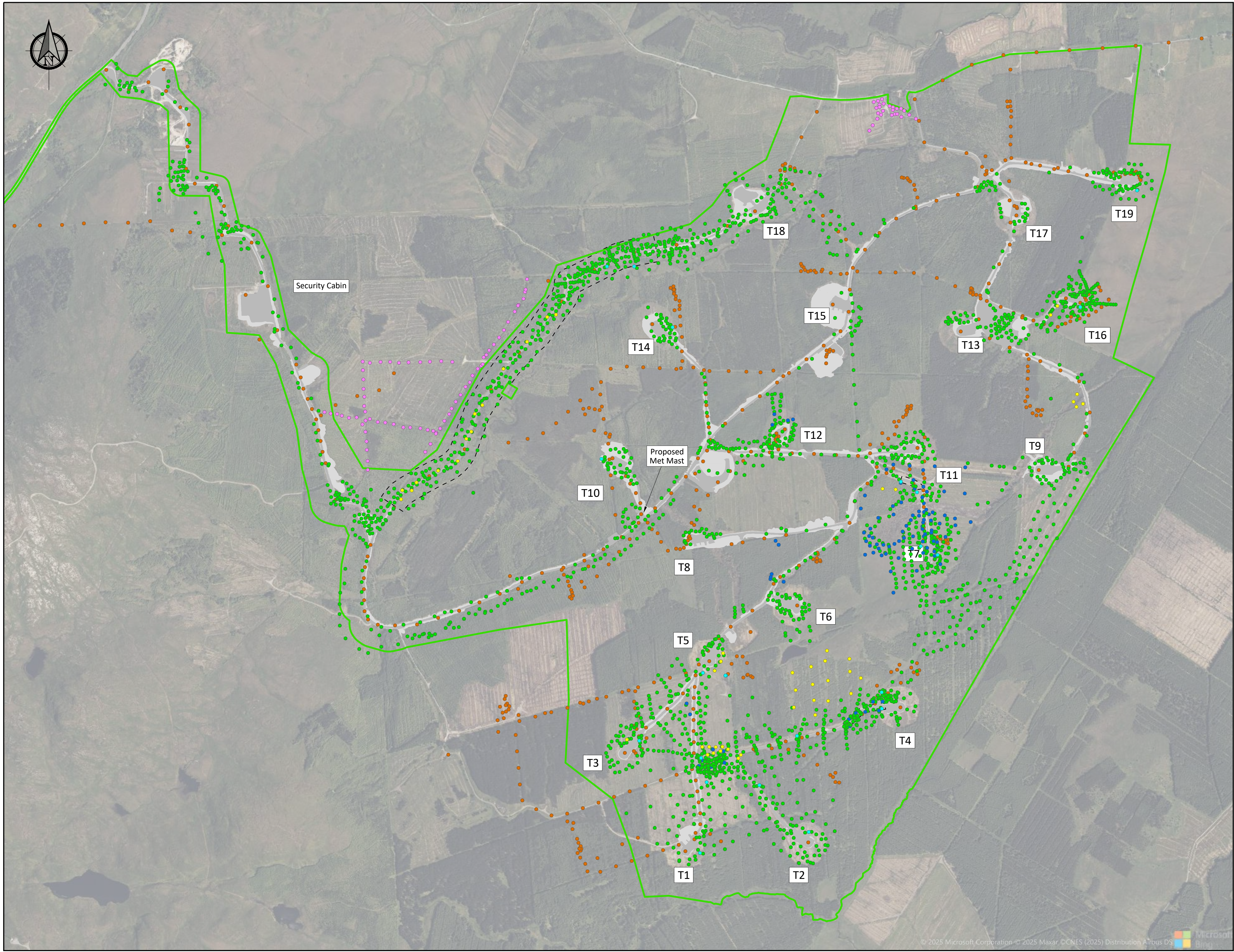
Scottish Environmental Protection Agency (SEPA) (2017). Peatland Survey. Guidance on Developments on Peatland. Scottish Natural Heritage, Scottish Government.



DESIGNING AND DELIVERING
A SUSTAINABLE FUTURE

DRAWINGS





Plan Legend:

- Prospective Development
- Existing Development
- Site Boundary

Peat Probe Legend:

- MKO AGEC Probes (pre 2020)
- Ionic Combined Probes
- Meenbog Probes (FT, 2020)
- Russian Core Peat Samples (FT, 2021)
- Meenbog Probes (FT, 2025)
- Enerco Additional (2025)

PLAN
1:10000
0001



If Applicable : Tailte Éireann Licence No. CYAL50368274 © Ordnance Survey Ireland and Government of Ireland



Cork | Dublin | Carlow

www.fehilytimoney.ie

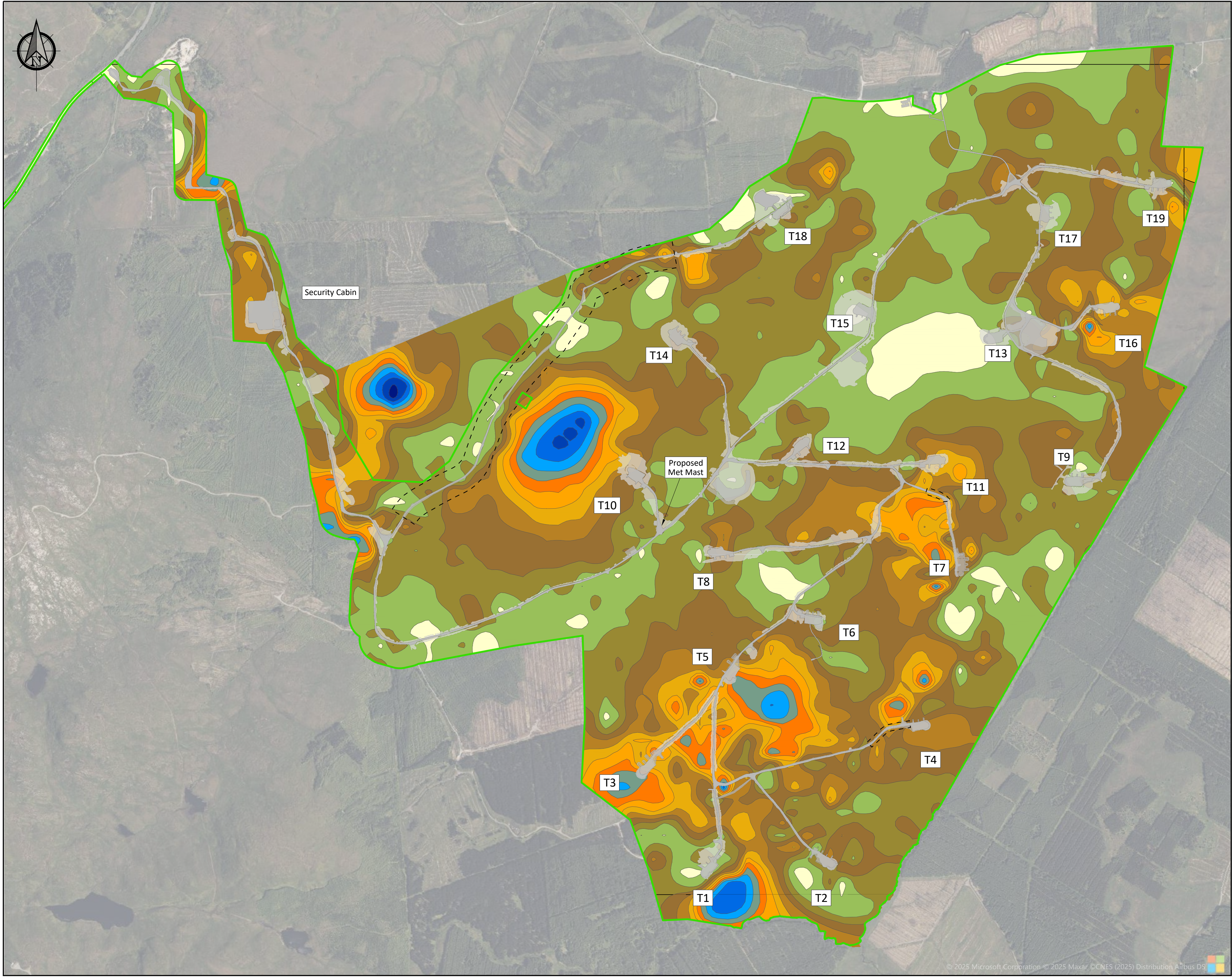
No part of this document may be reproduced or transmitted in any form or stored in any retrieval system of any nature without the written permission of Fehily Timoney & Company as copyright holder except as agreed for use on the project for which the document was originally issued. Do not scale. Use figured dimensions only. If in doubt - Ask!

Rev.	Description	App By	Date
P01	FOR INFORMATION	BDH	02.04.26
P02	FOR INFORMATION	BDH	22.05.26
P03	FOR INFORMATION	BDH	25.06.26

PROJECT		CLIENT		
MEENBOG WIND FARM (PROSPECTIVE DEVELOPMENT)		MKO		
SHEET		Date	Project number	Scale (@ A1)
PEAT PROBE LOCATIONS		25.06.26	P24-234	As Shown
		Drawn by	Drawing Number	Rev
		POR	P24-234-0601-0001	P03
		Checked by		
		IH		

O:\ACAD\2024\P24-234\P24-234-0601-0001

25 June 2026 (O:\ACAD\2024\P24-234\P24-234-0601-0001)



Plan Legend:

- Prospective Development
- Existing Development
- Site Boundary

Peat Depth Legend:

Lightest Yellow	$\geq 0 < 0.5$
Light Green	$\geq 0.5 < 1$
Medium Green	$\geq 1 < 1.5$
Dark Green	$\geq 1.5 < 2$
Light Brown	$\geq 2 < 2.5$
Medium Brown	$\geq 2.5 < 3$
Dark Brown	$\geq 3 < 3.5$
Orange	$\geq 3.5 < 4$
Red-Orange	$\geq 4 < 4.5$
Red	$\geq 4.5 < 5$
Dark Red	$\geq 5 < 5.5$
Dark Red-Orange	$\geq 5.5 < 6$
Dark Red	$\geq 6 < 6.5$

PLAN
1:10000

0m 100m 200m 300m 400m 500m 600m 700m 800m 900m 1000m
Scale 1:10000

If Applicable : Tailte Éireann Licence No. CYAL50368274 © Ordnance Survey Ireland and Government of Ireland

**FEHILY
TIMONEY** Cork | Dublin | Carlow
www.fehilytimoney.ie

No part of this document may be reproduced or transmitted in any form or stored in any retrieval system of any nature without the written permission of Fehily Timoney & Company as copyright holder except as agreed for use on the project for which the document was originally issued. Do not scale. Use figured dimensions only. If in doubt - Ask!

Rev.	Description	App By	Date
P01	FOR INFORMATION	BDH	02.04.26
P02	FOR INFORMATION	BDH	25.06.26

PROJECT	CLIENT		
MEENBOG WIND FARM (PROSPECTIVE DEVELOPMENT)	MKO		
SHEET	Date 25.06.26	Project number P24-234	Scale (@ A1) As Shown
PEAT DEPTH CONTOUR PLAN	Drawn by POR	Drawing Number P24-234-0601-0002	Rev P02
	Checked by IH	(Sheet not subject to 0603)	

O:\ACAD\2024\P24-234\P24-234-0601-0002

25 June 2026 (O:\ACAD\2024\P24-234\P24-234-0601-0002)



Plan Legend:

- Prospective Development
- Existing Development
- Site Boundary

Peat Depth Legend:

≥ 0 < 0.5	≥ 4 ≤ 4.5
≥ 0.5 < 1	≥ 4.5 ≤ 5
≥ 1 < 1.5	≥ 5 ≤ 5.5
≥ 1.5 < 2	≥ 5.5 ≤ 6
≥ 2 < 2.5	≥ 6 ≤ 6.5
≥ 2.5 < 3	
≥ 3 < 3.5	
≥ 3.5 ≤ 4	

KEY PLAN

1:100000

0001

PLAN

1:6000

0001

0m 60m 120m 180m 240m 300m 360m 420m 480m 540m 600m

Scale 1:6000

KEY PLAN

1:100000

0001

If Applicable : Tailte Éireann Licence No. CYAL50368274 © Ordnance Survey Ireland and Government of Ireland

Rev.	Description	App By	Date
P01	FOR INFORMATION	BDH	02.04.26
P02	FOR INFORMATION	BDH	25.06.26

PROJECT		CLIENT					
MEENBOG WIND FARM (PROSPECTIVE DEVELOPMENT)		MKO					
SHEET	PEAT CONTOUR PLAN BMEP SITE	Date	25.06.26	Project number	P24-234	Scale (@ A1)	As Shown
		Drawn by	POR	Drawing Number		P24-234-0601-0003	Rev
		Checked by	IH				P02
(Sheet not subject QSO2)							

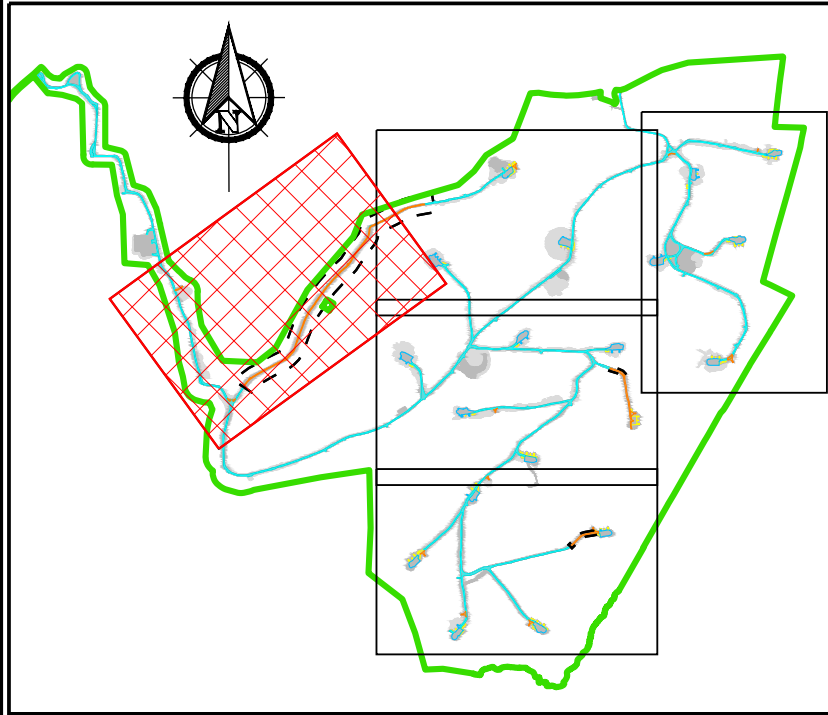
O:\ACAD\2024\P24-234\P24-234-0601-0003

25 June 2026 (O:\ACAD\2024\P24-234\P24-234-0601-0003)



- Plan Legend:**
- Prospective Development
 - Existing Development
 - Site Boundary
 - Hardstand Minor Works Upgrade
 - Hardstand More Substantial Works & Upgrades
 - Roads More Substantial Works and Upgrades
 - Roads Minor Works Upgrade
 - Length of Upgrade of Floating Road to Founded

- ODF Legend:**
- 0 < 1.0
 - 1.0 ≤ 1.5
 - 1.5 < 1.5
 - No Peat Recorded At This Location
- Increasing Stability ↓



PLAN 1:2500 0001

Scale 1:2500

0m 25m 50m 75m 100m 125m 150m 175m 200m 225m 250m

KEY PLAN 1:47500

If Applicable : Tailte Éireann Licence No. CYAL50368274 © Ordnance Survey Ireland and Government of Ireland

Rev.	Description	App By	Date
P01	FOR INFORMATION	BDH	02.04.26
P02	FOR INFORMATION	BDH	25.06.26

PROJECT	MEENBOG WIND FARM (PROSPECTIVE DEVELOPMENT)			CLIENT	MKO		
SHEET	ODF PLAN UNDRAINED LOAD CONDITION 2 (SHEET 1 OF 5)			Date	25.06.26	Project number	P24-234
				Drawn by	POR	Drawing Number	P24-234-0601-0004
				Checked by	IH	Rev	P02

O:\ACAD\2024\P24-234\P24-234-0601-0004

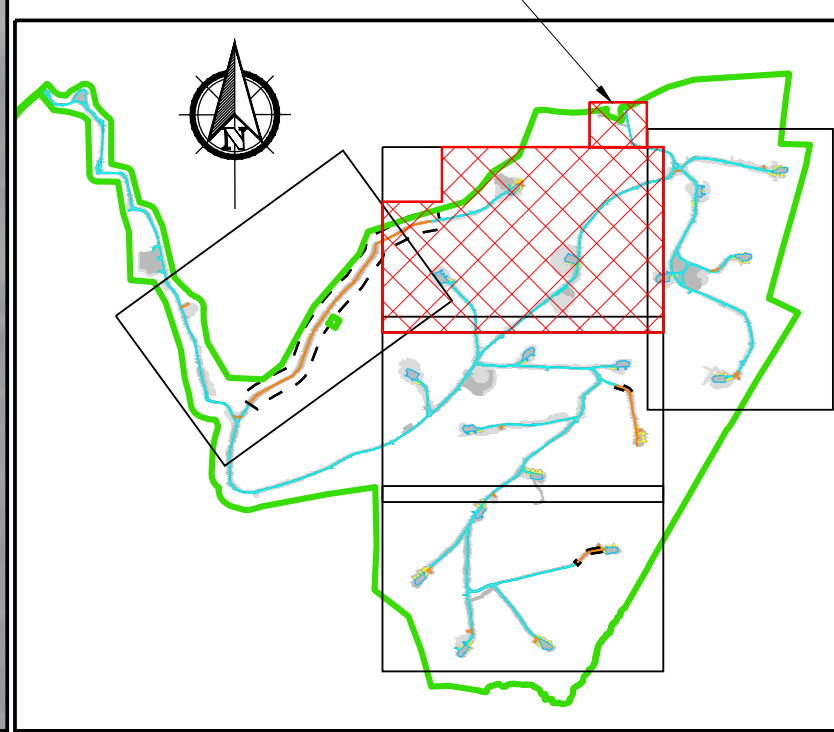


PLAN
1:2500
0002

PLAN
1:2500
0001

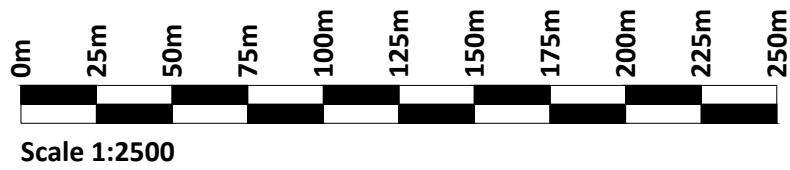
- Plan Legend:**
- Prospective Development
 - Existing Development
 - Site Boundary
 - Hardstand Minor Works Upgrade
 - Hardstand More Substantial Works & Upgrades
 - Roads More Substantial Works and Upgrades
 - Roads Minor Works Upgrade
 - Length of Upgrade of Floating Road to Founded

- ODF Legend:**
- 0 < 1.0
 - ≥ 1.0 ≤ 1.5
 - > 1.5
 - No Peat Recorded At This Location
 - Increasing Stability
- See Plan 0002 (Upper left of this drawing)



KEY PLAN
1:47500
-

If Applicable : Tailte Éireann Licence No. CYAL50368274 © Ordnance Survey Ireland and Government of Ireland



Rev.	Description	App By	Date
P01	FOR INFORMATION	BDH	02.04.26
P02	FOR INFORMATION	BDH	22.05.26
P03	FOR INFORMATION	BDH	25.06.26

PROJECT	MEENBOG WIND FARM (PROSPECTIVE DEVELOPMENT)			CLIENT	MKO		
SHEET	ODF PLAN UNDRAINED LOAD CONDITION 2 (SHEET 2 OF 5)			Date	25.06.26	Project number	P24-234
				Drawn by	POR	Drawing Number	P24-234-0601-0005
				Checked by	IH	Rev	P03



Plan Legend:

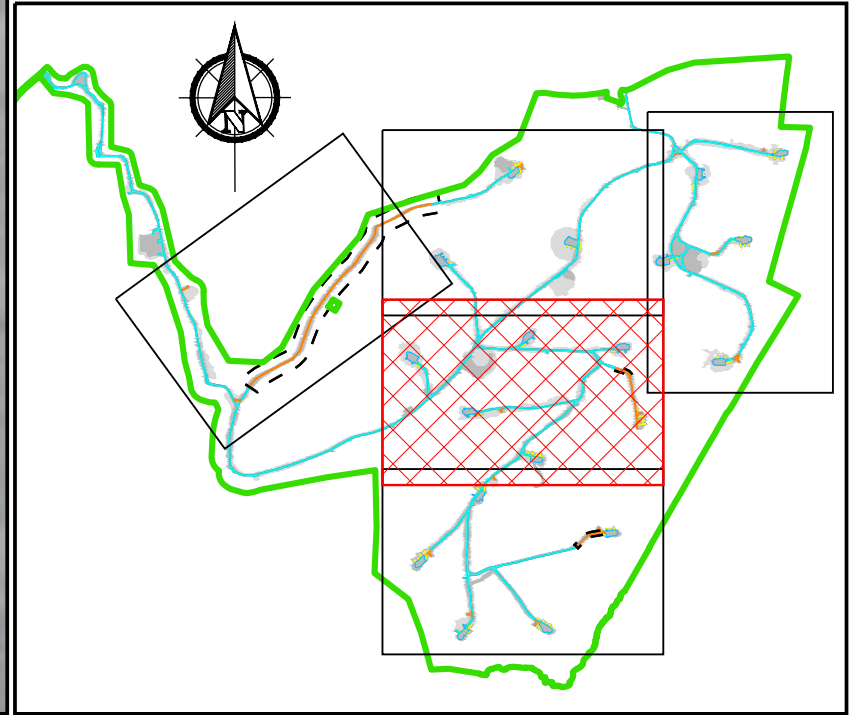
- Prospective Development
- Existing Development
- Site Boundary
- Hardstand Minor Works Upgrade
- Hardstand More Substantial Works & Upgrades
- Roads More Substantial Works and Upgrades
- Roads Minor Works Upgrade
- Length of Upgrade of Floating Road to Founded

ODF Legend:

0 < 1.0
≥ 1.0 ≤ 1.5
> 1.5

No Peat Recorded At This Location

Increasing Stability ↓



PLAN 1:2500

0001

Scale 1:2500

0m 25m 50m 75m 100m 125m 150m 175m 200m 225m 250m

KEY PLAN 1:47500

-

If Applicable : Tailte Éireann Licence No. CYAL50368274 © Ordnance Survey Ireland and Government of Ireland



**FEHILY
TIMONEY**

Cork | Dublin | Carlow

www.fehilytimoney.ie

No part of this document may be reproduced or transmitted in any form or stored in any retrieval system of any nature without the written permission of Fehily Timoney & Company as copyright holder except as agreed for use on the project for which the document was originally issued. Do not scale. Use figured dimensions only. If in doubt - Ask!

Rev.	Description	App By	Date
P01	FOR INFORMATION	BDH	02.04.26
P02	FOR INFORMATION	BDH	25.06.26

PROJECT	MEENBOG WIND FARM (PROSPECTIVE DEVELOPMENT)			CLIENT	MKO		
SHEET	ODF PLAN UNDRAINED LOAD CONDITION 2 (SHEET 3 OF 5)			Date	25.06.26	Project number	P24-234
				Drawn by	POR	Drawing Number	P24-234-0601-0006
				Checked by	IH	Rev	P02

O:\ACAD\2024\P24-234\P24-234-0601-0006

25 June 2026 (O:\ACAD\2024\P24-234\P24-234-0601-0006)



Plan Legend:

- Prospective Development
- Existing Development
- Site Boundary
- Hardstand Minor Works Upgrade
- Hardstand More Substantial Works & Upgrades
- Roads More Substantial Works and Upgrades
- Roads Minor Works Upgrade
- Length of Upgrade of Floating Road to Founded

ODF Legend:

0 < 1.0

≥ 1.0 ≤ 1.5

> 1.5

Increasing Stability

↓

No Peat Recorded At This Location

KEY PLAN

PLAN

1:2500

0001

0m 25m 50m 75m 100m 125m 150m 175m 200m 225m 250m

Scale 1:2500

0m 25m 50m 75m 100m 125m 150m 175m 200m 225m 250m

Scale 1:47500

If Applicable : Tailte Éireann Licence No. CYAL50368274 © Ordnance Survey Ireland and Government of Ireland

Rev.	Description	App By	Date
P01	FOR INFORMATION	BDH	02.04.26
P02	FOR INFORMATION	BDH	25.06.26

PROJECT	MEENBOG WIND FARM (PROSPECTIVE DEVELOPMENT)				CLIENT	MKO		
SHEET	ODF PLAN UNDRAINED LOAD CONDITION 2 (SHEET 4 OF 5)				Date	25.06.26	Project number	P24-234
					Drawn by	POR	Drawing Number	P24-234-0601-0007
					Checked by	IH	Rev	P02

O:\ACAD\2024\P24-234\P24-234-0601-0007

25 June 2026 (O:\ACAD\2024\P24-234\P24-234-0601-0007)



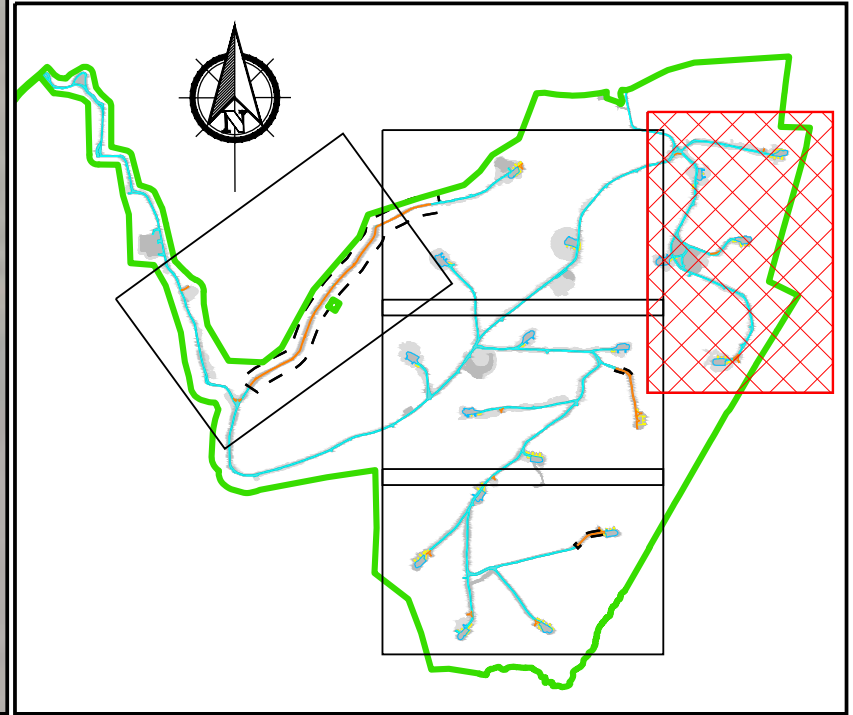
Plan Legend:

- Prospective Development
- Existing Development
- Site Boundary
- Hardstand Minor Works Upgrade
- Hardstand More Substantial Works & Upgrades
- Roads More Substantial Works and Upgrades
- Roads Minor Works Upgrade
- Length of Upgrade of Floating Road to Founded

ODF Legend:

- 0 < 1.0
- ≥ 1.0 ≤ 1.5
- > 1.5
- No Peat Recorded At This Location

Increasing Stability ↓



PLAN

1:2500

0001

0m 25m 50m 75m 100m 125m 150m 175m 200m 225m 250m

Scale 1:2500

KEY PLAN

1:47500

-

If Applicable : Tailte Éireann Licence No. CYAL50368274 © Ordnance Survey Ireland and Government of Ireland



**FEHILY
TIMONEY**

Cork | Dublin | Carlow

www.fehilytimoney.ie

No part of this document may be reproduced or transmitted in any form or stored in any retrieval system of any nature without the written permission of Fehily Timoney & Company as copyright holder except as agreed for use on the project for which the document was originally issued. Do not scale. Use figured dimensions only. If in doubt - Ask!

Rev.	Description	App By	Date
P01	FOR INFORMATION	BDH	02.04.26
P02	FOR INFORMATION	BDH	25.06.26

PROJECT	MEENBOG WIND FARM (PROSPECTIVE DEVELOPMENT)			CLIENT	MKO		
SHEET	ODF PLAN UNDRAINED LOAD CONDITION 2 (SHEET 5 OF 5)			Date	25.06.26	Project number	P24-234
				Drawn by	POR	Drawing Number	P24-234-0601-0008
				Checked by	IH	Rev	P02

O:\ACAD\2024\P24-234\P24-234-0601-0008

25 June 2026 (O:\ACAD\2024\P24-234\P24-234-0601-0008)



Plan Legend:

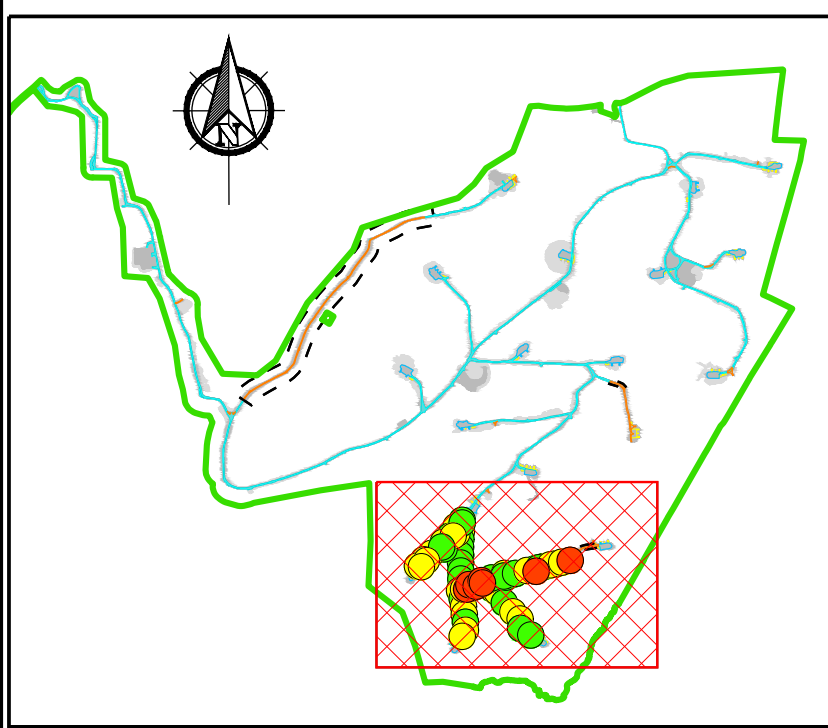
- Prospective Development
- Existing Development
- Site Boundary
- Hardstand Minor Works Upgrade
- Hardstand More Substantial Works & Upgrades
- Roads More Substantial Works and Upgrades
- Roads Minor Works Upgrade
- Length of Upgrade of Floating Road to Founded

ODF Legend:

0 < 1.0
≥ 1.0 ≤ 1.5
> 1.5

No Peat Recorded At This Location

Increasing Stability ↓



PLAN

1:2500

0001

0m 25m 50m 75m 100m 125m 150m 175m 200m 225m 250m

Scale 1:2500

KEY PLAN

1:47500

0001

If Applicable : Tailte Éireann Licence No. CYAL50368274 © Ordnance Survey Ireland and Government of Ireland



**FEHILY
TIMONEY**

Cork | Dublin | Carlow

www.fehilytimoney.ie

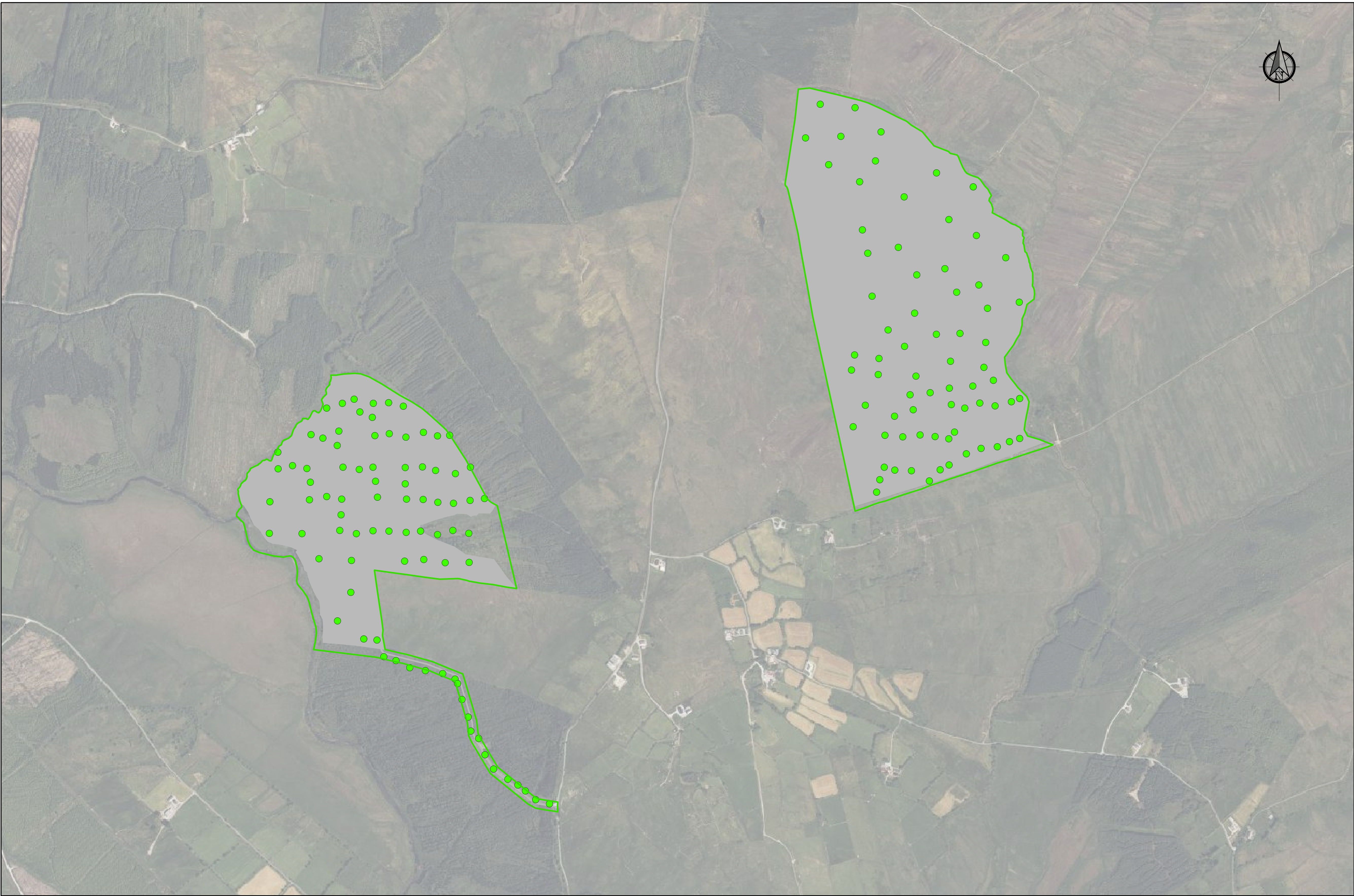
No part of this document may be reproduced or transmitted in any form or stored in any retrieval system of any nature without the written permission of Fehily Timoney & Company as copyright holder except as agreed for use on the project for which the document was originally issued. Do not scale. Use figured dimensions only. If in doubt - Ask!

Rev.	Description	App By	Date
P01	FOR INFORMATION	BDH	XX.XX.25
P02	FOR INFORMATION	BDH	25.06.26

PROJECT		CLIENT		
MEENBOG WIND FARM (PROSPECTIVE DEVELOPMENT)		MKO		
SHEET	Date		Project number	Scale (@ A1) As Shown
	25.06.26		P24-234	
	Drawn by		Drawing Number	Rev
PDR		P24-234-0601-0009		P02
Checked by		IH		

O:\ACAD\2024\P24-234\P24-234-0601-0009

25 June 2026 (O:\ACAD\2024\P24-234\P24-234-0601-0009)



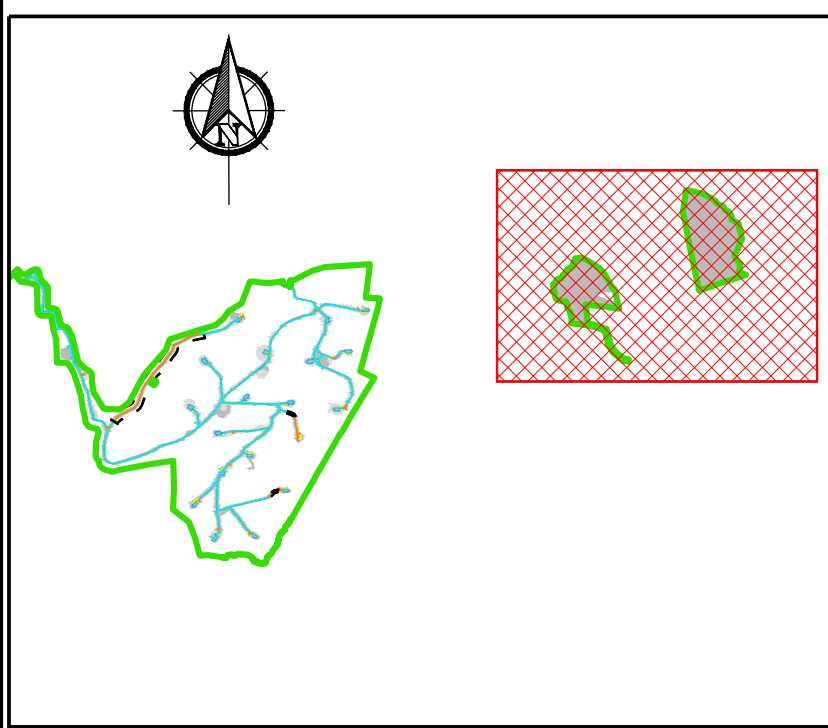
Plan Legend:

- Prospective Development
- Existing Development
- Site Boundary
- Hardstand Minor Works Upgrade
- Hardstand More Substantial Works & Upgrades
- Roads More Substantial Works and Upgrades
- Roads Minor Works Upgrade
- Length of Upgrade of Floating Road to Founded

ODF Legend:

- 0 < 1.0
- ≥ 1.0 ≤ 1.5
- > 1.5
- No Peat Recorded At This Location

Increasing Stability ↓



PLAN

1:6000

0001

KEY PLAN

1:100000

0001

0m 60m 120m 180m 240m 300m 360m 420m 480m 540m 600m

Scale 1:6000

If Applicable : Tailte Éireann Licence No. CYAL50368274 © Ordnance Survey Ireland and Government of Ireland

**FEHILY
TIMONEY**

Cork | Dublin | Carlow

www.fehilytimoney.ie

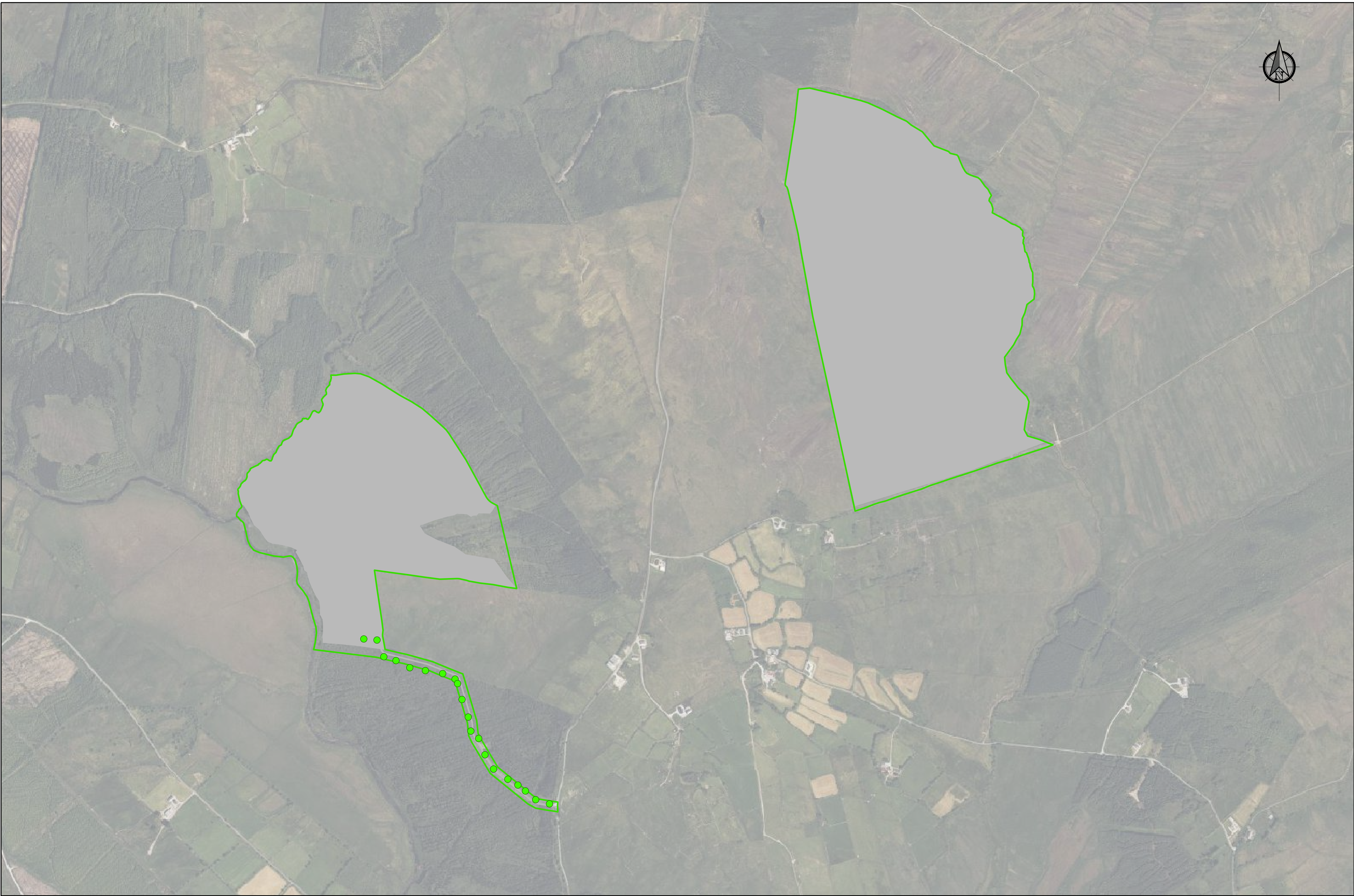
No part of this document may be reproduced or transmitted in any form or stored in any retrieval system of any nature without the written permission of Fehily Timoney & Company as copyright holder except as agreed for use on the project for which the document was originally issued. Do not scale. Use figured dimensions only. If in doubt - Ask!

Rev.	Description	App By	Date
P01	FOR INFORMATION	BDH	02.04.26
P02	FOR INFORMATION	BDH	25.06.26

PROJECT		CLIENT					
MEENBOG WIND FARM (PROSPECTIVE DEVELOPMENT)		MKO					
SHEET	ODF PLAN - SHORT TERM CRITICAL LOAD CONDITION 2 BMEP SITE		Date	25.06.26	Project number	P24-234	Scale (@ A1) As Shown
			Drawn by	POR	Drawing Number	P24-234-0601-0010	Rev
			Checked by	IH			P02
			(Sheet not subject 0602)				

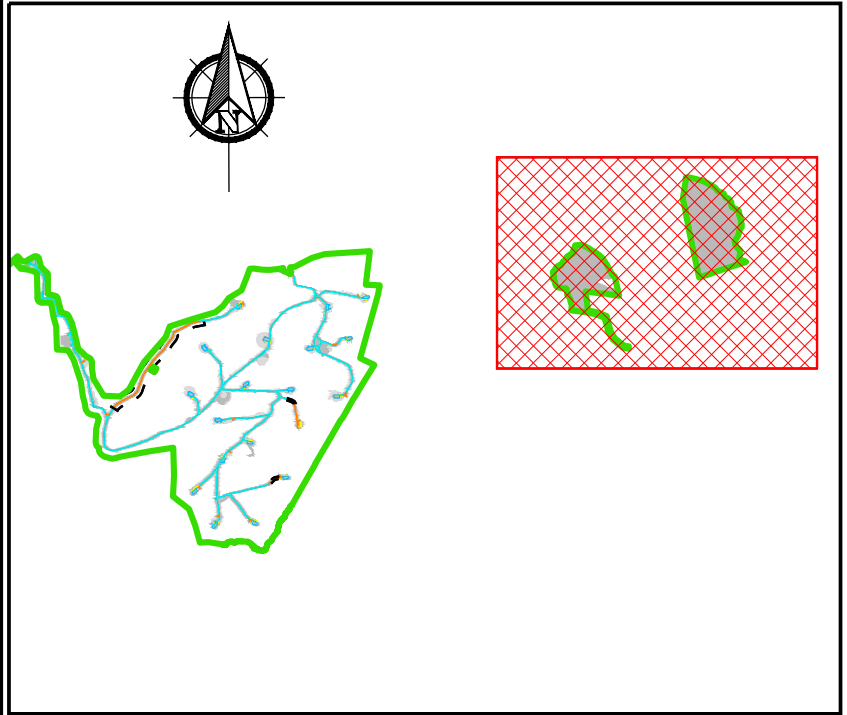
O:\ACAD\2024\P24-234\P24-234-0601-0010

25 June 2026 (O:\ACAD\2024\P24-234\P24-234-0601-0010)



- Plan Legend:**
- Prospective Development
 - Existing Development
 - Site Boundary
 - Hardstand Minor Works Upgrade
 - Hardstand More Substantial Works & Upgrades
 - Roads More Substantial Works and Upgrades
 - Roads Minor Works Upgrade
 - Length of Upgrade of Floating Road to Founded

- ODF Legend:**
- 0 < 1.0
 - ≥ 1.0 ≤ 1.5
 - > 1.5
 - No Peat Recorded At This Location
- Increasing Stability ↓



PLAN

1:6000

0001

0m 60m 120m 180m 240m 300m 360m 420m 480m 540m 600m

Scale 1:6000

KEY PLAN

1:100000

0001

If Applicable : Tailte Éireann Licence No. CYAL50368274 © Ordnance Survey Ireland and Government of Ireland



**FEHILY
TIMONEY**

Cork | Dublin | Carlow

www.fehilytimoney.ie

No part of this document may be reproduced or transmitted in any form or stored in any retrieval system of any nature without the written permission of Fehily Timoney & Company as copyright holder except as agreed for use on the project for which the document was originally issued. Do not scale. Use figured dimensions only. If in doubt - Ask!

Rev.	Description	App By	Date
P01	FOR INFORMATION	BDH	22.05.26
P02	FOR INFORMATION	BDH	25.06.26

PROJECT		CLIENT					
MEENBOG WIND FARM (PROSPECTIVE DEVELOPMENT)		MKO					
SHEET ODF PLAN - SHORT TERM CRITICAL FOR BMFP SITE (UNDRAINED, LOAD CONDITION 3)		Date	25.06.26	Project number	P24-234	Scale (@ A1) As Shown	
		Drawn by	POR	Drawing Number		P24-234-0601-0011	Rev P02
		Checked by	IH				
		(Sheet not subject 0601)					

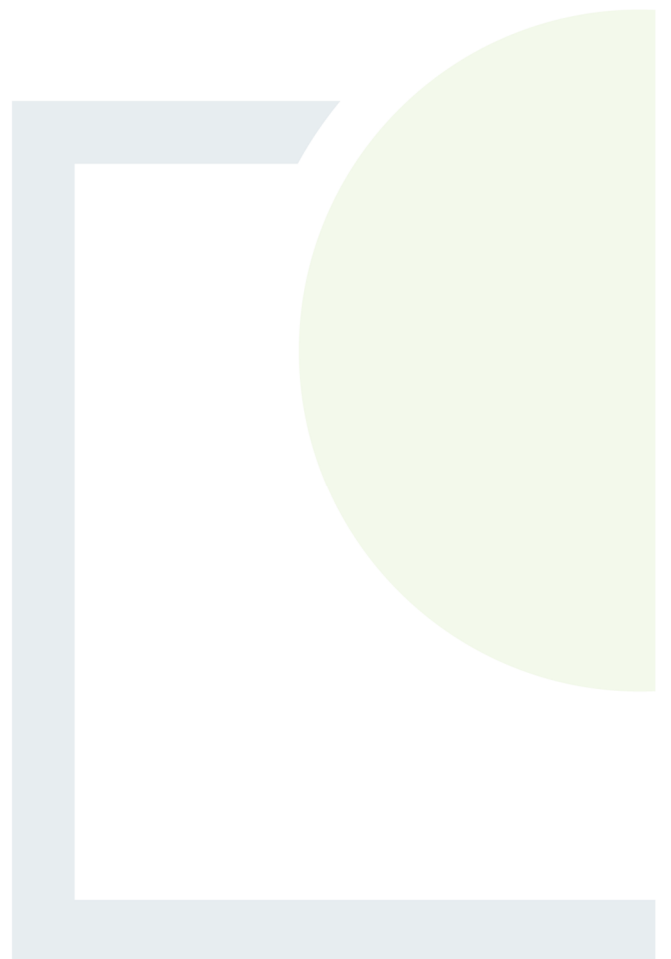
O:\ACAD\2024\P24-234\P24-234-0601-0011

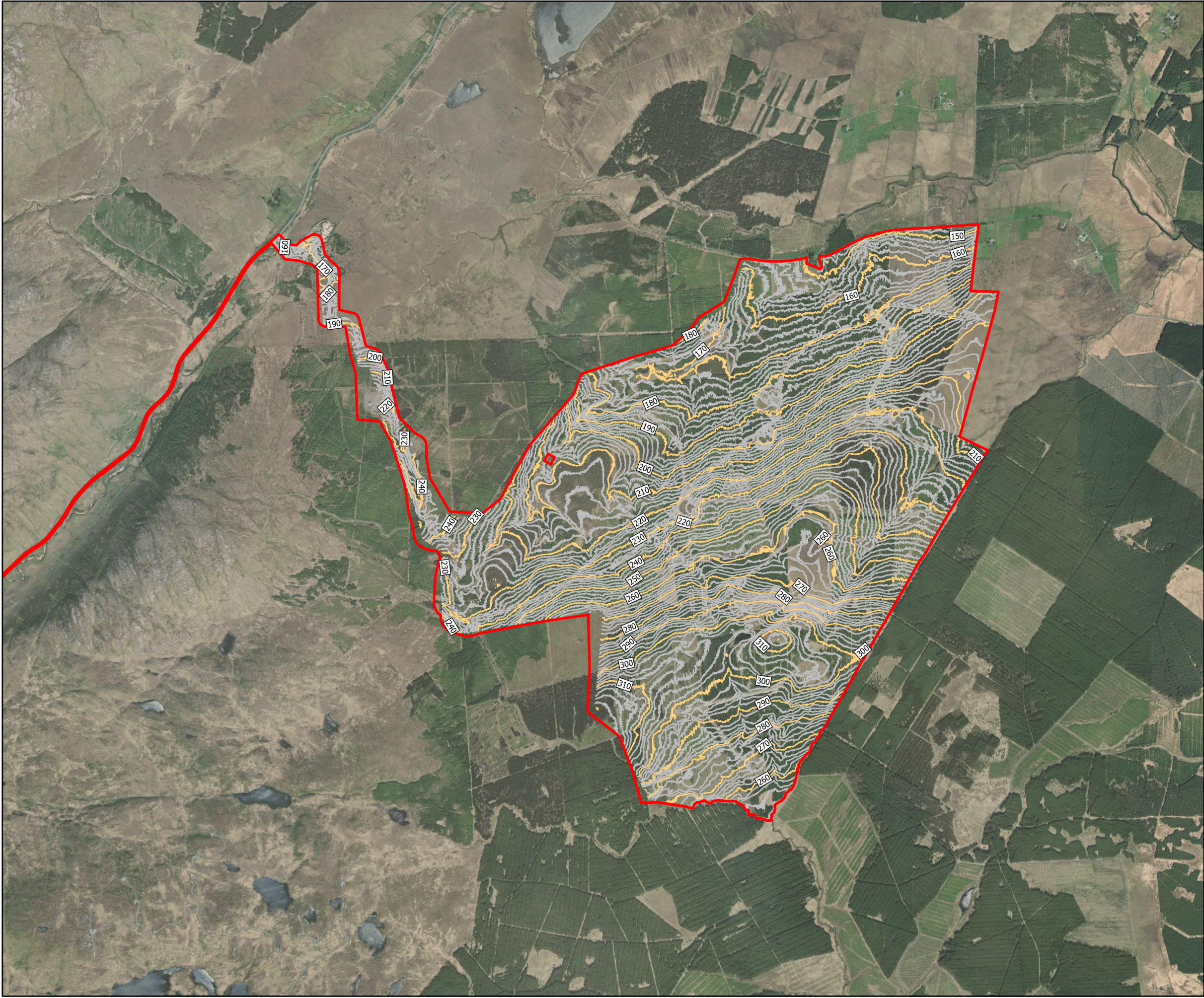
25 June 2026 (O:\ACAD\2024\P24-234\P24-234-0601-0011)



DESIGNING AND DELIVERING
A SUSTAINABLE FUTURE

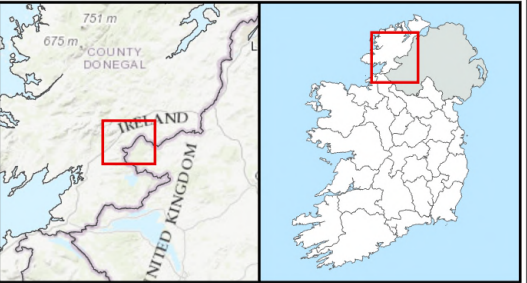
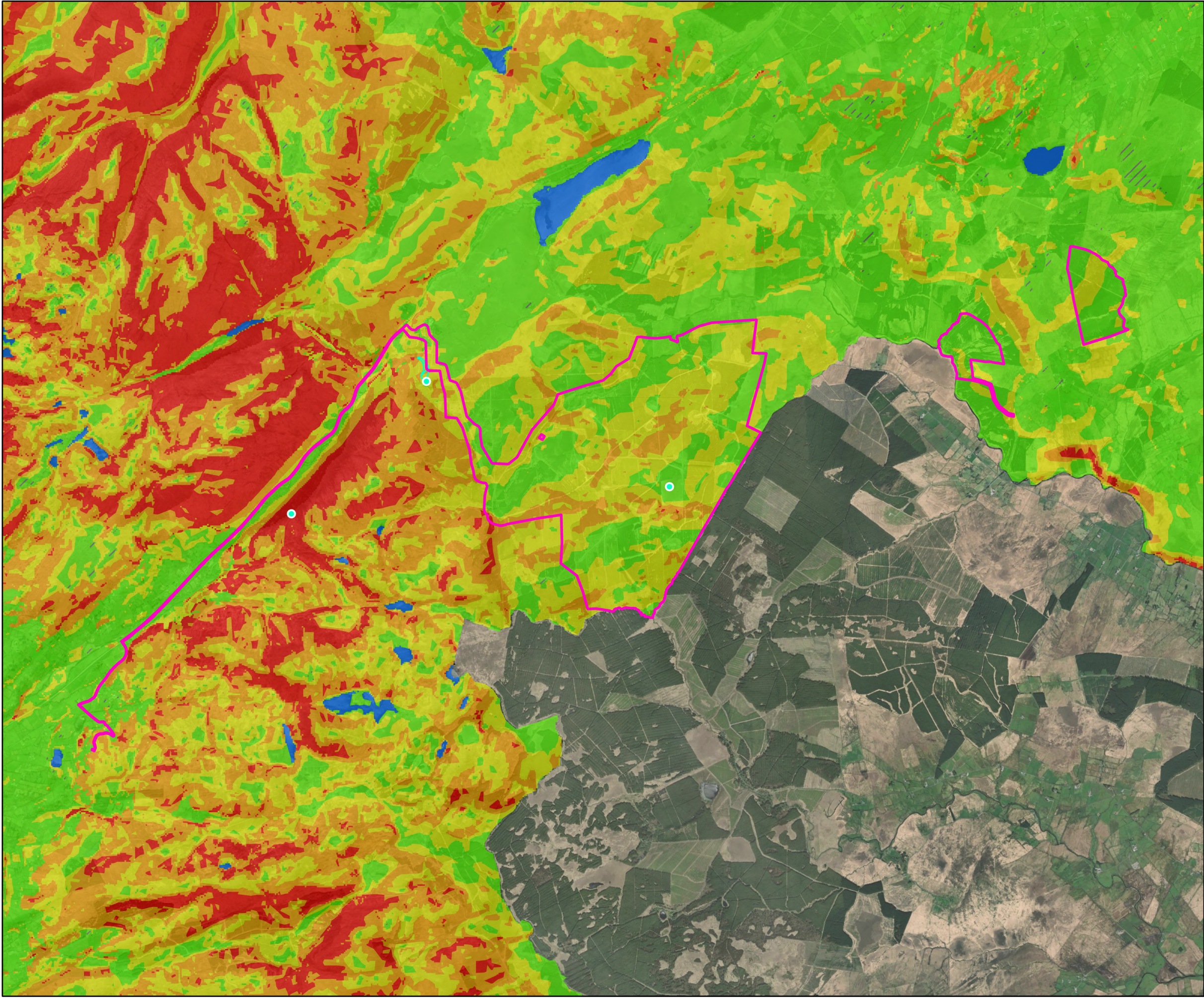
FIGURES





- Legend**
- Site Boundary
 - 10m Contour
 - 2m Contour

TITLE:		Contour Plan (Wind Farm Site)	
PROJECT:		Meenbog Wind Farm	
FIGURE NO:		4.1	
CLIENT:		MKO	
SCALE:	1:25,000	REVISION:	0
DATE:	18/06/2026	PAGE SIZE:	A3

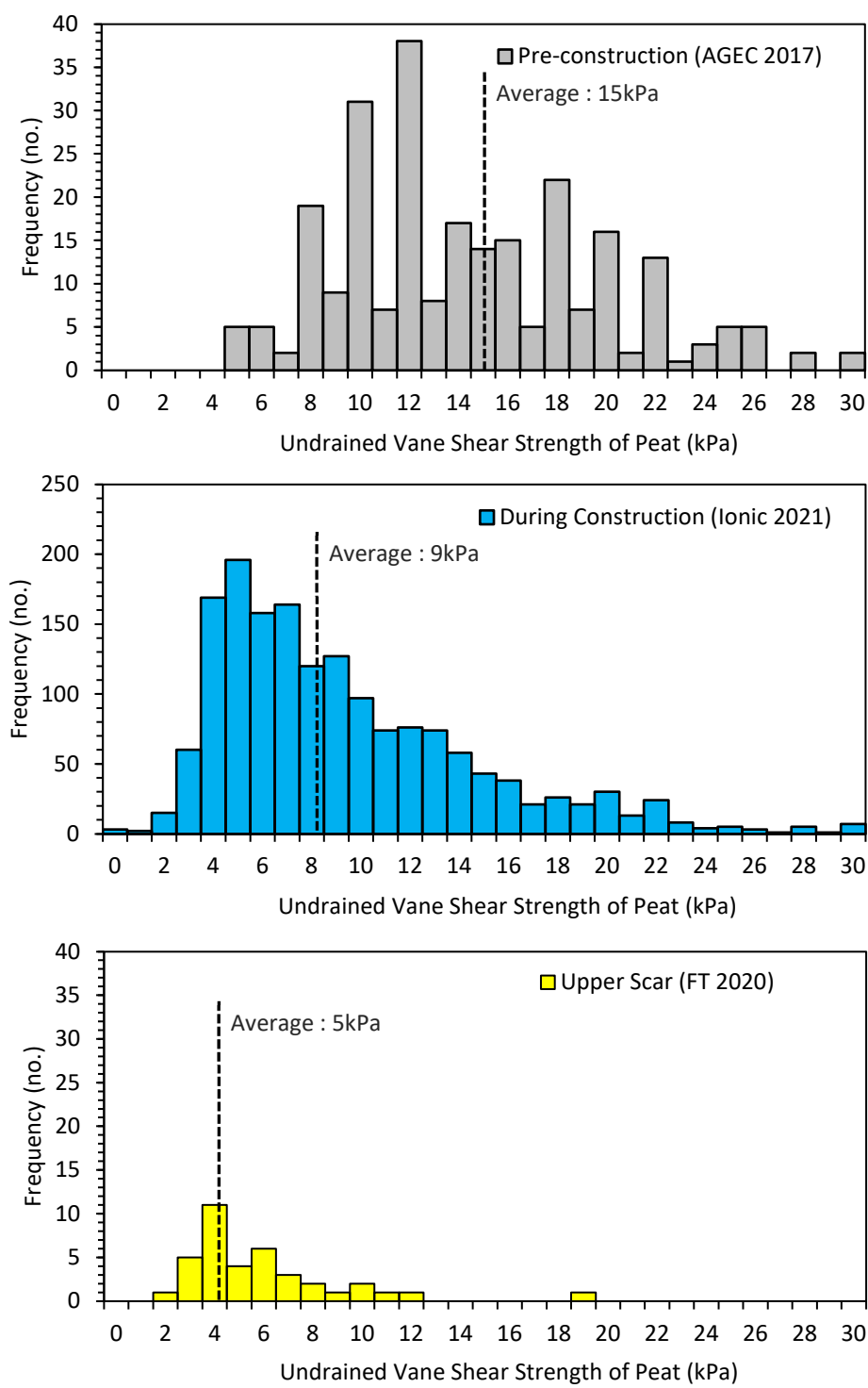


Legend

-  Site Boundary
- GSI Landslide Susceptibility Classification**
-  Low
-  Low (inferred)
-  Moderately Low
-  Moderately Low (inferred)
-  Moderately High
-  High
-  Water
-  GSI Landslide Extents
-  GSI Landslide Locations

TITLE:		Landslide Susceptibility	
PROJECT:		Meenbog Wind Farm	
FIGURE NO:		4.2	
CLIENT:		MKO	
SCALE:	1:50,000	REVISION:	0
DATE:	18/06/2026	PAGE SIZE:	A3

Figure 4-3: Range of undrained peat strength



Source: AGECE (2017), Ionic (2021) and FT (2021)

Figure 4-4: Undrained peat strength with depth

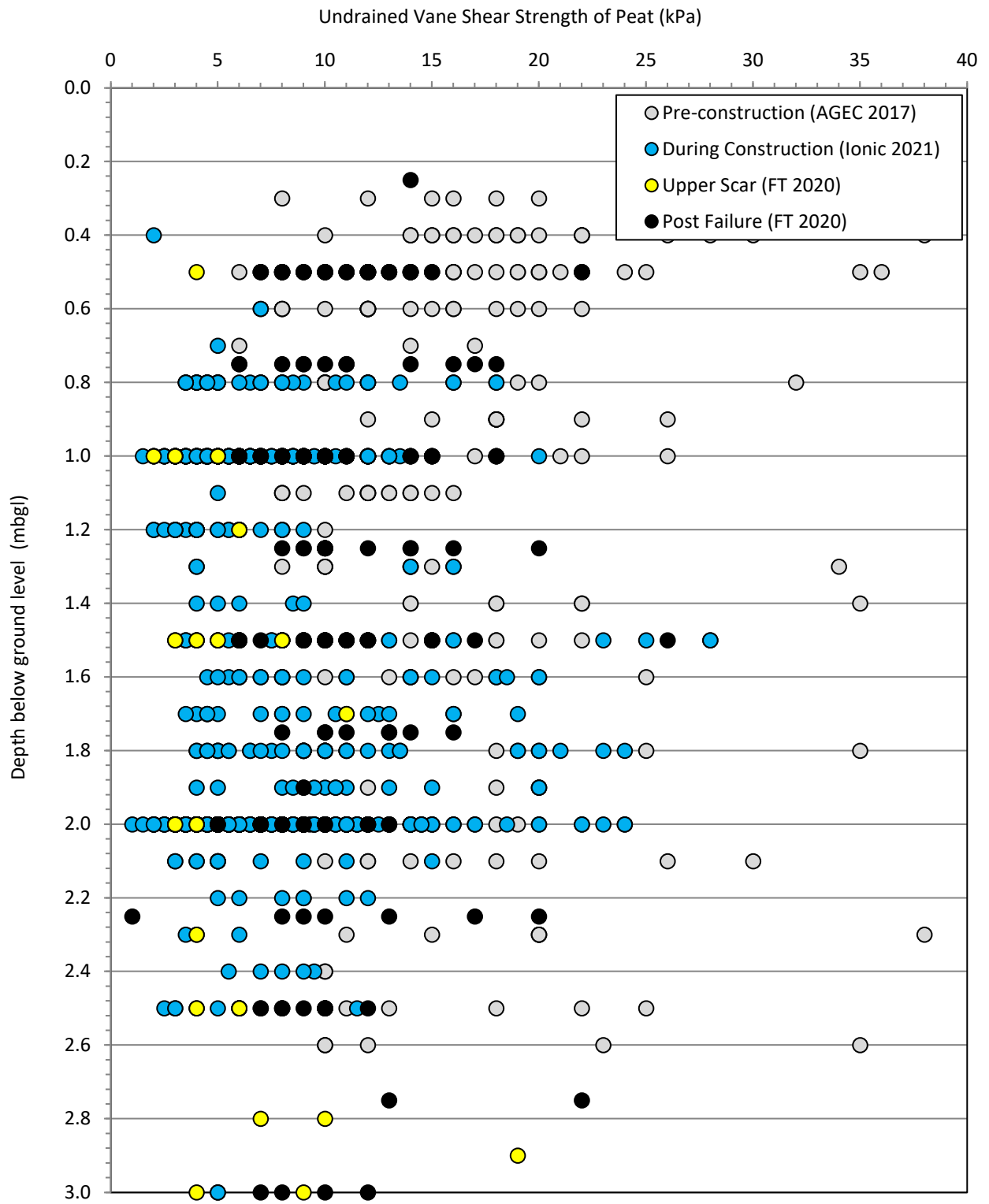
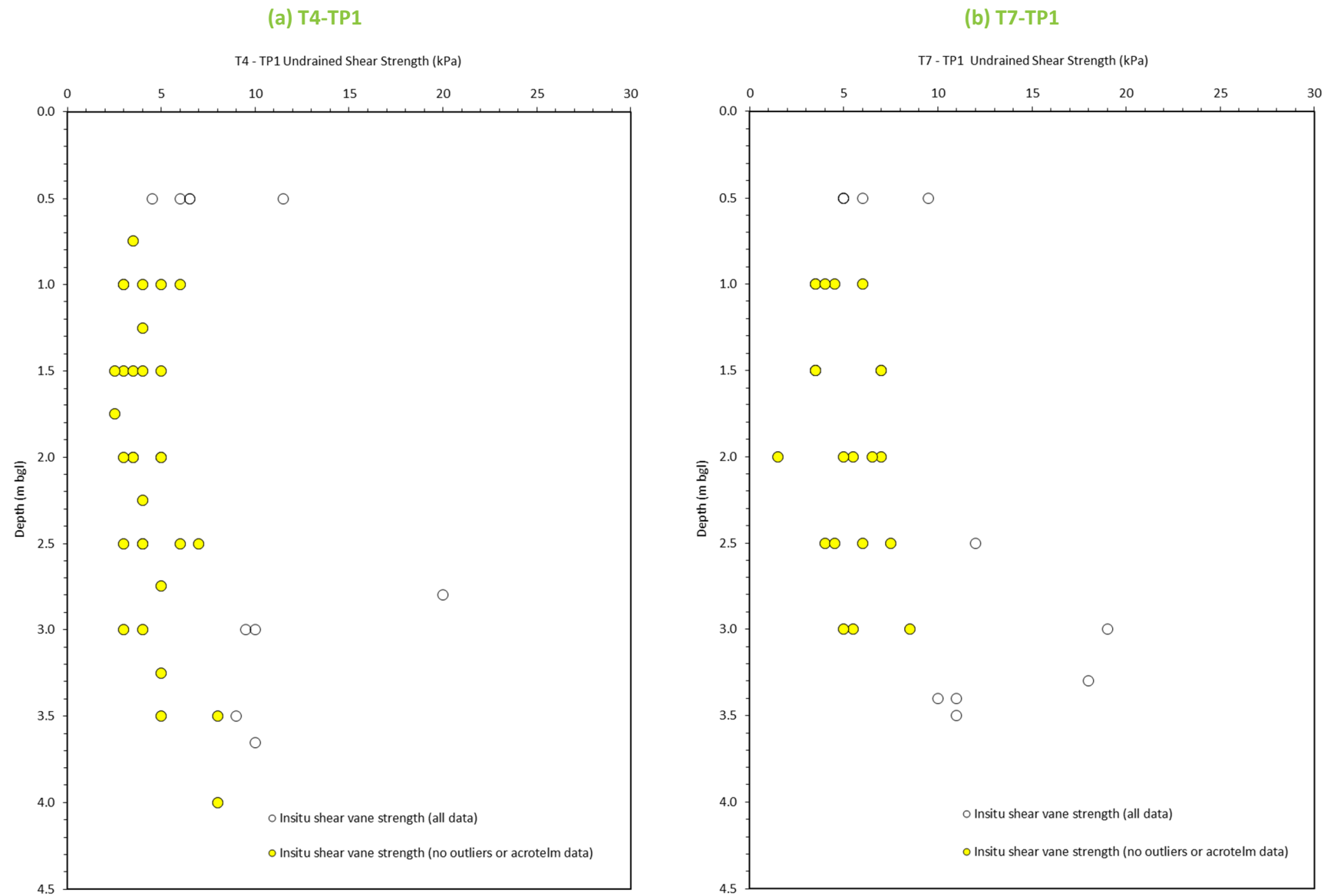
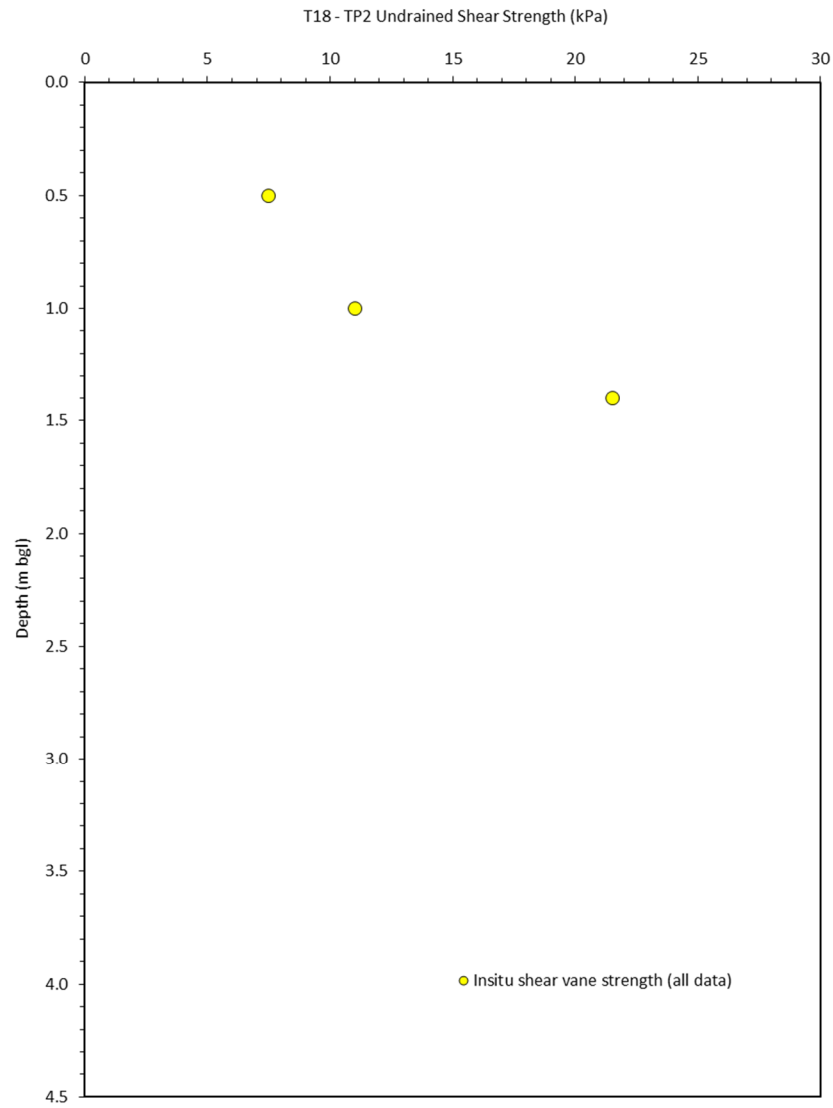


Figure 4-5: Further investigation - in-situ shear strength vane testing of peat at trial pit locations



(c) T18-TP2



(d) T5-TP1

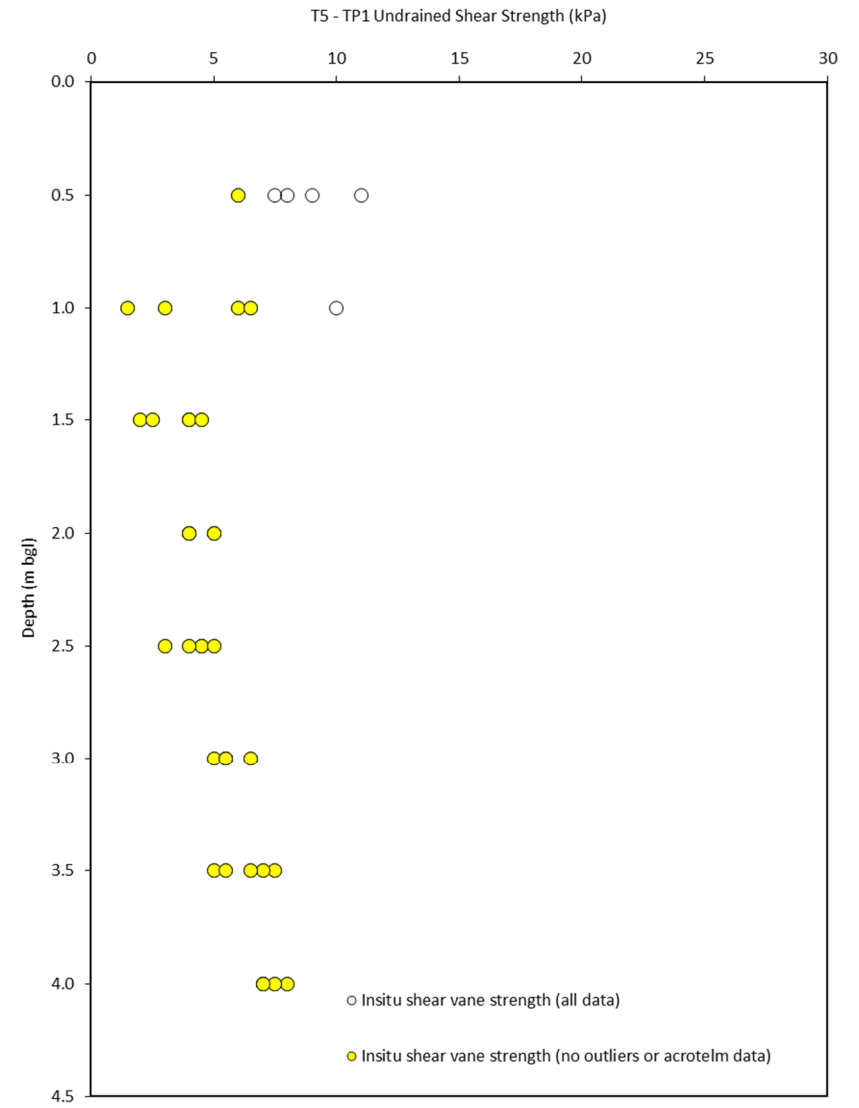
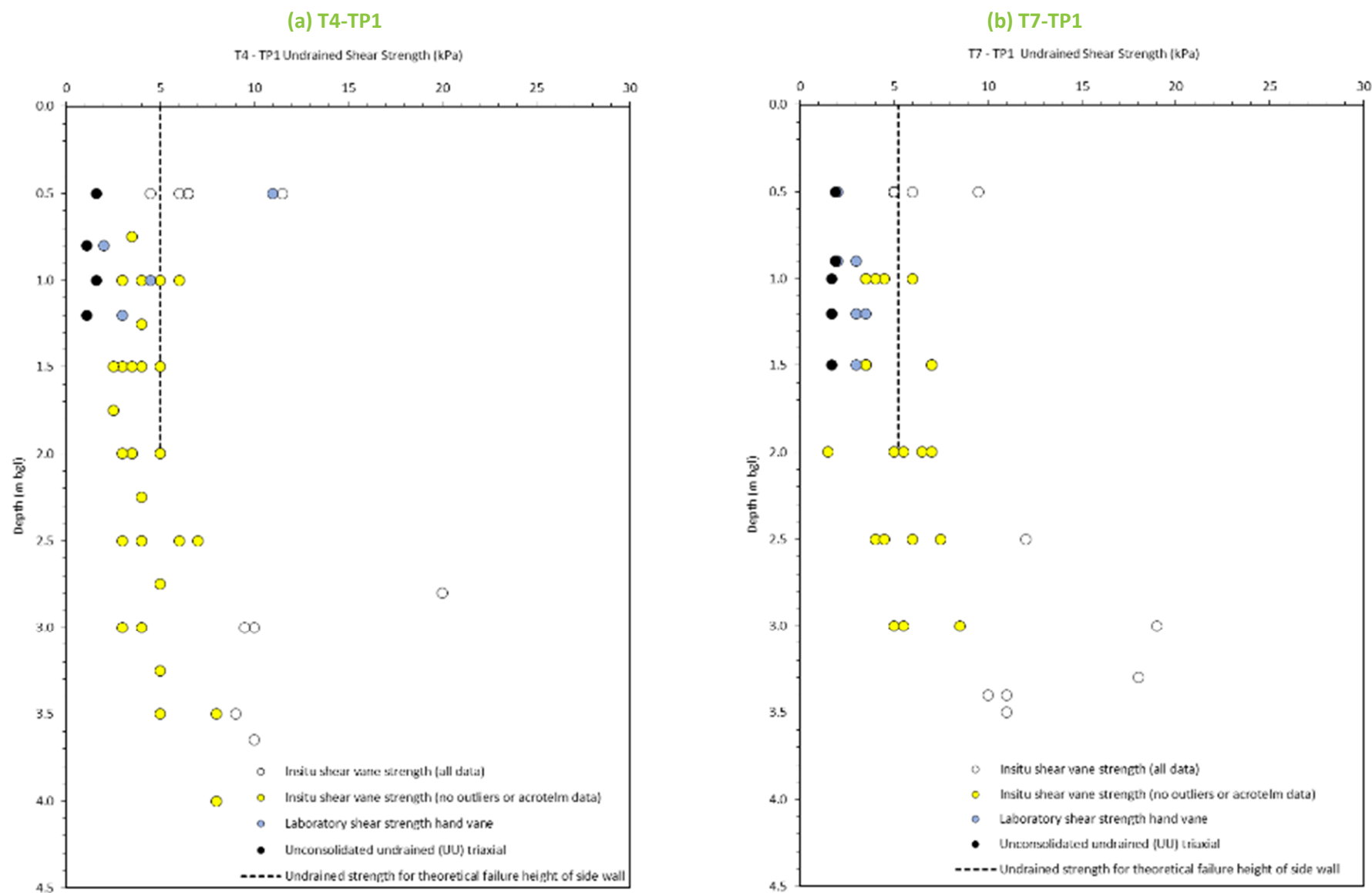
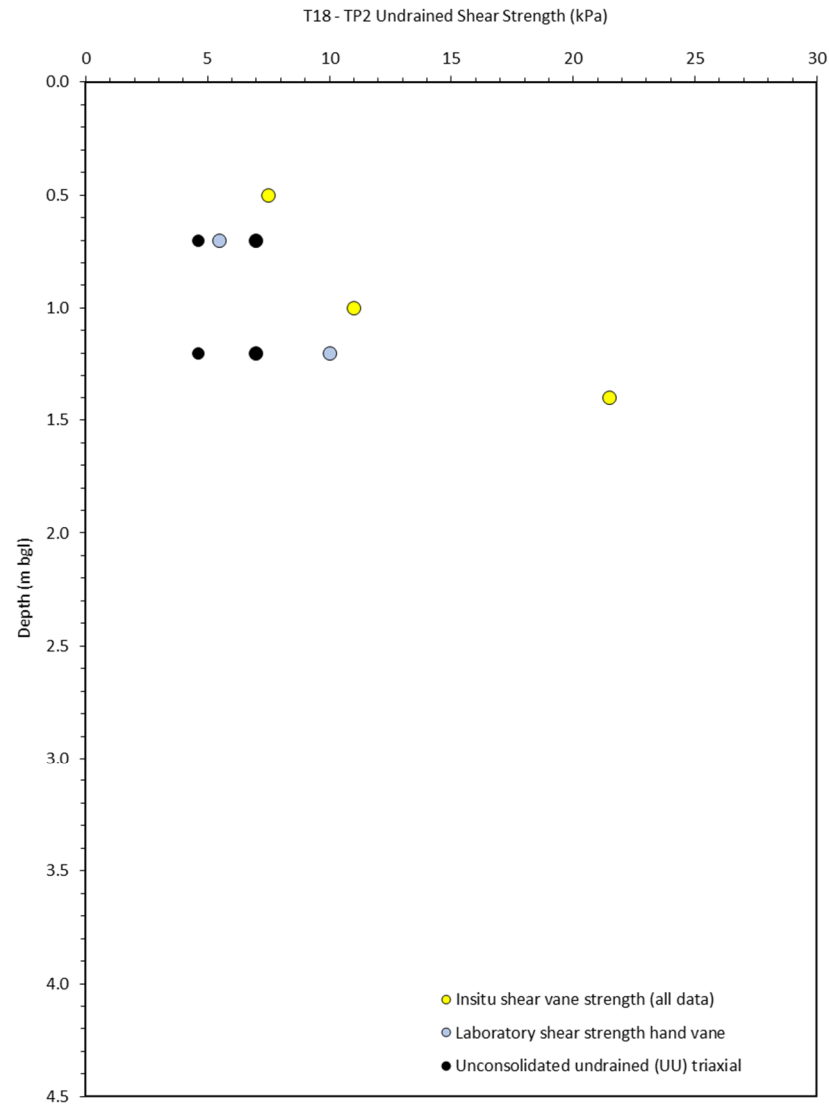


Figure 4-6: Further investigation - shear strength testing of peat using a variety of methods



(c) T18-TP2



(d) T5-TP1

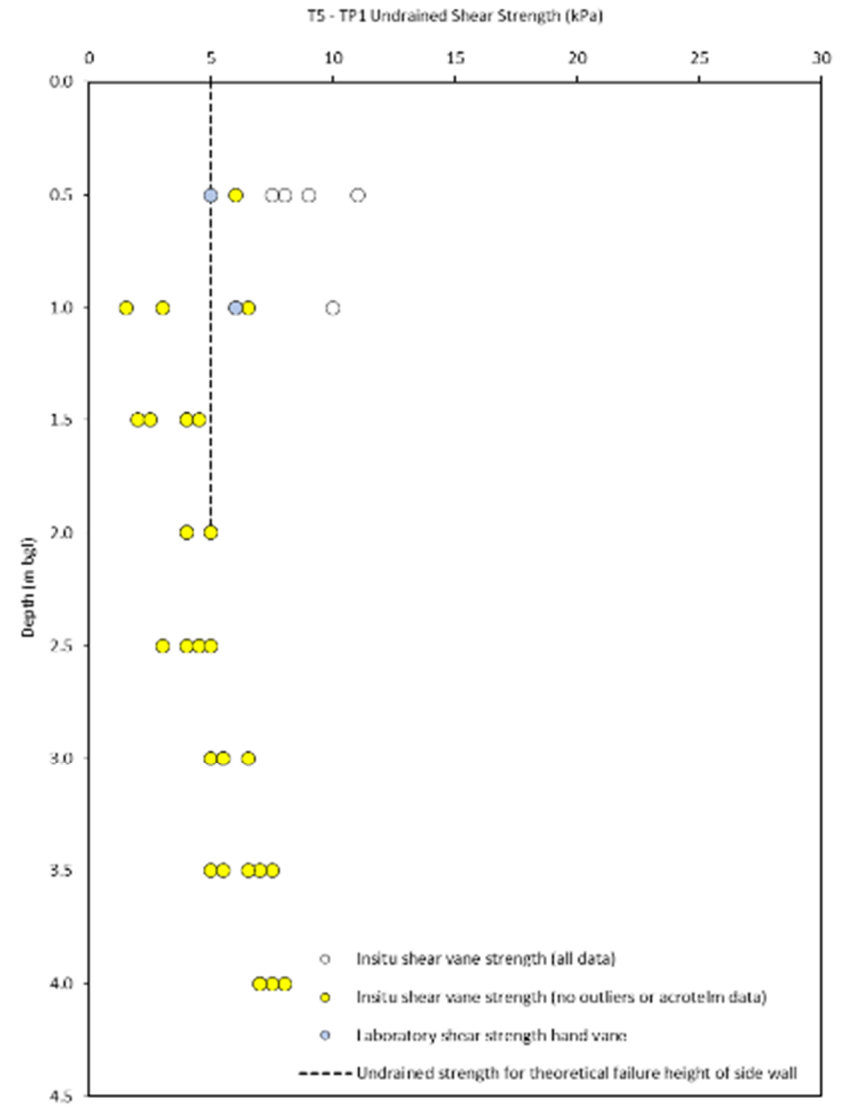


Figure 4-7: Further investigation - shear strength and humification

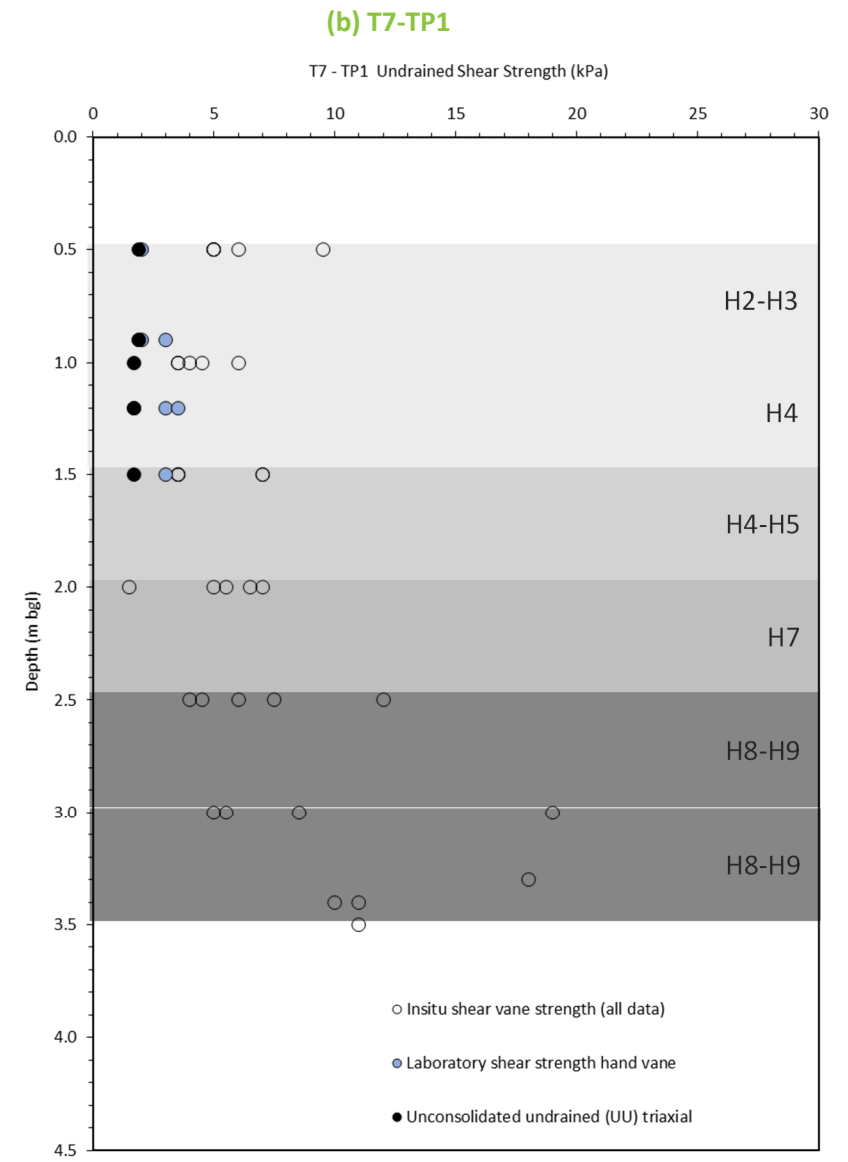
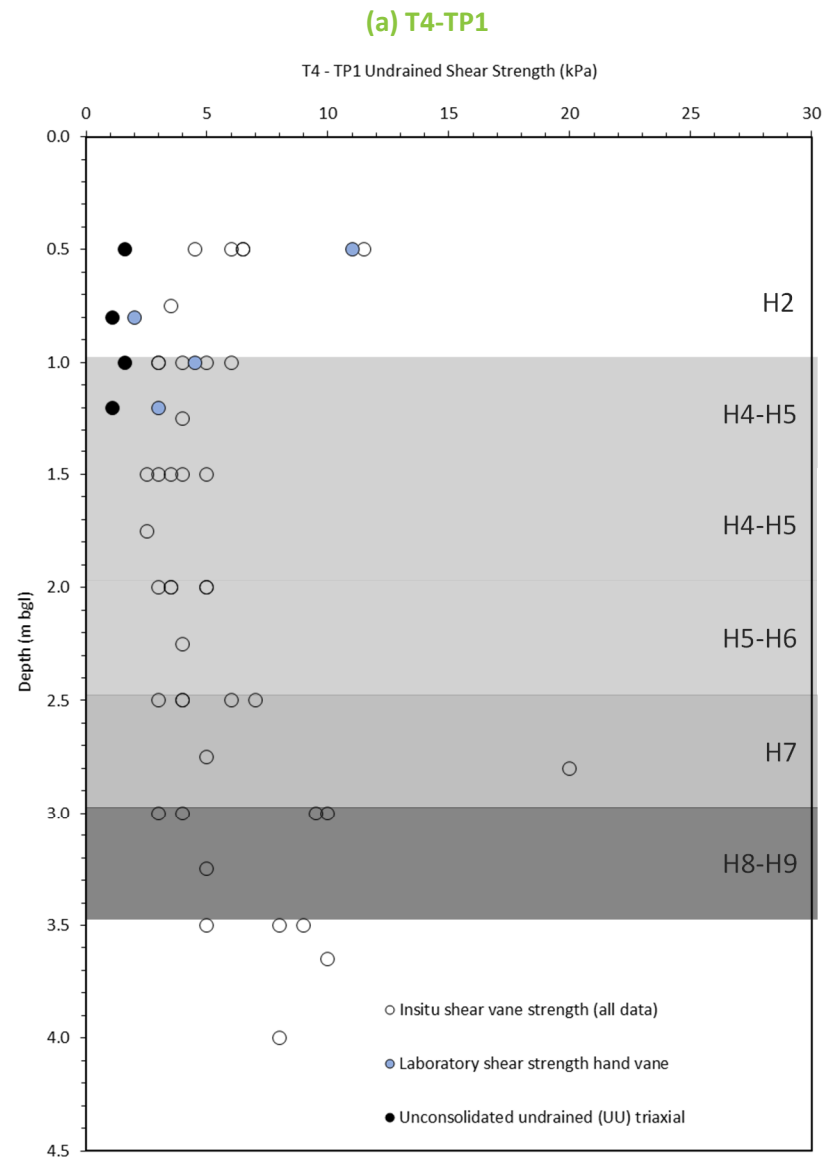
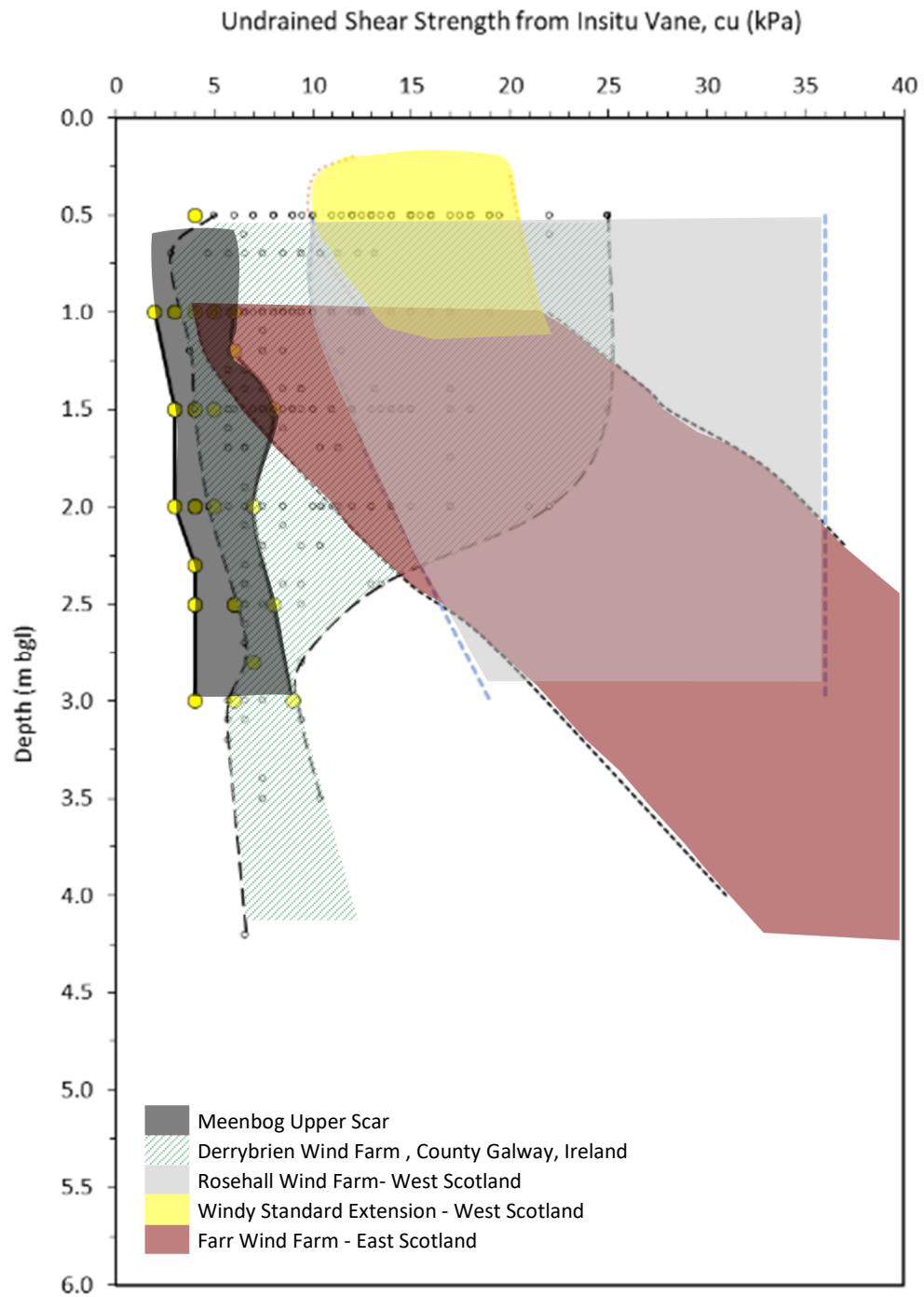


Figure 4-8: Further investigation – comparison of in-situ vane strength for different peat sites



Notes

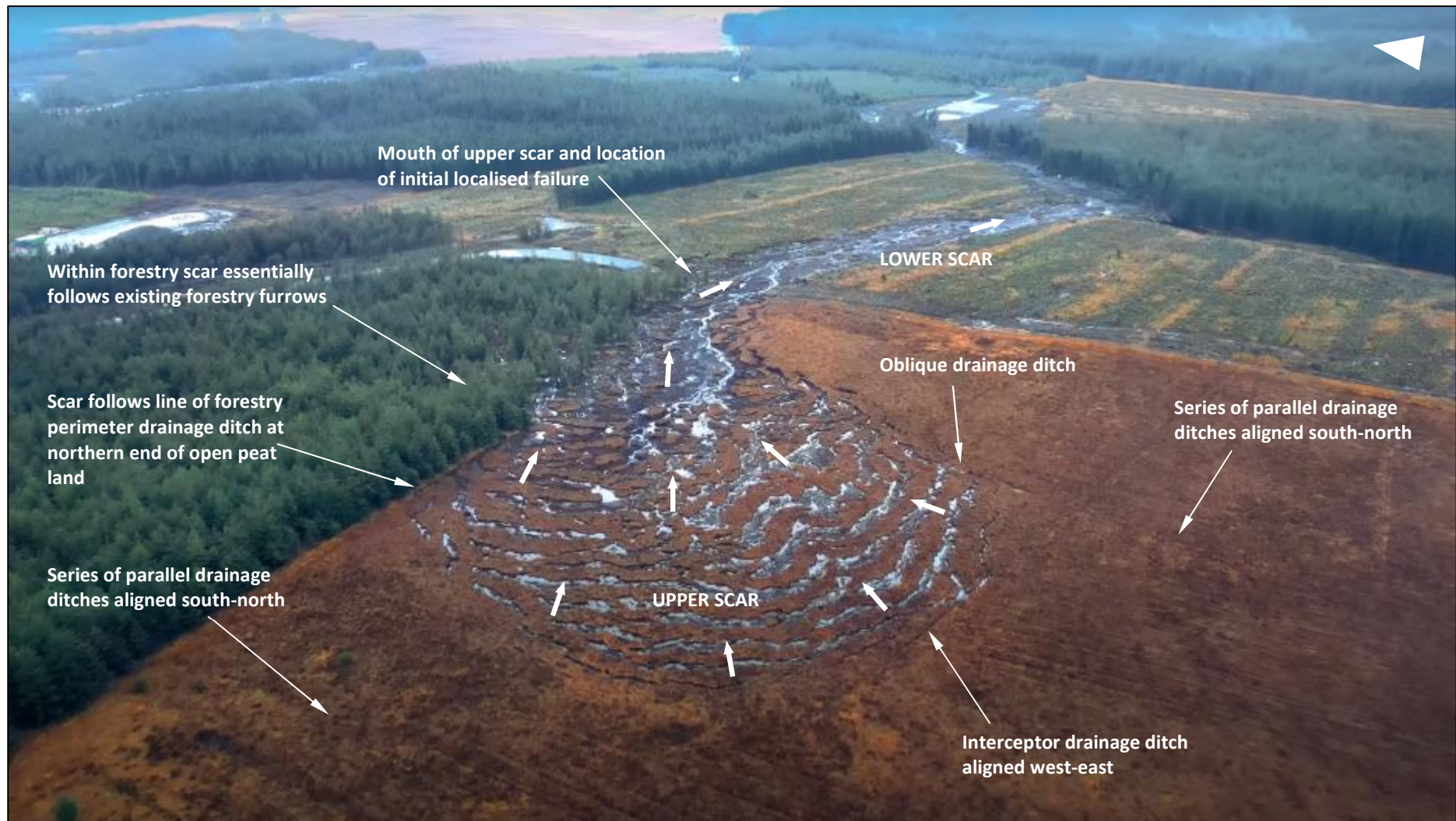
- (1) Results above based on in-situ shear vane testing of peat sites in Ireland and Scotland.
- (2) The Scottish sites comprised a range of peat depth but overall were well-drained with peat strength increasing with depth. These sites were not affected by undrained peat failure.
- (3) The Derrybrien and Meenbog site were both affected by peat failure.

Figure 5-1: Extent of November 2020 peatslide



Source: Google Earth Pro CNES/Airbus image from 20 September 2020. Copyright CNES/Airbus image

Figure 5-2: Aerial image of upper and lower scars



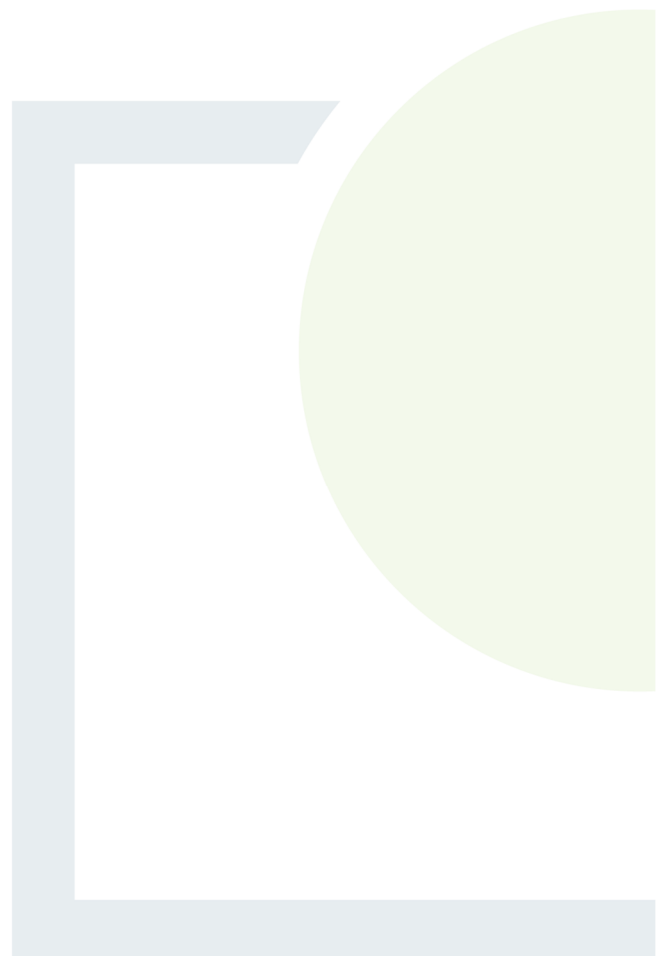
Source: Derg Media (2020)



DESIGNING AND DELIVERING
A SUSTAINABLE FUTURE

APPENDIX A

Ground Investigation
Information/Inspection
Reports





Trial Pit Logs and Associated RPS Logs



				Russian Peat Sample Log			Russian Peat Sample No. T4 TP1 (RPS) Sheet 1 of 1	
Project Name: Meenbog Wind Farm				Project No. P20-328		Co-ords: 08021, 84893 Level:		Date: 22/04/2021
Location: Co. Donegal						Dimensions (m):		Scale: N/A
Client: Planree Ltd.						Depth (m): 3.5		Logged: ML / AW
Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
							Acrotelm - not sampled	
	0.50	SV (P) SV (R)	11.5 4	0.50			Very wet (much free water) very stringy very slightly decomposed, slightly amorphous very soft brown PEAT with many fine and coarse fibres. Von Post: H2 - H3, F3, R3, W0, Tv2, Th2, A1, P0	
	1.00	SV (P) SV (R)	6 3	1.00			Very wet (free water) stringy slightly to moderately decomposed with some to considerable amorphous material very soft brown PEAT with many fine and coarse fibres. Von Post: H4 - H5, F3, R2 - R3, W0, Tv2, Th1, A1, P0	
	1.50	SV (P) SV (R)	5 3	1.50			Very wet (free water) stringy slightly to moderately decomposed with some to considerable amorphous material very soft brown PEAT with many fine and some coarse fibres. Von Post: H4 - H5, F3, R2, W0, Tv2, Th1, A1, P0	
	2.00	SV (P) SV (R)	5 3.5	2.00			Very wet (free water) moderately to moderately strongly decomposed with considerable amorphous material, very soft brown PEAT with some fine and occasional coarse fibres. Von Post: H5 - H6, F2 - F3, R1, W0, Tv1, Th1, A0 - A1, P0	
	2.50	SV (P) SV (R)	7 3.5	2.50			Very wet (free water) strongly decomposed with highly amorphous, very soft dark brown PEAT with some fine fibres. Von Post: H7, F2, R0 - R1, W0, Tv0 - Tv1, Th0, A0 - A1, P0	
	3.00	SV (P) SV (R)	10 6.5	3.00			Wet very strongly decomposed with highly amorphous, very soft dark brown PEAT with some fine fibres and occasional shrub fragments. Von Post: H8, F2, R0, W0 (n1), Tv0, Th0, A1, P1	
	3.50	SV (P) SV (R)	8 6	3.50			Almost completely decomposed with amorphous very soft black PEAT. Von Post: H9, F1, R0, W0 (N0), Tv0, Th0, A1, P1	
	4.00	SV (P) SV (R)	10 6				End of sample at 3.50m	
Remarks: Russian Peat sample taken in centre of trial pit (T4-TP1) as log of the trial pit.								



				Russian Peat Sample Log			Russian Peat Sample No. T7 TP1 (RPS)	
							Sheet 1 of 1	
Project Name: Meenbog Wind Farm				Project No. P20-328		Co-ords: O8198, 85554 Level:		Date: 22/04/2021
Location: Co. Donegal				Dimensions (m):		Scale: N/A		
Client: Planree Ltd.				Depth (m): 3.5		Logged: ML / AW		
Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
							Acrotelm - not sampled	
	0.50	SV (P) SV (R)	9.5 2	0.50			Wet stringy very slightly decomposed, slightly amorphous very soft brown PEAT with many fine and coarse fibres.	
	1.00	SV (P) SV (R)	4 1	1.00			Von Post: H2 - H3, F3, R3, W0, Tv2, Th2, A1, P0 Slightly to moderately decomposed with some to considerable amorphous material very soft brown PEAT with many fine and coarse fibres.	
	1.50	SV (P) SV (R)	3.5 1	1.50			Von Post: H4, F3, R2, W0, Tv2, Th1, A1, P1 Slightly becoming moderately decomposed with some to considerable amorphous material very soft brown PEAT with some fine and occasional coarse fibres.	
	2.00	SV (P) SV (R)	5 3.5	2.00			Von Post: H4 - H5, F2, R1, W0, Tv1, Th1, A2, P0 Strongly decomposed highly amorphous very soft brown PEAT with some fine fibres.	
	2.50	SV (P) SV (R)	6 4.5	2.50			Von Post: H7, F2, R0, W0, Tv1, Th0, A2, P1 Very strongly to almost completely decomposed, highly amorphous, very soft dark brown PEAT with occasional fine fibres.	
	3.00	SV (P) SV (R)	8.5 4.5	3.00			Von Post: H8 - H9, F1, R0, W0, Tv0 - Tv1, Th0 - Th1, A1, P1 Almost completely decomposed, amorphous very soft black PEAT.	
	3.50	SV (P) SV (R)	11 7	3.50			Von Post: H9, F0, R0, W0, Tv0, Th0, A1, P1 End of sample at 3.50m	
Remarks: Russian Peat sample taken in centre of trial pit (T7-TP1) as log of the trial pit.								



				Russian Peat Sample Log			Russian Peat Sample No. T18 TP2 (RPS)	
							Sheet 1 of 1	
Project Name: Meenbog Wind Farm			Meenbog Wind Farm			Co-ords: 06901, 86820 Level:		Date: 22/04/2021
Location: Co. Donegal						Dimensions (m):		Scale: N/A
Client: Planree Ltd.						Depth (m): 1.5		Logged: ML / AW
Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
				0.50			Acrotelm - not sampled	
				0.80			Dry, very soft brown moderately decomposed with considerable amorphous material PEAT with many fine and some coarse fibres. Von Post: H4, F3, R2, W0, Tv1, Th1, A1, P1	
				1.50			Very soft brown Slightly decomposed with some amorphous material PEAT with many fine and occasional coarse fibres. Von Post: H3, F3, R1, W2, Tv1, Th1, A1, P1	
							End of sample at 1.50m	
Remarks: Russian Peat sample taken in centre of trial pit (T18-TP2) as log of the trial pit.								



				Russian Peat Sample Log			Russian Peat Sample No. T5 TP1 (RPS) Sheet 1 of 1	
Project Name: Meenbog Wind Farm				Project No. P20-328		Co-ords: 07317, 84969 Level:		Date: 22/04/2021
Location: Co. Donegal						Dimensions (m):		Scale: N/A
Client: Planree Ltd.						Depth (m): 3.5		Logged: ML / AW
Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
							Acrotelm - not sampled	
	0.50	SV (P) SV (R)	6 3.5	0.50			Very soft brown very wet stringy insignificantly decomposed, PEAT with many fine and coarse fibres. Von Post: H2, F3, R3, W0, Tv3, Th1, A2, P0	
	1.00	SV (P) SV (R)	6.5 4.5	1.00			Very soft brown very wet very slightly decomposed slightly amorphous PEAT with many fine and coarse fibres. Von Post: H2-H3, F3, R3, W0, Tv2, Th1, A1, P0	
	1.50	SV (P) SV (R)	2.5 1	1.50			Very soft brown very Slightly to slightly decomposed with slight to some amorphous material PEAT with some fine and occasional coarse fibres . Von Post: H3 - H4, F2, R1, W0, Tv1, Th0, A1, P0	
	2.00	SV (P) SV (R)	5 3	2.00			Very soft brown moderately decomposed with considerable amorphous material PEAT with some fine and occasional coarse fibres. Von Post: H5, F2, R1, W0, Tv0, Th0, A1, P1	
	2.50	SV (P) SV (R)	4 4	2.50			Very soft dark brown moderately to moderately strongly decomposed, considerably amorphous, PEAT with some fine and occasional coarse fibres. Von Post: H5 - H6, F2, R1, W1, Tv1, Th0, A1, P1	
	3.00	SV (P) SV (R)	5.5 4	3.00			Very soft brown moderately decomposed with some amorphous material PEAT with many fine and occasional coarse fibres. Von Post: H4, F3, R1, W0, Tv0, Th0, A0, P1	
	3.50	SV (P) SV (R)	5.5 2.5	3.50			Very soft brown Moderately decomposed with some amorphous material PEAT with many fine and some coarse fibres. Von Post: H4, F3, R2, W0, Tv1, Th0, A0, P1	
	4.00	SV (P) SV (R)	7 4.5	4.00			End of sample at 4.00m	
Remarks: Russian Peat sample taken in centre of trial pit (T5-TP1) as log of the trial pit.								



				Trial Pit Log			Trial Pit No. T4 - TP1 Sheet 1 of 1	
Project Name: Meenbog Wind Farm				Project No. P20-328		Co-ords: 08021, 84893 Level:		Date: 22/04/2021
Location: Co. Donegal				Dimensions (m): 1.0		Scale: N/A		
Client: Planree Ltd.				Depth (m): 1.5		3.0		Logged: ML / AW
Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.5 - 1	U100		0.50			Acrotelm - vegetation and roots, very wet very fibrous very soft brown PEAT.	
	0.8 - 1.2	U100		1.00			Very wet, very fibrous (stringy), very soft brown PEAT.	
				1.50			End of pit at 1.50m	
Remarks Pit located on a flat area, within a fire break, no trees or tree roots. Vegetation mainly grass and some heather. Likely the area has been previously tracked. Acrotelm cut parallel to pit at 1.0m and 2.0m distance from edge of pit. Movement approx. 200mm at 1.0m and 100mm at 2.0m. Notable movement of peat surface due to action of excavator. For detailed log of trial pit refer to Russian Peat Sample T4-TP1								
Stability: Pit partially failed at 1.50m. Material coming up from base (upwelling), no depth progress beyond 1.30 - 1.50m with continuing excavation. Side walls slumping. Ground level slumped approx. 400mm.								





				Trial Pit Log			Trial Pit No. T7 - TP1 Sheet 1 of 1	
Project Name: Meenbog Wind Farm				Project No. P20-328		Co-ords: 07314, 84969 Level:		Date: 22/04/2021
Location: Co. Donegal				Dimensions (m): 1.0		Scale: N/A		
Client: Planree Ltd.				Depth (m): 1.5 - 1.7		4.0		Logged: ML / AW
Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.5 - 0.9	U100		0.50			Acrotelm - vegetation and roots, very wet very fibrous very soft wet brown PEAT.	
	0.9 - 1.2	U100		1.00			Very soft fibrous/amphous PEAT.	
	1.2 - 1.6	U100		1.50			End of pit at 1.50m - 1.70m	

Remarks: Pit located greater 50m from T5 due the significant peat failure around/uphill of T5. Pit located in flattist area. No trees or tree roots. Vegetation mainly heather with some grass. Acrotelm cut parallel to pit at 0.5m and 1.0m and in an arc from the TP. For detailed log of trial pit refer to Russian Peat Sample T5-TP1

Stability: Pit partially failed at approx. 1.50m - 1.70m. Material coming up from base (upwelling), no depth progress much beyond 1.50m with continuing excavation. Side walls slumping. Ground Level slumped approx. 500mm.



RPS Logs at Turbine Locations



				Russian Peat Sample Log			Russian Peat Sample No. RPS-T1-1 Sheet 1 of 1	
Project Name: Meenbog Wind Farm				Project No. P20-328		Co-ords: 07199, 84166 Level:		Date: 26/04/2021
Location: Co. Donegal				Dimensions (m):		Scale: N/A		Logged: ML
Client: Planree Ltd.				Depth (m): 2.5				
Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.5	SV (P) SV (R)	14 3	0.50			Acrotelm - not sampled Very soft brown very wet insignificantly decomposed fibrous PEAT with many fine and coarse fibres Von Post: H2, F3, R3, W0, Tv3, Th3, A1, P0	
	1	SV (P) SV (R)	12 4	1.00			Very soft light brown very wet insignificantly to very slightly decomposed fibrous to slightly amorphous PEAT with many fine and coarse fibres . Von Post: H2-H3, F3, R3, W0, Tv3, Th2, A2, P0	
	1.5	SV (P) SV (R)	11 5	1.50			Very soft light brown very wet very slightly decomposed slightly amorphous PEAT with many fine and coarse fibres and reeds . Von Post: H3, F3, R3, W1, Tv3, Th2, A0, P1	
	2	SV (P) SV (R)	11 4	2.00			Very soft brown very wet very slightly to slightly decomposed slightly to some amorphous material PEAT with many fine and some coarse fibres and reeds and shrub fragments. Von Post: H3-H4, F2, R2, N1, Tv2, Th1, A1, P0	
	2.5	SV (P) SV (R)	10 5	2.50			End of sample at 2.50m	
Remarks: Disturbed ground - tree roots, base of sharp rise. Shear vane refused at 2.50m.								



				Russian Peat Sample Log			Russian Peat Sample No. RPS-T1-2 Sheet 1 of 1	
Project Name: Meenbog Wind Farm				Project No. P20-328		Co-ords: 07229, 84486 Level:		Date: 26/04/2021
Location: Co. Donegal				Dimensions (m): Depth (m): 1.6		Scale: N/A		
Client: Planree Ltd.						Logged: ML		
Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.5	SV (P) SV (R)	6 2	0.50			Acrotelm - not sampled Very soft brown moderately decomposed with considerable amorphous material PEAT with many fine and some coarse fibres Von Post: H5, F3, R2, W0, Tv2, Th2, A1, P1	
	1	SV (P) SV (R)	5 2	1.00			Very soft dark brown moderately strongly to strongly decomposed considerably to highly amorphous PEAT with some fine and occasional coarse fibres. Von Post: H6-H7, F3, R2, W0, Tv2, Th1, A0, P1	
	1.5	SV (P) SV (R)	14 4	1.50			Very soft very dark brown to black very strongly to near completely decomposed very highly amorphous PEAT with some fine and occasional coarse fibres. Von Post: H8-H9, F2, R1, W0, Tv1, Th0, A0, P1	
End of sample at 1.60m								
Remarks: Disturbed ground - tree roots, very wet underfoot. Shear vane refused at 1.6m.								



				Russian Peat Sample Log			Russian Peat Sample No. RPS-T2-1 Sheet 1 of 1	
Project Name: Meenbog Wind Farm				Project No. P20-328		Co-ords: 07468, 84473 Level:		Date: 26/04/2021
Location: Co. Donegal				Dimensions (m):		Scale: N/A		
Client: Planree Ltd.				Depth (m): 2.0		Logged: ML		
Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.5	SV (P) SV (R)	8 3	0.50			Acrotelm - not sampled	
	1	SV (P) SV (R)	6 3.5	1.00			Very soft brown slightly to moderately decomposed with some to considerable amorphous material PEAT with many fine and many coarse fibres Von Post: H4-H5, F3, R3, W0, Tv3, Th2, A2, P1	
	1.5	SV (P) SV (R)	9 4	1.50			Very soft brown slightly decomposed with some amorphous material PEAT with many fine and many coarse fibres . Von Post: H4, F3, R3, W0, Tv2, Th1, A1, P1	
	2	SV (P) SV (R)	12.5 8	1.90	2		Very soft light brown moderately strongly decomposed considerably amorphous PEAT with some fine and occasional coarse fibres. Von Post: H5, F2, R1, W0, Tv1, Th0, A1, P1	
							Very soft very dark brown strongly decomposed highly amorphous PEAT with some fine and occasional coarse fibres. Von Post: H7, F2, R1, W0, Tv1, Th0, A1, P1	
End of sample at 2.00m								
Remarks: Disturbed ground - tree roots, between forestry and road side castings. Shear vane refused at 2.20m.								



				Russian Peat Sample Log			Russian Peat Sample No. RPS-T2-2 Sheet 1 of 1	
Project Name: Meenbog Wind Farm				Project No. P20-328		Co-ords: 07691, 84261 Level:		Date: 26/04/2021
Location: Co. Donegal				Dimensions (m):		Scale: N/A		
Client: Planree Ltd.				Depth (m): 2.0		Logged: ML		
Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.5	SV (P) SV (R)	6 2.5	0.50			Acrotelm - not sampled	
	1	SV (P) SV (R)	5 2.5	1.00			Very soft brown very slightly decomposed slightly amorphous PEAT with many fine and many coarse fibres. Von Post: H3, F3, R3, W0, Tv3, Th3, A1, P1	
	1.5	SV (P) SV (R)	7 3.5	1.50			Very soft brown moderately to moderately strongly decomposed with considerable amorphous material PEAT with many fine and some coarse fibres. Von Post: H5-H6, F3, R2, W0, Tv2, Th1, A0, P1	
	2	SV (P) SV (R)	14 6	1.80 2			Very soft very dark brown strongly decomposed highly amorphous PEAT with some fine and occasional wood fragments. Von Post: H7, F2, R0, W1, Tv0, Th0, A1, P1	
							Very soft very dark brown to black very strongly to near completely decomposed very highly amorphous PEAT with occasional fine fibres. Von Post: H8-H9, F2, R0, W0, Tv0, Th0, A1, P1	
End of sample at 2.00m								
Remarks: Disturbed ground - tree roots. Shear vane refused at 2.05m.								



				Russian Peat Sample Log			Russian Peat Sample No. RPS-T3-1 Sheet 1 of 1	
Project Name: Meenbog Wind Farm				Project No. P20-328		Co-ords: 06924, 84674 Level:		Date: 23/04/2021
Location: Co. Donegal				Dimensions (m):		Scale: N/A		
Client: Planree Ltd.				Depth (m): 3.5		Logged: ML / AW		
Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.5	SV (P) SV (R)	5 3.5	0.50			Acrotelm - not sampled	
	1	SV (P) SV (R)	4 2.5	1.00			Very soft brown very slightly decomposed slightly amorphous PEAT with many fine and coarse fibres. Von Post: H2-H3, F3, R3, W0, Tv3, Th3, A0, P0	
	1.5	SV (P) SV (R)	4.5 3	1.50			Very soft brown slightly decomposed with some amorphous material PEAT with many fine and some coarse fibres . Von Post: H4, F3, R2, W0, Tv1, Th1, A1, P0	
	2	SV (P) SV (R)	9 4.5	2.00			Very soft brown slightly to moderately decomposed with some to considerable amorphous material PEAT with many fine and occasional coarse fibres . Von Post: H4-H5, F3, R1, W0, Tv1, Th0, A1, P1	
	2.5	SV (P) SV (R)	6.5 3.5	2.50			Very soft brown moderately to moderately strongly decomposed with considerable amorphous material PEAT with many fine and occasional coarse fibres. Von Post: H5-H6, F3, R1, W0, Tv1, Th1, A1, P1	
	3	SV (P) SV (R)	9 6	3.00			Very soft dark brown strongly to very strongly decomposed, considerably to highly amorphous, PEAT with some fine and occasional woody shrub fragments. . Von Post: H7-H8, F2, R0, N1, Tv0, Th0, A0, P1	
	3.25	SV (P) SV (R)	10 7	3.50			Very soft brown Very strongly to near completely decomposed amorphous PEAT with some fine fibres. Von Post: H8-H9, F2, R0, W0, Tv0, Th0, A1, P1	
							End of sample at 3.50m	
Remarks: Relatively undisturbed ground. Shear vane refused at 3.30m								



				Russian Peat Sample Log			Russian Peat Sample No. RPS-T3-2 Sheet 1 of 1	
Project Name: Meenbog Wind Farm				Project No. P20-328		Co-ords: 07199, 84166 Level:		Date: 26/04/2021
Location: Co. Donegal				Dimensions (m):		Scale: N/A		
Client: Planree Ltd.				Depth (m): 2.5		Logged: ML		
Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.5	SV (P) SV (R)	10 4	0.50			Acrotelm - not sampled Very soft brown very slightly decomposed slightly amorphous PEAT with many fine and coarse fibres. Von Post: H3, F3, R3, W0, Tv3, Th3, A0, P1	
	1	SV (P) SV (R)	7.5 4	1.00			Very soft brown slightly to moderately decomposed with some to considerable amorphous material PEAT with many fine and some coarse fibres. Von Post: H4-H5, F3, R2, W0, Tv2, Th1, A1, P1	
	1.5	SV (P) SV (R)	9 5	1.50			Very soft brown moderately to moderately strongly decomposed with considerable amorphous material PEAT with many fine and occasional coarse fibres. Von Post: H5-H6, F3, R1, W0, Tv1, Th0, A1, P1	
	2	SV (P) SV (R)	10 6	2.00			Very soft dark brown strongly decomposed, highly amorphous, PEAT with occasional fine fibres. Von Post: H7, F1-2, R0, Tv1, Th0, A0, P1	
	2.5	SV (P) SV (R)	9 5	2.25			Very soft very dark brown very strongly to near completely decomposed amorphous PEAT with occasional fine and coarse fibres Von Post: H8-H9, F1, R1, W0, Tv0, Th0, A1, P1	
				2.50			End of sample at 2.50m	
Remarks: Disturbed ground - tree roots. Shear vane refused at 2.65m.								



				Russian Peat Sample Log			Russian Peat Sample No. RPS-T4-1 Sheet 1 of 1	
Project Name: Meenbog Wind Farm				Project No. P20-328		Co-ords: 07204, 84596 Level:		Date: 26/04/2021
Location: Co. Donegal				Dimensions (m):		Scale: N/A		
Client: Planree Ltd.				Depth (m): 4.0		Logged: ML / AW		
Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
							Acrotelm - not sampled	
	0.5	SV (P) SV (R)	6.5 3	0.50			Very soft light brown very slightly decomposed slightly amorphous PEAT with many fine and some fibres and reeds. Von Post: H3, F3, R3, W0, Tv3, Th2, A1, P0	
	1	SV (P) SV (R)	5.5 2.5	1.00			Very soft brown slightly to moderately decomposed with some to considerable amorphous material PEAT with some fine and occasional coarse fibres. Von Post: H4-H5, F3, R1, W0, Tv2, Th1, A1, P1	
	1.5	SV (P) SV (R)	4.5 3	1.50			Very soft brown slightly to moderately decomposed with some to considerable amorphous material PEAT with many fine and occasional coarse fibres. Von Post: H4-H5, F2, R1, W0, Tv1, Th1, A0, P1	
	2	SV (P) SV (R)	5 3	2.00			Very soft brown moderately to moderately strongly decomposed with considerable amorphous material PEAT with many fine and occasional coarse fibres. Von Post: H5-H6, F3, R1, W0, Tv1, Th1, A1, P1	
	2.5	SV (P) SV (R)	5 2.5	2.50			Very soft brown very slightly decomposed slightly amorphous PEAT with many fine and many coarse fibres. Von Post: H5-H6, F2, R1, W0, Tv1, Th1, A1, P1	
	3	SV (P) SV (R)	5.5 3	3.00			Very soft brown very wet slightly to moderately decomposed with some to considerable amorphous material PEAT with some fine and occasional coarse fibres. Von Post: H4-H5, F2, R1, W1, Tv1, Th1, A0, P1	
	3.5	SV (P) SV (R)	9 6.5	3.50			Very soft brown slightly to moderately strongly decomposed with some to considerable amorphous material PEAT with some fine and occasional coarse fibres. Von Post: H4-H6, F2, R1, W1, Tv0, Th0, A1, P1	
	4	SV (P) SV (R)	13 6.5	4.00			End of sample at 4.00m	
Remarks: Relatively undisturbed ground. Shear vane refused at 4.30m								



				Russian Peat Sample Log			Russian Peat Sample No. RPS-T4-2 Sheet 1 of 1	
Project Name: Meenbog Wind Farm				Project No. P20-328		Co-ords: 07638, 84696 Level:		Date: 26/04/2021
Location: Co. Donegal				Dimensions (m): Depth (m): 2.0		Scale: N/A		
Client: Planree Ltd.						Logged: ML		
Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.5	SV (P) SV (R)	11.5 4	0.50			Acrotelm - not sampled Very soft brown very wet slightly decomposed with some amorphous material PEAT with many fine and many coarse fibres. Von Post: H4, F3, R3, W0, Tv3, Th3, A0, P1	
	1	SV (P) SV (R)	7 4	1.00			Very soft brown moderately decomposed with considerable amorphous material PEAT with many fine and some coarse fibres. Von Post: H5, F3, R2, W0, Tv2, Th2, A1, P1	
	1.5	SV (P) SV (R)	6.6 3.5	1.50			Very soft light brown moderately strongly decomposed considerably amorphous PEAT with some fine and occasional coarse fibres. Von Post: H6, F2, R1, W0, Tv1, Th0, A1, P1	
	2	SV (P) SV (R)	14 4	1.80			Very soft very dark brown to black very strongly to near completely decomposed very highly amorphous PEAT with occasional fine fibres. Von Post: H8-H9, F1, R0, W0, Tv0, Th0, A0, P1	
				2			End of sample at 2.00m	
Remarks: Relatively undisturbed ground. Shear vane refused at 2.05m								



				Russian Peat Sample Log			Russian Peat Sample No. RPS-T4-3 Sheet 1 of 1	
Project Name: Meenbog Wind Farm				Project No. P20-328		Co-ords: 08022, 84819 Level:		Date: 26/04/2021
Location: Co. Donegal				Dimensions (m): Depth (m): 2.0		Scale: N/A		
Client: Planree Ltd.						Logged: ML		
Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.5	SV (P) SV (R)	13 5	0.50			Acrotelm - not sampled Very soft brown very slightly decomposed slightly amorphous PEAT with many fine and many coarse fibres. Von Post: H3, F3, R3, W0, Tv3, Th3, A0, P0	
	1	SV (P) SV (R)	8 4	1.00			Very soft brown slightly to moderately decomposed with some to considerable amorphous material PEAT with many fine and occasional coarse fibres. Von Post: H4-H5, F3, R1, W0, Tv2, Th1, A1, P1	
	1.5	SV (P) SV (R)	7 4.5	1.50			Very soft light brown moderately strongly decomposed considerably amorphous PEAT with some fine and occasional coarse fibres . Von Post: H6, F2, R1, W0, Tv1, Th0, A1, P1	
	2	SV (P) SV (R)	8 4				End of sample at 2.00m	
Remarks: Tree roots. Shear vane refused at 2.05m.								



				Russian Peat Sample Log			Russian Peat Sample No. RPS-T5-1 Sheet 1 of 1	
Project Name: Meenbog Wind Farm				Project No. P20-328		Co-ords: 07212, 84981 Level:		Date: 27/04/2021
Location: Co. Donegal				Dimensions (m): Depth (m): 2.9		Scale: N/A		
Client: Planree Ltd.						Logged: ML / AW		
Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.5	SV (P) SV (R)	20 7.5	0.50			Acrotelm - not sampled	
	1	SV (P) SV (R)	6.5 3.5	1.00			Very soft wet brown very slightly decomposed slightly amorphous PEAT with many fine and many coarse fibres. Von Post: H3, F3, R3, W0, Tv3, Th2, A0, P0	
	1.5	SV (P) SV (R)	5 3	1.50			Very soft wet brown slightly decomposed with some amorphous material PEAT with many fine and some coarse fibres. Von Post: H4, F3, R2, W0, Tv2, Th2, A0, P1	
	2	SV (P) SV (R)	5 3	2.00			Very soft brown wet moderately to moderately strongly decomposed with considerable amorphous material PEAT with many fine and occasional coarse fibres and shrub fragments. Von Post: H5-H6, F3, R1, N1, Tv1, Th0, A0, P1	
	2.5	SV (P) SV (R)	5.5 4	2.50			Very soft dark brown moderately strongly to strongly decomposed considerably to highly amorphous PEAT with some fine fibres. Von Post: H6-H7, F2, R0, W0, Tv0, Th0, A1, P1	
	2.95	SV (P) SV (R)	12.5 7	2.90			Very soft very dark brown to black near completely decomposed amorphous PEAT. Von Post: H9, F0, R0, W0, Tv0, Th0, A0, P1	
								End of sample at 2.90m
Remarks: Tree stumps. Shear vane refused at 2.95m								



				Russian Peat Sample Log			Russian Peat Sample No. RPS-T7-1 Sheet 1 of 1	
Project Name: Meenbog Wind Farm				Project No. P20-328		Co-ords: 08274, 08515 Level:		Date: 26/04/2021
Location: Co. Donegal				Dimensions (m):		Scale: N/A		
Client: Planree Ltd.				Depth (m): 2.0		Logged: ML		
Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.5	SV (P) SV (R)	13.5 4	0.50			Acrotelm - not sampled	
	1	SV (P) SV (R)	8.5 5	1.00			Very soft brown very slightly to slightly decomposed slightly amorphous PEAT with many fine and many coarse fibres. Von Post: H3-H4, F3, R3, W0, Tv3, Th3, A1, P1	
	1.5	SV (P) SV (R)	10 5.5	1.50			Very soft brown slightly to moderately strongly decomposed with some to considerable amorphous material PEAT with many fine and occasional coarse fibres. Von Post: H4-H6, F3, R1, W0, Tv1, Th1, A0, P1	
	2	SV (P) SV (R)	14 6				Very soft very dark brown strongly decomposed highly amorphous PEAT with some fine and occasional coarse fibres. Von Post: H7, F3, R1, W0, Tv1, Th0, A1, P1	
End of sample at 2.00m								
Remarks: Tree roots. Shear vane refused at 2.05m.								



				Russian Peat Sample Log			Russian Peat Sample No. RPS-T7-2 Sheet 1 of 1	
Project Name: Meenbog Wind Farm				Project No. P20-328		Co-ords: 08181, 85798 Level:		Date: 26/04/2021
Location: Co. Donegal				Dimensions (m):		Scale: N/A		
Client: Planree Ltd.				Depth (m): 3.0		Logged: ML / AW		
Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
Depth	Type	Results						
							Acrotelm - not sampled	
0.5	SV (P) SV (R)	18 8.5		0.50			Very soft brown very slightly decomposed slightly amorphous PEAT with many fine and many coarse fibres. Von Post: H3, F3, R3, W0, Tv3, Th3, A1, P0	
1	SV (P) SV (R)	7.5 4.5		1.00			Very soft brown slightly decomposed with some amorphous material PEAT with many fine and some coarse fibres Von Post: H4, F3, R2, W0, Tv2, Th1, A1, P1	
1.5	SV (P) SV (R)	6 4		1.50			Very soft brown moderately strongly decomposed considerably amorphous PEAT with some fine and occasional coarse fibres. Von Post: H5, F2, R1, W0, Tv1, Th0, A1, P1	
2	SV (P) SV (R)	6 4		2.00			Very soft dark brown moderately strongly to strongly decomposed considerably to highly amorphous PEAT with some fine fibres. Von Post: H6-H7, F2, R0, W0, Tv0, Th0, A1, P1	
2.5	SV (P) SV (R)	4 2		2.50			Very soft very dark brown strongly decomposed highly amorphous PEAT with some fine fibres. Very wet 2.75m Von Post: H7, F2, R0, W0, Tv1, Th0, A1, P1	
3	SV (P) SV (R)	11 6		2.75			Very soft very dark brown to black near completely decomposed amorphous PEAT with occasional fine fibres. Von Post: H9, F1, R0, W0, Tv0, Th0, A1, P1	
					3		End of sample at 3.00m	
Remarks: Shear vane refused at 3.00m								



				Russian Peat Sample Log			Russian Peat Sample No. RPS-T7-3 Sheet 1 of 1	
Project Name: Meenbog Wind Farm				Project No. P20-328		Co-ords: 08108, 85846 Level:		Date: 26/04/2021
Location: Co. Donegal				Dimensions (m):		Scale: N/A		
Client: Planree Ltd.				Depth (m): 3.2		Logged: ML / AW		
Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.5	SV (P) SV (R)	10 4	0.50			Acrotelm - not sampled	
	1	SV (P) SV (R)	8 5	1.00			Very soft brown very slightly decomposed slightly amorphous PEAT with many fine and many coarse fibres. Von Post: H3, F3, R3, W0, Tv3, Th3, A1, P1	
	1.5	SV (P) SV (R)	2 1	1.50			Very soft brown very slightly to slightly decomposed slightly amorphous PEAT with many fine and occasional coarse fibres. Von Post: H3-H4, F3, R1, W0, Tv2, Th1, A1, P1	
	2	SV (P) SV (R)	3 1	2.00			Very soft brown moderately strongly decomposed considerably amorphous PEAT with many fine and occasional coarse fibres and some small wood fragments. Von Post: H5, F3, R1, W1, Tv1, Th1, A1, P1	
	2.5	SV (P) SV (R)	7 5	2.50			Very soft brown moderately strongly decomposed considerably amorphous PEAT with some fine and occasional coarse fibres and some small wood/shrub fragments. Von Post: H6, F2, R1, W1 (N), Tv1, Th0, A0, P1	
	3	SV (P) SV (R)	11 5	2.75			Very soft very dark brown strongly decomposed highly amorphous PEAT with some fine fibres. Von Post: H7, F2, R0, W0, Tv0, Th0, A1, P1	
	3.5	SV (P) SV (R)	27	3.20			Very soft very dark brown to black near completely decomposed amorphous PEAT. Von Post: H9, F0, R0, W0, Tv0, Th0, A0, P1	
								End of sample at 3.20m
Remarks: Shear vane refused at 3.20m								



				Russian Peat Sample Log			Russian Peat Sample No. RPS-T10-1 Sheet 1 of 1	
Project Name: Meenbog Wind Farm				Project No. P20-328		Co-ords: 06753, 85949 Level:		Date: 26/04/2021
Location: Co. Donegal				Dimensions (m):		Scale: N/A		
Client: Planree Ltd.				Depth (m): 2.5		Logged: ML		
Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.5	SV (P) SV (R)	4 2	0.50			Acrotelm - not sampled	
	1	SV (P) SV (R)	4.5 3	1.00			Very soft dark brown slightly to moderately decomposed with some to considerable amorphous material PEAT with many fine and occasional coarse fibres. Von Post: H4-H5, F3, R1, W0, Tv2, Th1, A1, P1	
	1.5	SV (P) SV (R)	7 4.5	1.50			Very soft dark brown moderately strongly to strongly decomposed considerably to highly amorphous PEAT with some fine fibres and occasional coarse fibres. . Von Post: H6-H7, F2, R1, W0, Tv1, Th0, A1, P1	
	2	SV (P) SV (R)	17 5.5	2.00			Very soft very dark brown strongly decomposed highly amorphous woody PEAT with some fine fibres and occasional coarse fibres. Von Post: H7, F2, R1, W2, Tv1, Th0, A1, P1	
							Very soft very dark brown to black very strongly to near completely decomposed very highly amorphous woody PEAT with occasional fine fibres. . Von Post: H8-H9, F1, R0, W2, Tv0, Th0, A1, P1	
							End of sample at 2.50m	
Remarks: Disturbed ground. Shear vane refused at 2.10m.								



				Russian Peat Sample Log			Russian Peat Sample No. RPS-T14-1 Sheet 1 of 1	
Project Name: Meenbog Wind Farm				Project No. P20-328		Co-ords: 07075, 86545 Level:		Date: 26/04/2021
Location: Co. Donegal				Dimensions (m):		Scale: N/A		
Client: Planree Ltd.				Depth (m): 1.7		Logged: ML		
Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.50	SV (P) SV (R)	11 3	0.50			Acrotelm - not sampled	
	1.00	SV (P) SV (R)	13 5	1.20			Very soft brown very slightly decomposed slightly amorphous PEAT with many fine and many coarse fibres. Von Post: H3, F3, R3, W0, Tv3, Th3, A2, P0	
	1.50	SV (P) SV (R)	12 4	1.50			Very soft brown moderately strongly decomposed considerably amorphous PEAT with many fine and some coarse fibres . Von Post: H5, F3, R2, W1, Tv2, Th1, A1, P1	
	2.00	SV (P) SV (R)	11 6	1.70			Very soft very dark brown to black very strongly to near completely decomposed very highly amorphous PEAT with occasional fine fibres. Von Post: H8-H9, F1, R0, W0, Tv0, Th0, A1, P1	
							End of sample at 1.70m	
Remarks: Disturbed ground, tree stumps. Shear vane refused at 1.70m								



				Russian Peat Sample Log			Russian Peat Sample No. RPS-T16-1 Sheet 1 of 1	
Project Name: Meenbog Wind Farm				Project No. P20-328		Co-ords: 08920, 86636 Level:		Date: 27/04/2021
Location: Co. Donegal				Dimensions (m): Depth (m): 2.7		Scale: N/A		
Client: Planree Ltd.						Logged: ML / AW		
Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.5	SV (P) SV (R)	9 5	0.50			Acrotelm - not sampled Very soft wet brown slightly decomposed with some amorphous material PEAT with many fine and many coarse fibres. Von Post: H4, F3, R3, W0, Tv3, Th3, A1, P1	
	1	SV (P) SV (R)	5 2	1.00			Very soft brown wet moderately to moderately strongly decomposed with considerable amorphous material PEAT with many fine and some coarse fibres. Von Post: H5-H6, F3, R2, W0, Tv2, Th1, A0, P1	
	1.5	SV (P) SV (R)	5 3	1.50			Very soft dark brown moderately strongly to strongly decomposed considerably to highly amorphous PEAT with some fine fibres and occasional coarse fibres. Von Post: H6-H7, F2, R1, W0, Tv1, Th0, A1, P1	
	2	SV (P) SV (R)	5 3.5	2.00			Very soft very dark brown strongly decomposed highly amorphous PEAT with some fine fibres. Von Post: H7, F2, R0, W0, Tv2 Th0, A1, P1	
	2.5	SV (P) SV (R)	7 4	2.50			Very soft very dark brown to black near completely decomposed amorphous PEAT with occasional fine fibres. Von Post: H9, F1, R0, W0, Tv0, Th0, A0, P1	
				2.70			End of sample at 2.70m	
Remarks: Undisturbed ground. Shear vane refused at 2.70m								



				Russian Peat Sample Log			Russian Peat Sample No. RPS-T19-1 Sheet 1 of 1	
Project Name: Meenbog Wind Farm				Project No. P20-328		Co-ords: 09177, 87164 Level:		Date: 27/04/2021
Location: Co. Donegal				Dimensions (m): Depth (m): 2.7		Scale: N/A		
Client: Planree Ltd.						Logged: ML / AW		
Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.5	SV (P) SV (R)	11 3	0.50			Acrotelm - not sampled	
	1	SV (P) SV (R)	9 4	1.00			Very soft brown very slightly decomposed slightly amorphous PEAT with many fine and many coarse fibres . Von Post: H3, F3, R3, W0, Tv3, Th3, A0, P0	
	1.5	SV (P) SV (R)	8 3.5	1.50			Very soft wet brown slightly decomposed with some amorphous material PEAT with many fine and some coarse fibres. Von Post: H4, F3, R2, W0, Tv2, Th2, A0, P0	
	2	SV (P) SV (R)	9.5 7	2.00			Very soft dark brown slightly to moderately decomposed with some to considerable amorphous material PEAT with many fine and occasional coarse fibres . Von Post: H4-H5, F3, R1, W0, Tv1, Th0, A1, P1	
	2.5	SV (P) SV (R)	16.5 6.5	2.50			Very soft dark brown moderately strongly to strongly decomposed considerably to highly amorphous PEAT with some fine fibres and occasional coarse fibres. Von Post: H6-H7, F2, R1, W0, Tv0, Th0, A1, P1	
				2.70			Very soft very dark brown to black very strongly to near completely decomposed very highly amorphous PEAT with occasional fine fibres. Von Post: H8-H9, F1, R0, W2, Tv0, Th0, A1, P1	
							End of sample at 2.70m	
Remarks: Undisturbed ground. Shear vane refused at 2.70m								



				Russian Peat Sample Log			Russian Peat Sample No. T18-TP1 (RPS) Sheet 1 of 1	
Project Name: Meenbog Wind Farm				Project No. P20-328		Co-ords: 06778, 86820 Level:		Date: 23/04/2021
Location: Co. Donegal				Dimensions (m):		Scale: N/A		
Client: Planree Ltd.				Depth (m): 2.5		Logged: ML / AW		
Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
				0.50			Acrotelm - not sampled	
				1.00			Dry, very soft brown slightly to moderately decomposed with some to considerable amorphous material PEAT with many fine and coarse fibres Von Post: H4 - H5, F3, R3, W0, Tv3, Th2, A2, P1	
				1.50			Very soft brown slightly to moderately decomposed with some to considerable amorphous material PEAT with many fine and coarse fibres and much reedy material. Von Post: H4 - H5, F3, R3, W0, Tv2, Th2, A2, P1	
				2.00			Very wet, very soft brown very slightly decomposed slightly amorphous PEAT with many fine and coarse fibres and some reedy material. Von Post: H3, F3, R3, W0, Tv2, Th1, A2, P1	
				2.50			Very soft brown moderately decomposed with considerable amorphous material PEAT with some fine and occasional coarse fibres. Von Post: H4, F2, R1, W0, Tv0, Th0, A3, P1	
							End of sample at 2.50m	
Remarks: Generally dry underfoot. Hard to push in peat sampler. 5m from road, 3m from road drainage ditch, 20-30m from stream .								



irish drilling

DRILLHOLE LOG

Project Meenbog Wind Farm			Location Co Donegal		DRILLHOLE No BH SS-01
Job No 2020DL102	Date 26-05-20 28-05-20	Ground Level (m OD) 		Co-Ordinates () 	
Engineer Ionic Consulting					Sheet 1 of 1 Rev. DRAFT

RUN DETAILS						STRATA		Geology	Instrument/ Backfill
Depth	TCR (SCR)	(SPT) Fracture Spacing	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION			
Date	RQD					Discontinuities	Detail		
0.00	0 (-)	NA			(0.80)	0.00 - 3.60 : overburden.		Open hole drilling - no recovery. Drillers Comment: FILL.	
0.80	-		0.80						
1.80	80 (-)	1.50 (25/0mm)			(2.80)			Subrounded to subangular fine to coarse schist quartz and phyllite GRAVEL with a little grey silt.	
26.05 2.70	89 (-)	NA							
26.05 3.60	67 (-)		3.00 (25/0mm)						
3.60	-				3.60	3.60 - 9.30 Discontinuities, medium spaced, locally closely and very closely spaced, dipping 28 to 30 and 58 to 60°, stepped, smooth, with 0.5 to 3mm thick brownish grey silt smear. 4.25 - 4.90 2 No perpendicular, subvertical dip, undulating, smooth, with 0.5 to 3mm thick light greenish grey silt smear, open to moderately wide. 5.15 - 5.25 Joint, vertical dip, undulating, rough, with 0.5 to 2mm thick greenish grey silt smear, open.		Very strong thinly foliated bluish grey fine and medium grained PHYLLITE.	
5.10	100 (75) 37	1							
5.60	100 (94) 50	11							
		6							
27.05 6.70	100 (79) 48	8			(5.70)				
8.20	100 (95) 45	10							
28.05 9.30	100 (100) 100	1			9.30				
		0						BH terminated at 9.30m bgl on REs instruction.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Depth	Casing Dia	Core Dia mm	Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
26-05-20	12.00	2.70	0.80	99	63			0	1.00	water	100	BH backfilled with bentonite.
27-05-20	17.30	6.70	0.80	99	63			0	9.30	water	0	
28-05-20	11.00	9.30	0.80	99	63							

All dimensions in metres Scale 1:68.75	Client: MCEL	Method/ Plant Used	Hydreq	Bit Design	HQ	Driller PMcG	Logged By EAT
---	--------------	-----------------------	--------	------------	----	-----------------	------------------

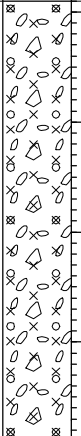
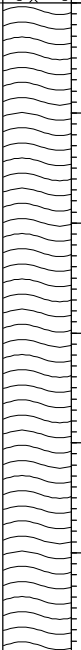
IDL AGS UK DH (SPTS) MEENBOG WF RC ALL FILE JUNE 9 2020.GPJ IDL TP TEMPLATE.GDT 19/6/20



irish drilling

DRILLHOLE LOG

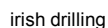
Project Meenbog Wind Farm			Location Co Donegal		DRILLHOLE No BH SS-02
Job No 2020DL102	Date 28-05-20 28-05-20	Ground Level (m OD)	Co-Ordinates ()		
Engineer Ionic Consulting					Sheet 1 of 2 Rev. DRAFT

RUN DETAILS						STRATA			Geology	Instrument/ Backfill
Depth Date	TCR (SCR) RQD	(SPT) Fracture Spacing	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION				
						Discontinuities	Detail	Main		
0.00	0 (-) -	NA			(0.90)	0.00 - 5.00 : overburden.		Open hole drilling - no recovery. Drillers Comment: FILL.		
0.90					0.90					
1.50	83 (-) -	1.50 (25/0mm)			(4.10)			Very stiff light brown sandy gravelly SILT. Sand is fine to coarse. Gravel is subrounded to subangular fine to medium of assorted metamorphic clasts.		
2.60	46 (-) -									
3.60	70 (-) -	3.00 (48/75mm)								
4.90	61 (-) -	4.70 (56/150mm)								
5.00	100 (-) -									
5.60	100 (68) 0	20			(6.60)	5.00 - 11.60 Discontinuities, closely, locally very closely spaced, dipping 30 to 32 and 58 to 60°, planar, smooth, with 0.5 to 6mm thick light greenish grey silt smear.		Very strong thinly foliated bluish grey fine and medium grained PHYLLITE.		
6.70	100 (82) 19	11								
7.60	100 (50) 0	NI								
8.30	100 (24) 0									
9.80	100 (58) 10									
10.10	100 (23) 0									
	100 (67)									

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Depth	Casing Dia	Core Dia mm	Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
								0	1.00	water	100	BH backfilled with bentonite.
								1	11.60	water	0	

All dimensions in metres Scale 1:68.75	Client: MCEL	Method/ Plant Used	Hydreq	Bit Design	HQ	Driller PMcG	Logged By EAT
--	--------------	-----------------------	--------	---------------	----	-----------------	------------------

IDL AGS UK DH (SPTS) MEENBOG WF RC ALL FILE JUNE 9 2020 GPJ IDL TP TEMPLATE.GDT 19/6/20



DRILLHOLE LOG

Project Meenbog Wind Farm			Location Co Donegal		DRILLHOLE No BH SS-02
Job No 2020DL102	Date 28-05-20 28-05-20	Ground Level (m OD)	Co-Ordinates ()		
Engineer Ionic Consulting					Sheet 2 of 2 Rev. DRAFT

RUN DETAILS						STRATA		Geology	Instrument/ Backfill
Depth	TCR (SCR) RQD	(SPT) Fracture Spacing	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION			
Date						Discontinuities	Detail		
	29	16					Very strong thinly foliated bluish grey fine and medium grained PHYLLITE. <i>(continued)</i>		
28.0511.60					11.60		BH terminated at 11.60m bgl on REs instruction.		

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
28-05-20	17.30	11.60	0.90	99	63							BH backfilled with bentonite.



irish drilling

DRILLHOLE LOG

Project Meenbog Wind Farm			Location Co Donegal		DRILLHOLE No BH T-05
Job No 2020DL102	Date 25-05-20 25-05-20	Ground Level (m OD)		Co-Ordinates ()	
Engineer Ionic Consulting					Sheet 1 of 1 Rev. DRAFT

RUN DETAILS						STRATA		Geology	Instrument/ Backfill
Depth Date	TCR (SCR) RQD	(SPT) Fracture Spacing	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION			
						Discontinuities	Main		
0.00	0 (-) -	NA			(1.50)	0.00 - 4.00 : overburden.	Open hole drilling - no recovery. Drillers Comment: PEAT.		
1.50					1.50				
	8 (-) -	1.50 (2)			(1.30)		Dark brown amorphous PEAT. (0.10m recovered).		
2.80		NA			2.80				
	10 (-) -	3.00 (7)			(1.00)		Loose angular fine and medium schist GRAVEL. (0.10m recovered).		
3.80	50 (-) -				3.80				
4.00					4.00		Light green SILT. (0.10m recovered).		
	100 (94) 40	14				4.00 - 10.20 Discontinuities, medium spaced, locally closely and very closely spaced, dipping 18 to 20°, stepped, smooth, with 0.5 to 2mm thick light grey silt smear.	Strong thinly foliated light greenish grey fine and medium grained PHYLLITE.		
4.90						4.60 - 5.05 Joint, subvertical dip, stepped, smooth, with 0.5 to 1mm thick greyish brown silt smear, open.			
	100 (86) 41	11					5.93m to 5.98m: light greenish brown silt.		
5.80						6.30 - 6.60 Joint, subvertical dip, stepped, rough, with 0.5 to 2mm thick greenish brown silt smear, open.			
	100 (91) 41	9			(6.20)				
7.30									
	100 (95) 79	7							
8.80									
	100 (95) 65	6							
10.20		8			10.20				
							BH terminated at 10.20m bgl on REs instruction.		

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Depth	Casing Dia	Core Dia mm	Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
25-05-20	17.30	10.20	1.50	99	63			0	10.20	water	100	BH backfilled with bentonite.

All dimensions in metres Scale 1:68.75	Client: MCEL	Method/ Plant Used	Hydreq	Bit Design	HQ	Driller PMcG	Logged By EAT
--	--------------	-----------------------	--------	---------------	----	-----------------	------------------

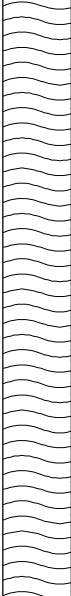
IDL AGS UK DH (SPTS) MEENBOG WF RC ALL FILE JUNE 9 2020 GPU IDL TP TEMPLATE.GDT 19/6/20



irish drilling

DRILLHOLE LOG

Project Meenbog Wind Farm				Location Co Donegal		DRILLHOLE No BH T-10
Job No 2020DL102	Date 18-05-20 19-05-20	Ground Level (m OD)		Co-Ordinates ()		
Engineer Ionic Consulting						Sheet 1 of 1 Rev. DRAFT

RUN DETAILS						STRATA		Geology	Instrument/ Backfill
Depth Date	TCR (SCR) RQD	(SPT) Fracture Spacing	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION			
						Discontinuities	Detail		
0.00	0 (-) -	NA			(1.40)	0.00 - 2.00 : overburden.	Open hole drilling - no recovery.		
18.05 1.40 18.05	25 (-) -	1.50 (39) NA			1.40 (0.60) 2.00		Very dense angular medium grey phyllite GRAVEL.		
2.80	100 (84) 55	4			(5.50)	2.00 - 7.50 Discontinuities, medium spaced, locally closely and very closely spaced, dipping 16 to 18°, stepped, smooth, with 0.5 to 2mm thick grey silt smear.	Very strong thinly foliated grey fine and medium grained PHYLLITE.		
4.30	100 (87) 56	7	3.40 - 3.55 Joint, subvertical dip, stepped, smooth, with 0.5 to 2mm thick greenish grey silt smear, open.			3.70m to 3.95m: medium strong.			
5.50	100 (97) 94	3	3.70 - 3.85 Joint, subvertical dip, stepped, smooth, with 0.5 to 2mm thick greenish grey silt smear, open.						
7.00	100 (95) 91	2							
19.05 7.50	100 (82) 64	3				7.50			
							BH terminated at 7.50m bgl on REs instruction.		

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Depth	Casing Dia	Core Dia mm	Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
18-05-20	17.00	1.40	1.40	99	63			0	1.80	water	100	BH backfilled with bentonite.
19-05-20	13.00	7.50	1.40	99	63			1.8	7.50	water	0	

All dimensions in metres Scale 1:68.75	Client: MCEL	Method/ Plant Used	Hydreq	Bit Design	HQ	Driller PMcG	Logged By EAT
---	--------------	-----------------------	--------	---------------	----	-----------------	------------------

IDL AGS UK DH (SPTS) MEENBOG WF RC ALL FILE JUNE 9 2020 GPU IDL TP TEMPLATE.GDT 19/6/20



irish drilling

DRILLHOLE LOG

Project Meenbog Wind Farm			Location Co Donegal		DRILLHOLE No BH T-11
Job No 2020DL102	Date 22-05-20 25-05-20	Ground Level (m OD)	Co-Ordinates ()		
Engineer Ionic Consulting					Sheet 1 of 1 Rev. DRAFT

RUN DETAILS						STRATA			Geology	Instrument/ Backfill	
Depth Date	TCR (SCR) RQD	(SPT) Fracture Spacing	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION					
						Discontinuities	Detail	Main			
0.00	0 (-) -	NA			(1.50)	0.00 - 2.80 : overburden.		Open hole drilling - no recovery. Drillers Comment: PEAT.			
1.50					1.50						
2.20	0 (-) -	NA			(0.70)			No recovery.			
						2.20					
	75 (-) -					2.40					
22.05 22.05	2.80				2.80			Dark brown amorphous PEAT. (0.20m recovered).			
						2.80 - 10.10 Discontinuities, medium spaced, locally closely and very closely spaced, dipping 20 to 22°, stepped, smooth, with 0.5 to 1mm thick grey silt smear.		Subrounded to subangular fine to medium assorted metamorphic GRAVEL. (0.20m recovered).			
								Very strong thinly foliated bluish grey fine and medium grained PHYLLITE. 3.10m to 3.18m: quartz vein.			
	100 (93) 73	7									
4.30											
	100 (97) 70	9									
5.70											
		7									
	100 (97) 79	4			(7.30)						
7.20											
	100 (95) 79	5				7.30 - 7.60 Joint, subvertical dip, stepped, rough, with 0.5mm thick white calcitic smear, open.					
8.70		5									
	100 (97) 81	5									
25.05 10.10					10.10						
								BH terminated at 10.10m bgl on REs instruction.			

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Depth	Casing Dia	Core Dia mm	Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
22-05-20	17.30	2.80	1.50	99	63			0	10.10	water	100	BH backfilled with bentonite.
25-05-20	12.00	10.10	1.50	99	63							

All dimensions in metres Scale 1:68.75	Client: MCEL	Method/ Plant Used	Hydreq	Bit Design	HQ	Driller PMcG	Logged By EAT
---	--------------	-----------------------	--------	------------	----	-----------------	------------------

IDL AGS UK DH (SPTS) MEENBOG WF RC ALL FILE JUNE 9 2020 GPU IDL TP TEMPLATE.GDT 19/6/20



irish drilling

DRILLHOLE LOG

Project Meenbog Wind Farm			Location Co Donegal		DRILLHOLE No BH T-12
Job No 2020DL102	Date 22-05-20 22-05-20	Ground Level (m OD)	Co-Ordinates ()		
Engineer Ionic Consulting					Sheet 1 of 1 Rev. DRAFT

RUN DETAILS						STRATA		Geology	Instrument/ Backfill			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Spacing	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION						
						Discontinuities	Main					
0.00	0 (-) -	NA			(1.50)	0.00 - 3.60 : overburden.	Open hole drilling - no recovery. Drillers Comment: PEAT.					
1.50	80 (-) -	1.50 (5)			1.50							
2.00	25 (-) -	NA			2.00							
2.80	25 (-) -				2.80							
3.60	25 (-) -	3.00(64/150mm)			(0.80) 3.60	3.60 - 9.80 Discontinuities, medium spaced, locally closely and very closely spaced, dipping 18 to 20°, stepped, smooth, with 0.5 to 8mm thick greenish grey silt smear. 4.00 - 4.25 Joint, subvertical dip, stepped, smooth, with 0.5 to 1mm thick grey silt smear, open. 4.30 - 4.55 2 No perpendicular, subvertical dip, stepped, smooth, with 0.5 to 1mm thick green silt smear, open.	Subrounded to subangular fine to medium assorted metamorphic GRAVEL. (0.20m recovered).					
4.80	100 (83) 38	2		(6.20)	Very strong thinly foliated grey fine and medium grained PHYLLITE.							
6.30	100 (86) 61	8										
7.50	100 (95) 93	7										
9.00	100 (96) 93	3										
9.80	100 (96) 95	0										
22.05												
									BH terminated at 9.80m bgl on REs instruction.			

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Depth	Casing Dia	Core Dia mm	Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
22-05-20	15.00	9.80	1.50	99	63			0	9.80	water	100	BH backfilled with bentonite.

All dimensions in metres Scale 1:68.75	Client: MCEL	Method/ Plant Used Hydreq	Bit Design HQ	Driller PMcG	Logged By EAT
--	--------------	---------------------------------	---------------------	-----------------	------------------

IDL AGS UK DH (SPTS) MEENBOG WF RC ALL FILE JUNE 9 2020 GPU IDL TP TEMPLATE.GDT 19/6/20



irish drilling

DRILLHOLE LOG

Project Meenbog Wind Farm			Location Co Donegal		DRILLHOLE No BH T-13
Job No 2020DL102	Date 21-05-20 21-05-20	Ground Level (m OD)	Co-Ordinates ()		
Engineer Ionic Consulting					Sheet 1 of 1 Rev. DRAFT

RUN DETAILS						STRATA			Geology	Instrument/ Backfill
Depth	TCR (SCR)	(SPT) Fracture Spacing	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION				
Date	RQD					Discontinuities	Detail	Main		
0.00	0 (-)	NA			(0.90)	0.00 - 1.10 : overburden.	Open hole drilling - no recovery.	No recovery. Strong thinly foliated grey fine and medium grained PHYLLITE. 1.40m to 1.50m: grey micaceous silt.		
0.90	-				0.90					
	55 (50) 13	NA			1.10					
1.80		NI								
	100 (59) 0	26								
3.00										
	100 (76) 23	15								
4.50		17			(6.60)					
	100 (83) 16	15								
6.00										
	100 (75) 34	16								
7.50	100	9			7.70					
21.05 7.70	(100) 100						BH terminated at 7.70m bgl on REs instruction.			

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Depth	Casing Dia	Core Dia mm	Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
21-05-20	14.00	7.70	0.90	99	63			0	7.70	water	100	BH backfilled with bentonite.

All dimensions in metres Scale 1:68.75	Client: MCEL	Method/ Plant Used	Hydreq	Bit Design	HQ	Driller PMcG	Logged By EAT
---	--------------	-----------------------	--------	---------------	----	-----------------	------------------

IDL AGS UK DH (SPTS) MEENBOG WF RC ALL FILE JUNE 9 2020.GPJ IDL TP TEMPLATE.GDT 19/6/20



irish drilling

DRILLHOLE LOG

Project Meenbog Wind Farm			Location Co Donegal		DRILLHOLE No BH T-15
Job No 2020DL102	Date 19-05-20 20-05-20	Ground Level (m OD)	Co-Ordinates ()		
Engineer Ionic Consulting					Sheet 1 of 1 Rev. DRAFT

RUN DETAILS						STRATA			Geology	Instrument/ Backfill
Depth Date	TCR (SCR) RQD	(SPT) Fracture Spacing	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION				
						Discontinuities	Detail	Main		
0.00	0 (-) -	NA			(1.40)	0.00 - 3.00 : overburden.		Open hole drilling - no recovery.		
1.40					1.40					
2.00	30 (-) -	1.50 (51)		x x x x x x x x x x x x x x x x x x	(1.60)			Firm brown micaceous SILT.		
3.00	40 (-) -	NA		x x x x x x x x x x x x	3.00					
		3.00 (25/0mm)				3.00 - 4.50 Non-intact as weathered rock.		Weathered PHYLLITE rock. Recovered as angular fine to coarse gravel and cobble sized clasts of strong and medium strong thinly foliated grey fine and medium grained phyllite.		
3.90	80 (0) 0	NR/NI			(1.50)					
4.30	90 (33) 0				4.50					
		3					4.50 - 9.10 Discontinuities, closely and very closely spaced to 6.80m, then medium spaced, locally closely and very closely spaced, dipping 18 to 20°, undulating, smooth, with 0.5 to 2mm thick grey silt smear.		Strong thinly foliated grey fine and medium grained PHYLLITE.	
5.30	100 (67) 51	12								
		10			(4.60)					
19.05 6.80 19.05	100 (81) 41	7								
		13				8.15 - 8.35 Joint, subvertical dip, stepped, smooth, with 0.5 to 1mm thick grey silt smear, open. 8.80 - 9.00 Joint, subvertical dip, undulating, smooth, with 0.5 to 2mm thick grey silt smear, open.				
20.05 9.10	100 (94) 55				9.10					
								BH terminated at 9.10m bgl on REs instruction.		

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Depth	Casing Dia	Core Dia mm	Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
19-05-20	17.30	6.80	1.40	99	63			0	3.00	water	100	BH backfilled with bentonite.
20-05-20	11.00	9.10	1.40	99	63			3	9.10	water	0	

All dimensions in metres Scale 1:68.75	Client: MCEL	Method/ Plant Used	Hydreq	Bit Design	HQ	Driller PMcG	Logged By EAT
---	--------------	-----------------------	--------	------------	----	-----------------	------------------

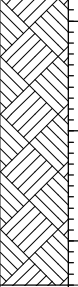
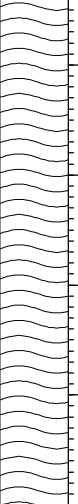
IDL AGS UK DH (SPTS) MEENBOG WF RC ALL FILE JUNE 9 2020 GPU IDL TP TEMPLATE.GDT 19/6/20



irish drilling

DRILLHOLE LOG

Project Meenbog Wind Farm			Location Co Donegal		DRILLHOLE No BH T-17
Job No 2020DL102	Date 20-05-20 20-05-20	Ground Level (m OD)	Co-Ordinates ()		
Engineer Ionic Consulting					Sheet 1 of 1 Rev. DRAFT

RUN DETAILS						STRATA		Geology	Instrument/ Backfill
Depth Date	TCR (SCR) RQD	(SPT) Fracture Spacing	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION			
						Discontinuities	Detail		
0.00	0 (-) -	NA			(1.40)	0.00 - 2.80 : overburden.		Open hole drilling - no recovery.	
1.40					1.40				
2.00	16 (-) -	1.50 (53)		x x x x x x x x x	(1.40)				
2.80	25 (-) -	NA		x x x x x x x x x	2.80				
4.20	80 (15) 9	NR/NI			(2.60)	2.80 - 5.40 Non-intact as weathered rock.		Weathered PHYLLITE rock. Recovered as angular fine to coarse gravel and cobble sized clasts of medium strong thinly foliated grey fine and medium grained phyllite with a little dark grey micaceous silt and surficial orangish brown iron stain. 3.20m: iron stain absent.	
5.40	91 (10) 0				5.40				
6.90	100 (96) 48	4			(4.60)	5.40 - 10.00 Discontinuities, closely spaced, locally very closely and medium spaced, dipping 18 to 20°, stepped, rough, with 0.5 to 1mm thick orangish brown silt smear. 5.60 - 5.85 Joint, subvertical dip, undulating, smooth, with 0.5 to 1mm thick grey silt smear and minor light orange iron stain and powder, open. 5.95 - 6.05 Joint, dipping 60°, undulating, smooth, with 0.5 to 1mm thick grey silt smear, open. 6.30 - 6.55 Joint, subvertical dip, undulating, smooth, with 0.5 to 1mm thick grey silt smear, open.		Strong thinly foliated grey fine and medium grained PHYLLITE.	
8.40	100 (94) 51	11							
		6							
10.00	100 (92) 63	5							
10.05					10.00	9.50 - 9.65 Joint, subvertical dip, undulating, smooth, with 0.5 to 1mm thick grey silt smear, open.			
								BH terminated at 10.00m bgl on REs instruction.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Depth	Casing Dia	Core Dia mm	Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
20-05-20	17.00	10.00	1.40	99	63			0	10.00	water	100	BH backfilled with bentonite.

All dimensions in metres Scale 1:68.75	Client: MCEL	Method/ Plant Used	Hydreq	Bit Design	HQ	Driller	PMcG	Logged By	EAT
---	--------------	-----------------------	--------	------------	----	---------	------	-----------	-----

IDL AGS UK DH (SPTS) MEENBOG WF RC ALL FILE JUNE 9 2020.GPJ IDL TP TEMPLATE.GDT 19/6/20



Irish Drilling Ltd: Core Photos:



Irish Drilling Ltd: Core Photos:



Irish Drilling Ltd: Core Photos:



Irish Drilling Ltd: Core Photos:





Meenbog Wind Farm Site Inspection Technical Note

This 'Site Inspection Technical Note' is issued following the visit to the partially constructed Meenbog Wind Farm site. The purpose of the visit was to inspect and comment on the current status of the site in relation to peat stability at the site.

20 October 2023

Person responsible	Liam Power
Company	AFRY Ireland Limited
Address	The Hyde Building, The Park, Carrickmines, Dublin 18, Ireland
E-mail	Liam.power@afry.com
Date	20 October 2023

Introduction

Following a request from Planree Limited, a site visit was carried out on 19th October 2023, at the Meenbog Windfarm, located in Co Donegal. Construction works at the site of the Meenbog Windfarm were nearing completion when they were suspended following a peat slide in November 2020.

The purpose of this visit was to assess the overall site stability of the Windfarm from a geotechnical perspective to check whether there has been any instability since the peat slide.

Liam Power, Principal Civil Engineer from 'AFRY Ireland Limited' (AFRY) and James O'Brien Principal Geotechnical Engineer from 'Tara Engineering Consultants' (Tara) together with Christopher O'Mahony from Mid Cork Electrical Limited (MCE) attended at the site on Thursday 19th October 2023 to carry out the inspection.

Afry (previously Ionic) have been involved in the Meenbog Windfarm since its inception. Afry acted as both Civil Designer and also Project Manager of the windfarm on behalf of Planree Limited. Following the 2020 peat slide at the windfarm, Ionic prepared a substantive report entitled 'Peat Stability Quantitative Assessment Report' (Ionic 2021 Report) which provided detailed information on the potential for future peat instability at the site. Liam Power and James O'Brien were not contributors to the Ionic 2021 Report and we therefore carried out our own independent investigation of the site. In advance of the site visit we reviewed the Ionic 2021 Report which informed the focus of the visit. The Ionic 2021 Report confirmed that:

"the overall site is currently stable based upon this detailed assessment carried out along all roads, hardstandings, borrow pits, peat storage areas and peat stabilisation areas".

We confirm that our observations on the site visit did not result in us reconsidering the conclusion that was reached in the Ionic 2021 Report.

It was observed that since the Ionic 2021 Report was issued that the standard of revegetation on site is to a very high standard and no signs of new or recent instability or peat movement were observed.

Site visit observations

During the site visit, the AFRY and Tara engineers inspected the overall site including the turbine locations, site access roads, peat storage areas and borrow pits.

Turbine Locations

The proposed turbine locations were inspected. There were no indicators of active or recent movements including tension cracking or recently disturbed peat.

Movement monitoring locations which included string line posts (installed after the 2020 movement) were inspected and signs of recent movement were not observed. Please see attached photographs showing the string line posts attached at Appendix A.

Access Roads

The access roads to the turbine locations were visually inspected. It was evident that the majority of the works have been completed on the access roads and we did not observe any issues.

Peat Storage Areas

Photographs from these locations are included in Appendix B.

At two of the peat depository areas located at T15 and T17, cracks parallel to the embankment crest were recorded in the Ionic 2021 Report. The Tara and AFRY engineers inspected the cracks during the site visit. We did not observe any additional or recent movement at these areas which appear to have settled. This was confirmed by the inspection of monitoring posts which were installed at both depository areas in 2021. We observed that there is considerable vegetation growth within both depository areas which would further indicate that the areas have settled and are stable. Please see photographs included at Appendix [].

Borrow Pits

Borrow Pit A

The berm walls are in good condition with no visible sign of distress or displacement. The peat is approximately 1 metre below the top of the berm.

Borrow Pit B

The berm walls are in good condition with no visible sign of distress or displacement. A single storage call remains in place within the overall borrow pit area.

Conclusion of Site Inspection

On 19th October 2023, Principal Engineers from AFRY and Tara visited the Meenbog Windfarm site in order to make visual observation of the peat stability within the site. All access roads, turbine foundations and hardstands, borrow pits and peat cells were inspected. Locations of previous peat movement as well as peat depository embankment movements were inspected. During the site visit visual indicators of active movement/instability were not observed, and evidence of recent movements were not identified.

We confirm that the overall site is currently stable based upon our assessment of the roads, hardstanding's, borrow pits, peat storage areas and peat stabilisation areas.



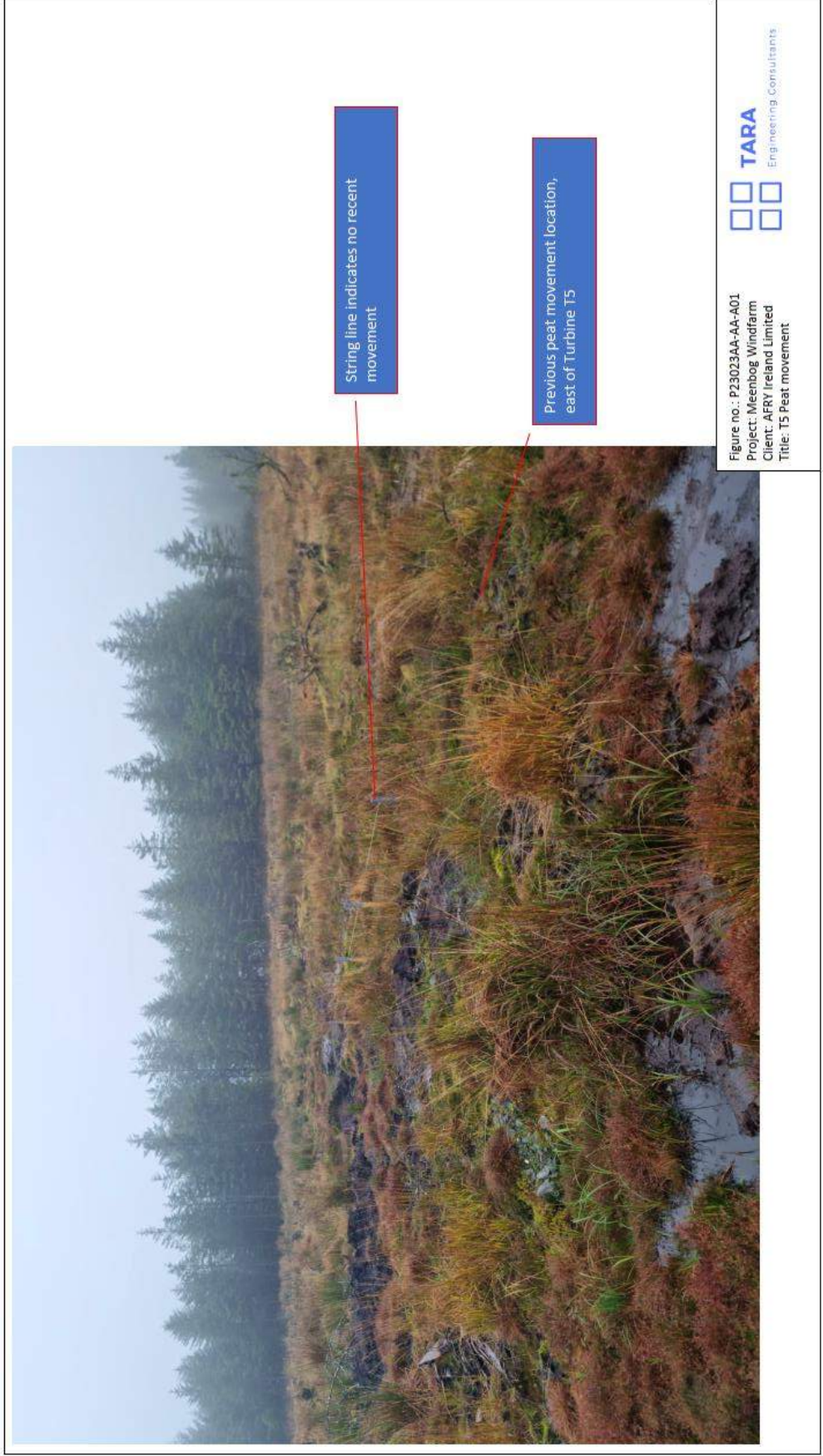
Liam Power

Senior Project Manager

Afry Ireland Ltd.

20 October 2023

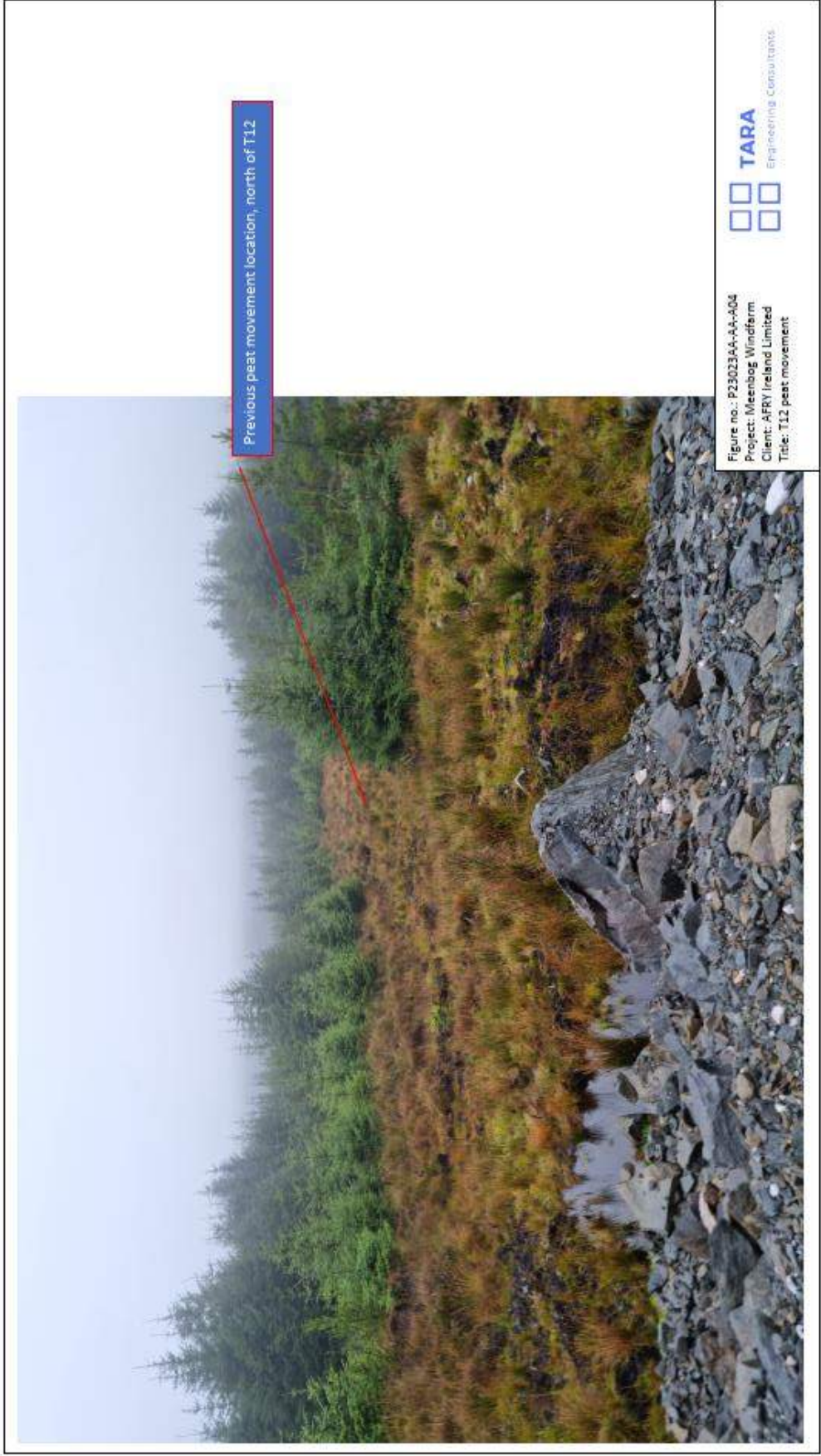
Appendix A – Photographs from previous peat movement areas



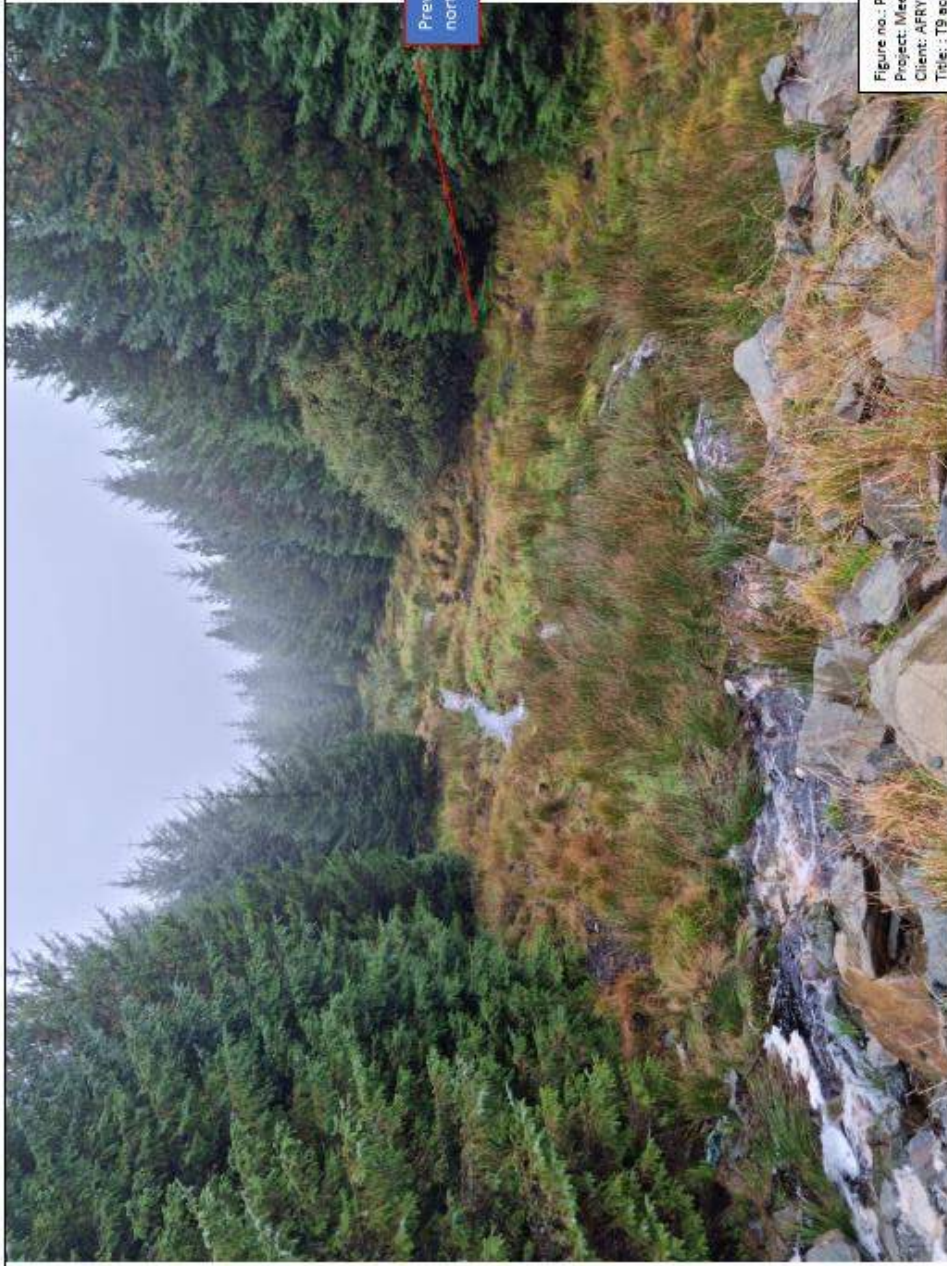


Previous peat movement location,
east of Turbine T5

Figure no.: P23023AA-AA-A02
Project: Meenbog Windfarm
Client: AFRY Ireland Limited
Title: T5 Peat movement







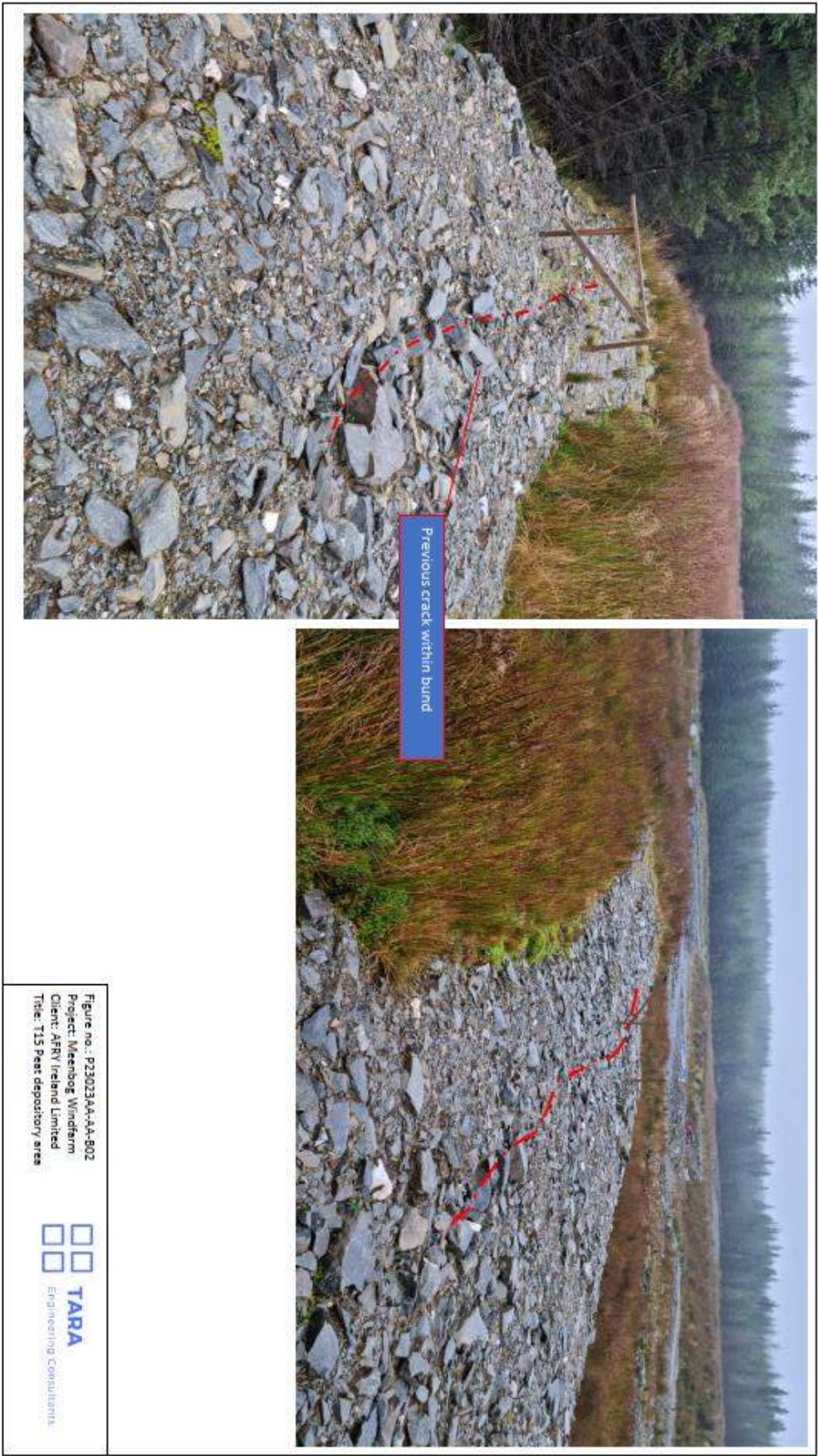
Previous peat movement location, view to
northeast of T9 access road

Figure no.: P2302344-AA-A06
Project: Meenbog Windfarm
Client: AFRY Ireland Limited
Title: T9 access road peat
movement



Appendix B – Photographs from previous peat depository embankment crack locations





FT (2021) SITE INSPECTION

Site Location:		Date: 19/01/2021	Weather: Wet.	
Location ID	General Notes	Photos		
Track to T1	Floating track to T1. Side casting of peat both sides. No evidence of stability issues.			
Track to T2	Floating track to T2. Side casting of peat both sides. No evidence of stability issues.			
Track to T3	Floating track. Peat side cast (approx 1m deep) on both sides of access track. 4 degree slope.			

Track to T4	Floating track. No side casting. 4 degree slope.			
Junction between T1 and T2/4	Floating road, evidence of settlement of underlying peat.			
Track T6-T8	5 degree slope, no side casting, no evidence of stability issues.			

Track to T8	3 degree slope, side casting both sides. Not evidence of stability issues.			
Track to T9	View towards T9. Slope 2-4 degrees, side casting both sides, <1m. No evidence of stability issues.			
T10-T14	Minor area of side casting downslope			

Track near T12	6 degree slope. Minor area of side casting downslope. No evidence of stability issues.			
T14 access track	Side casting both sides, 6 degree slope, <1m side cast. No evidence of stability issues.			
T15-T19	Founded section of track, rock visible in drain on upslope side. No evidence of stability issues.			

T16-T17	View towards T17, no evidence of stability issues.			
Upgrade of existing to T18	Existing track appears to be floated on sidelong ground, upslope of stream.	 View W from closer to main access track	 Condition of existing track	 Upgraded section close to T18
T19	Side casting alongside track. 2-3 degree slope, peat up to 2m in height, not sealed.			

Site Location:		Date: 19/01/2021	Weather: Wet.		
Location ID	General Notes	Photos			
T1	Upslope of H/S - 3 degree slope. H/S side slopes 40 degrees. Flat, saturated area downslope of H/S. No evidence of stability issues.				
		T1 Turbine	T1 hardstand	Downslope of T1 hardstand	
T2	3 degree slope around hardstand. Turbine excavation flooded, pump turned off. No evidence of stability issues.				
		T2 Turbine	T2 Hardstand		
T3	Relatively flat, 1-2 degree slopes around hardstand. No evidence of stability issues.				
		Looking S	Looking N		

T4	Relatively flat, 1-2 degree slopes around hardstand. Peat 1-2m in thickness. No evidence of stability issues.			
		T4 Turbine	T4 Hardstand	
T5	3 degree slope around hardstand. Evidence of instability around hardstand - tension cracks visible to 25-30m away from hardstand.			
		T5 Turbine	T5 Hardstand	Tension cracks around hardstand
T6	5 degree slope around hardstand. Minor side casting of peat (<0.5m). No evidence of stability issues.			
		T6 Turbine	T6 Hardstand	

T8	5 degree slope upslope for hardstand. Minor side casting around hardstand. Barrage close to hardstand to retain material that failed upslope.			
		T8 Turbine	T8 hardstand	Barrage
T9	2 degree slope around hardstand. Peat side cast upslope of hardstand, <1m thick. No evidence of stability issues.			
		T9 Turbine	T9 Hardstand	
T10	1-2 degree slope around hardstand. Shallow side casting of peat around hardstand and access track. No evidence of stability issues.			
		T10 Turbine	T10 Hardstand	

T11	2-3 degree slopes around hardstand. Small area of side casting upslope from hardstand. No evidence of stability issues.			
		T11 Turbine	T11 Hardstand	
T12	4 degree slope around hardstand. Small peat slide downslope of hardstand			
T13	3-4 degree slopes around hardstand. Small area of side casting upslope from hardstand. No evidence of stability issues.			
		T13 Turbine	T13 Hardstand	

T14	2-3 degree slope around hardstand. Peat side cast around hardstand and access track. No evidence of stability issues.	 A circular concrete structure, likely a turbine foundation, is surrounded by a wide, flat area of dark, wet peat and gravel. The background shows a line of trees under an overcast sky.	 A large, flat, muddy area with several orange excavators and other heavy machinery parked on it. The ground is wet and reflective.	
		T14 Turbine	T14 Hardstand	
T15	2-4 degree slope around hardstand. Peat stored both north and west of the hardstand. Area to the north shows signs of movement in perimeter berm.	 A circular concrete structure, likely a turbine foundation, is surrounded by a wide, flat area of dark, wet peat and gravel. The background shows a line of trees under an overcast sky.	 A large, flat, muddy area with several orange excavators and other heavy machinery parked on it. The ground is wet and reflective.	 A close-up view of a peat repository, showing a large pile of dark, wet peat and gravel. The peat is piled up in a way that suggests it has been recently deposited or moved.
		Turbine T15	T15 Hardstand	Peat Repository
T16	3 degree slope around hardstand. Small failure between cut-off drain and hardstand in peat. Water from drain now draining into hardstand.	 A large, flat, muddy area with several orange excavators and other heavy machinery parked on it. The ground is wet and reflective.	 A large, flat, muddy area with several orange excavators and other heavy machinery parked on it. The ground is wet and reflective.	 A close-up view of a peat repository, showing a large pile of dark, wet peat and gravel. The peat is piled up in a way that suggests it has been recently deposited or moved.
		Turbine T16	T16 Hardstand	Failure between drain and hardstand

T17	3 degree slope around turbine and hardstand. Peat side cast upslope and hardstand. Peat storage area downslope, berm shows evidence of minor movement.			
		Turbine T17	T17 Hardstand	
T18	3 degrees slope around hardstand. Peat side cast both upslope and downslope, towards stream.			
		Turbine T18	Side cast Peat	
T19	2-3 degree slope around hardstand. Rock at surface at turbine location, 1.5-2m of peat adjacent to hardstand. Minor slump between cut-off drain and hardstand.			
		T19 Turbine	T19 Hardstand	Minor failure along edge of drain

Site Location:		Date: 19/01/2021		Weather: Wet.	
Location ID	General Notes	Photos			
T15 Peat Repository	2-4 degree slope around hardstand. Peat stored both north and west of the hardstand. Area to the north shows signs of movement in perimeter berm.				
		Peat Repository	Peat Repository	Surface of stored peat	
T17 Peat Repository	3 degree slope around turbine and hardstand. Peat side cast upslope and hardstand. Peat storage area downslope, berm shows evidence of minor movement.				
		Peat Repository	Peat Repository		
Backfilled BP (Main)	Peat backfilled into borrow pit. Berm alongside access track, around 4m in height. No evidence of stability issues.				

Backfilled BP (near T15)	Peat backfilled into borrow pit. Berm alongside access track, around 4m in height. No evidence of stability issues.			
Backfilled BP (near T16)	Peat backfilled into borrow pit. Berm alongside section of access track, around 4m in height. No evidence of stability issues.			
Drain crossing of track to T18	Narrow drain crossed by existing track. Shallow (<0.5m) peat.			

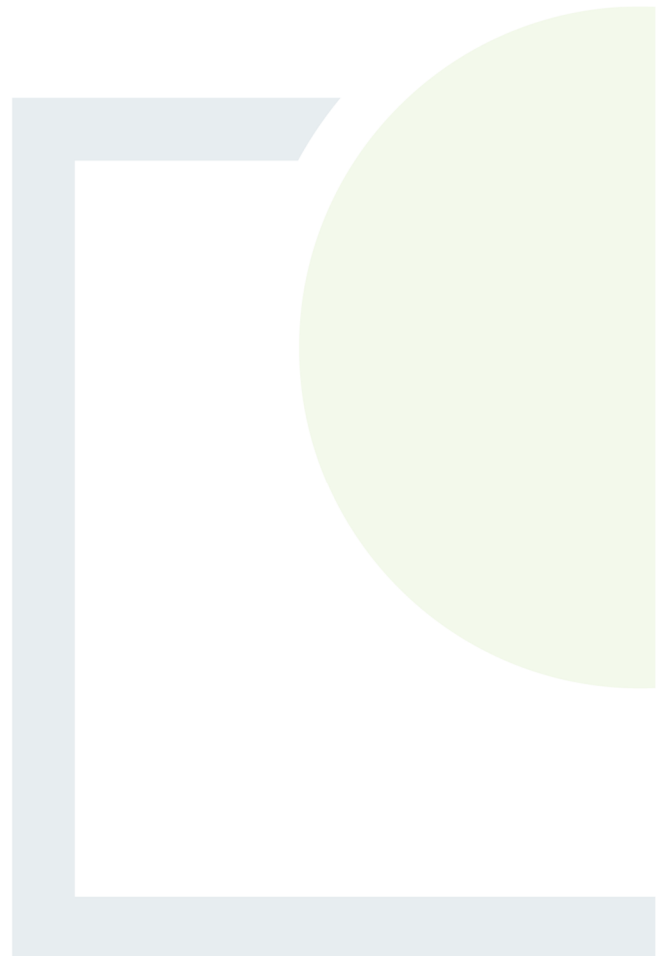
Side casting upslope of track close to T18	General view			
Failure T6-T8	General views of peat failures - see report text for details	 Downslope at head of failure	 View close to T8	

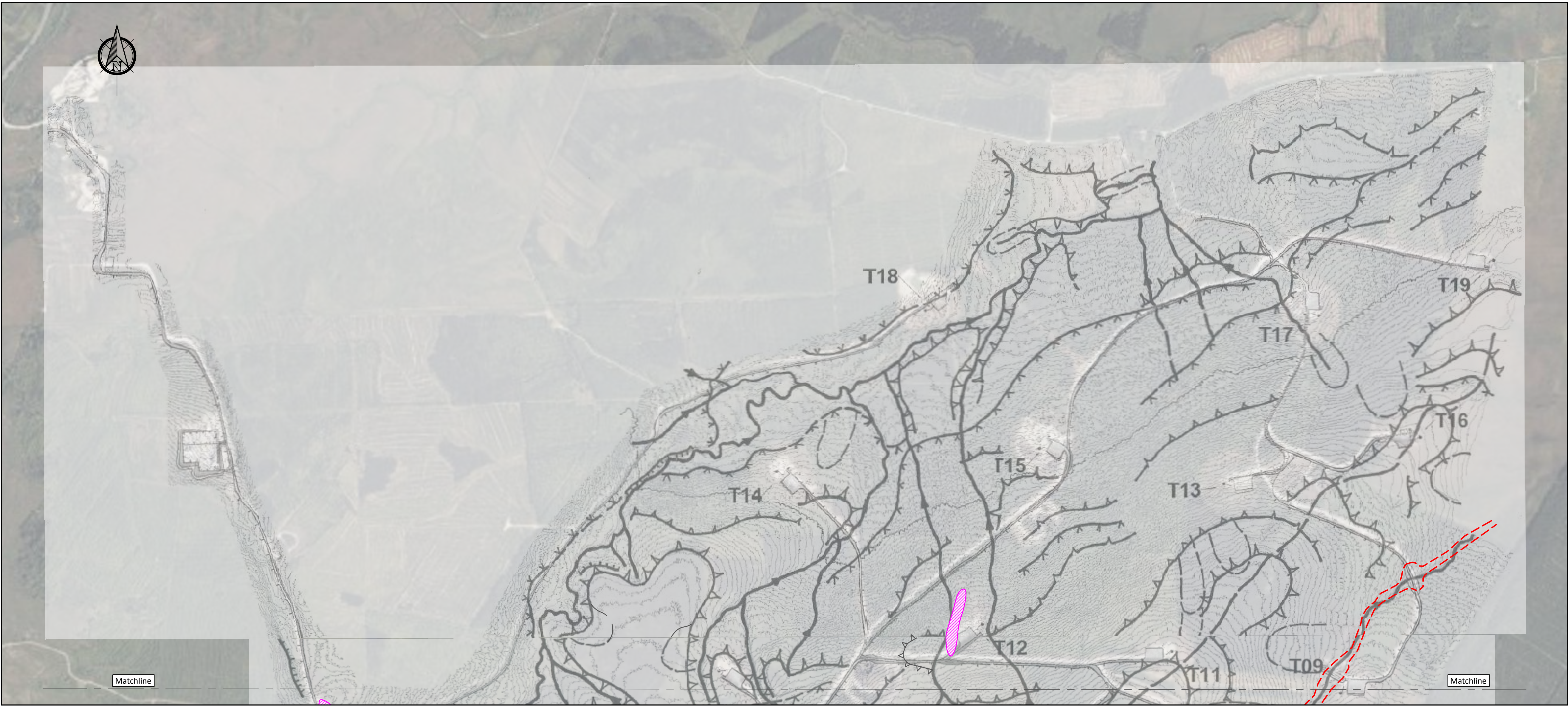


DESIGNING AND DELIVERING
A SUSTAINABLE FUTURE

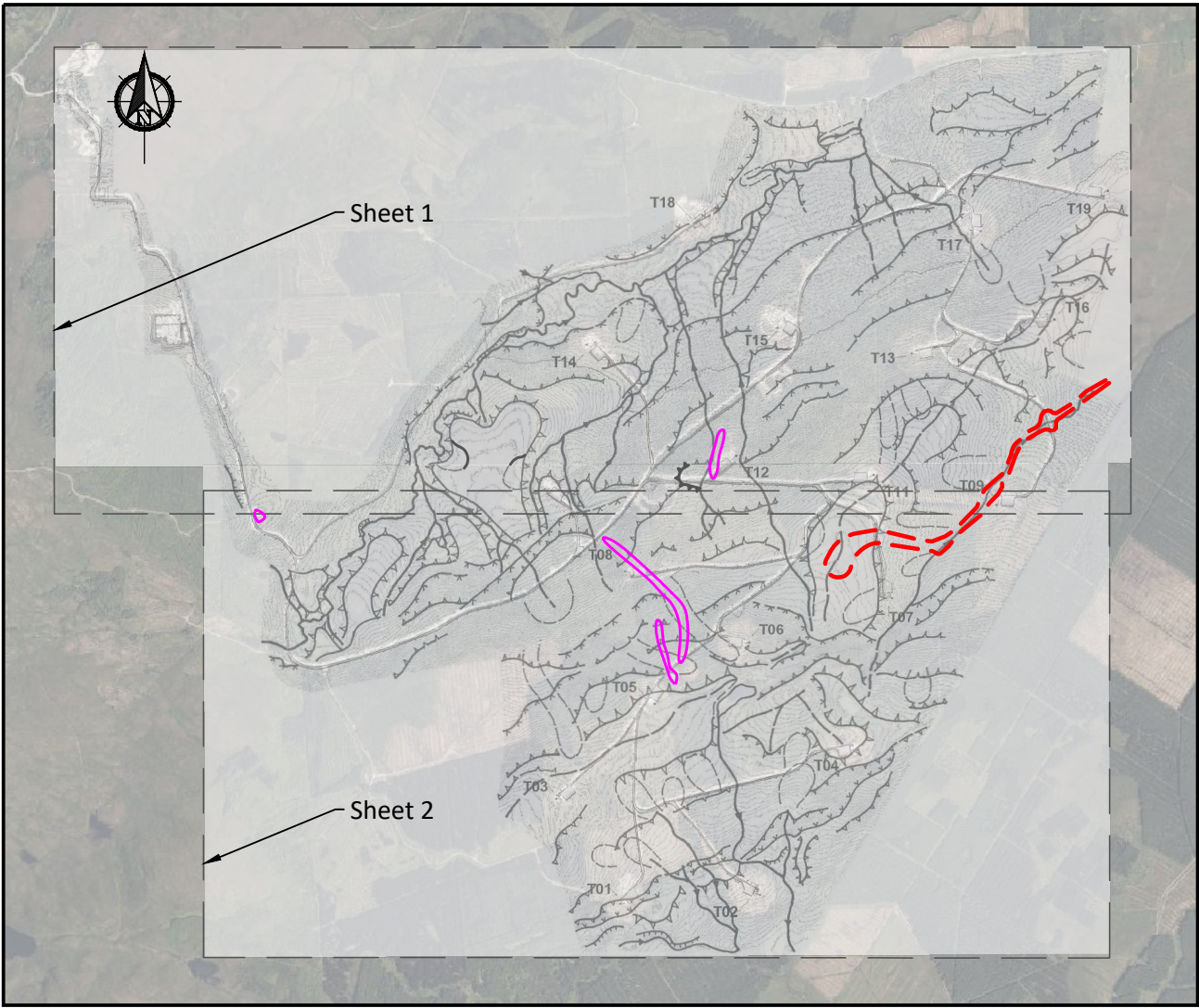
APPENDIX B

Geomorphological Plans





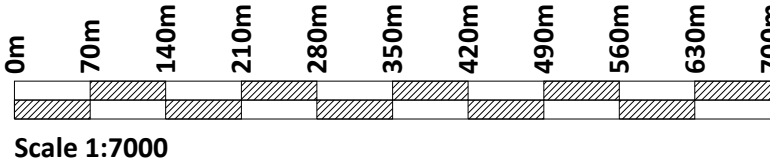
PLAN
Scale 1:7000



KEY PLAN
Scale 1:30000

- Symbol Legend -
- Major ridge line
 - Scarp (sharp convex change in slope)
 - Convex break in slope (major)
 - Convex break in slope (minor)
 - Concave break in slope
 - Shallow concave depression (possible headwaters of stream)
 - Water course
 - 12 November 2020 peat failure extent (approximate)
 - Previous peat failure extent (approximate)

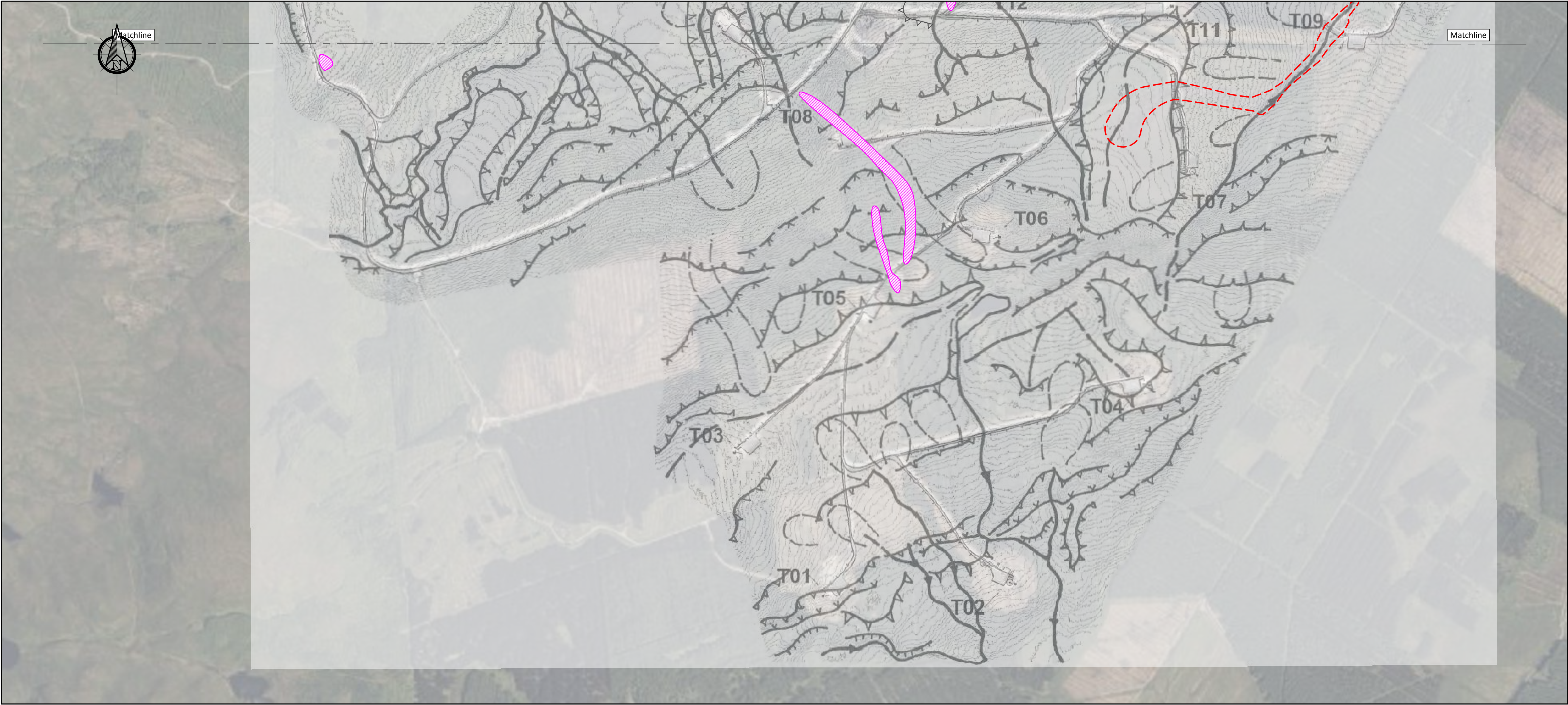
- Notes -
- Preparation of the geomorphological plan requires a level of subjectivity based on the knowledge and experience of the compiler. This approach is a qualitative assessment of the peat stability and is for use as guidance only.
 - The geomorphological plan principally shows the morphology of the terrain which is presented as symbols and individual units. The individual units are intended to represent areas of similar character with respect to ground conditions. These ground conditions need to be confirmed by appropriate ground investigation.
 - The geomorphological plan should be read in conjunction with any previous stability assessment for the site.
 - For any construction works, detailed design is required to be carried out. The geomorphological plan is not to be used as a substitute for ground investigation.
 - For derivation of the geomorphological plan refer to the accompanying report.
 - Base plan comprises LIDAR topographic survey showing 1m contour lines and wind farm layout.



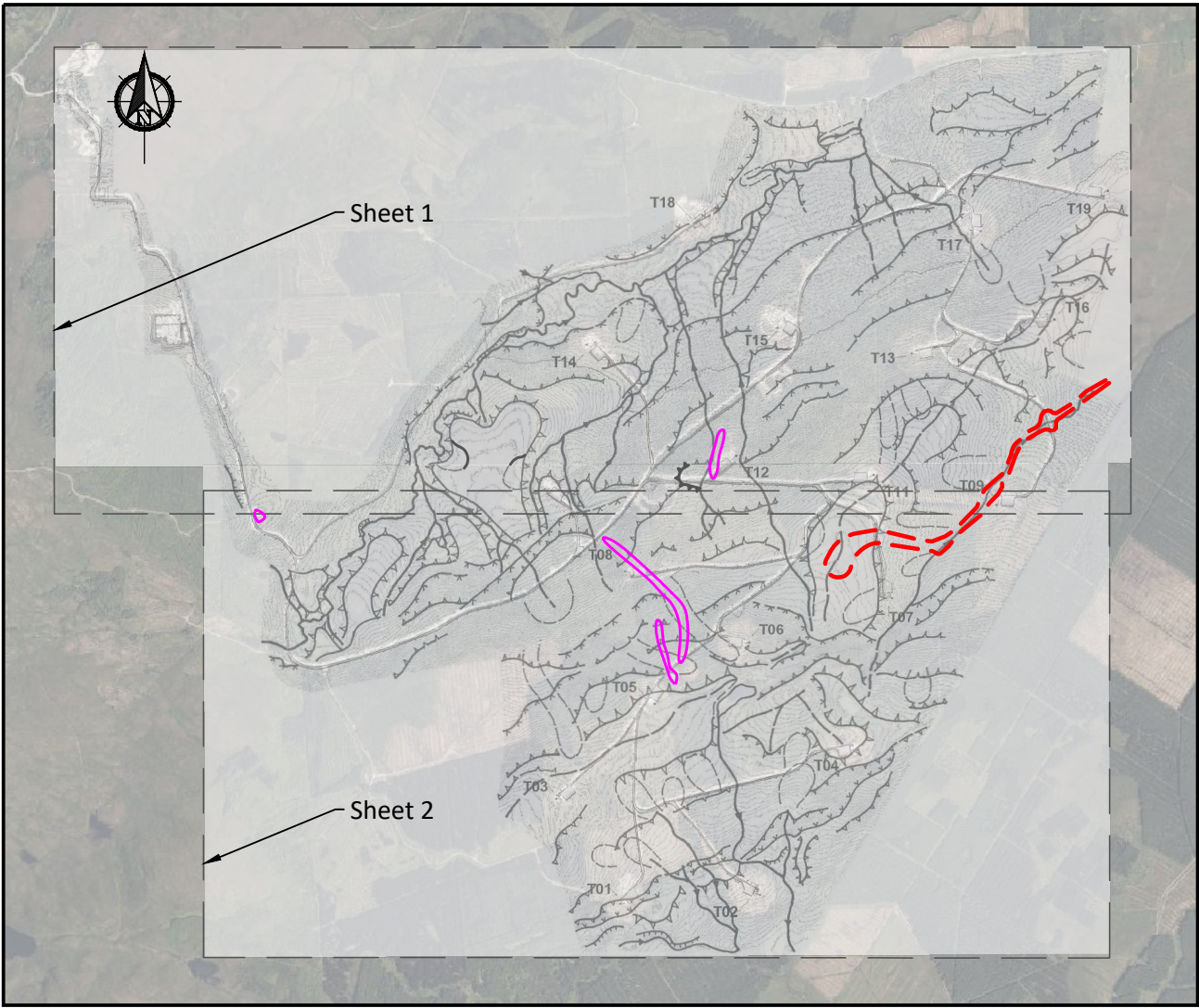
If Applicable : Tailte Éireann Licence No. CYAL50368274 © Ordnance Survey Ireland and Government of Ireland

Rev.	Description	App By	Date
P01	FOR INFORMATION	BDH	28.04.26

PROJECT		CLIENT					
MEENBOG WIND FARM (PROSPECTIVE DEVELOPMENT)		MKO					
SHEET GEOMORPHOLOGICAL PLAN (SHEET 1 OF 2)		Date	28.04.26	Project number	P24-234	Scale (@ A1)	
		Drawn by	POR	Drawing Number		P24-234-0601-0012	Rev
		Checked by	IH	(Sheet not subject D502)			P01



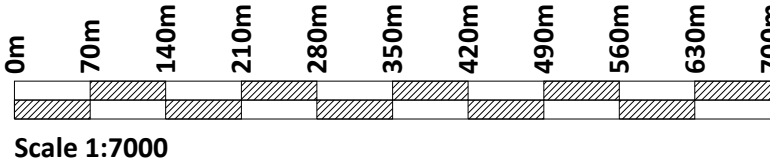
PLAN
Scale 1:7000



KEY PLAN
Scale 1:30000

- Symbol Legend -**
- Major ridge line
 - Scarp (sharp convex change in slope)
 - Convex break in slope (major)
 - Convex break in slope (minor)
 - Concave break in slope
 - Shallow concave depression (possible headwaters of stream)
 - Water course
 - 12 November 2020 peat failure extent (approximate)
 - Previous peat failure extent (approximate)

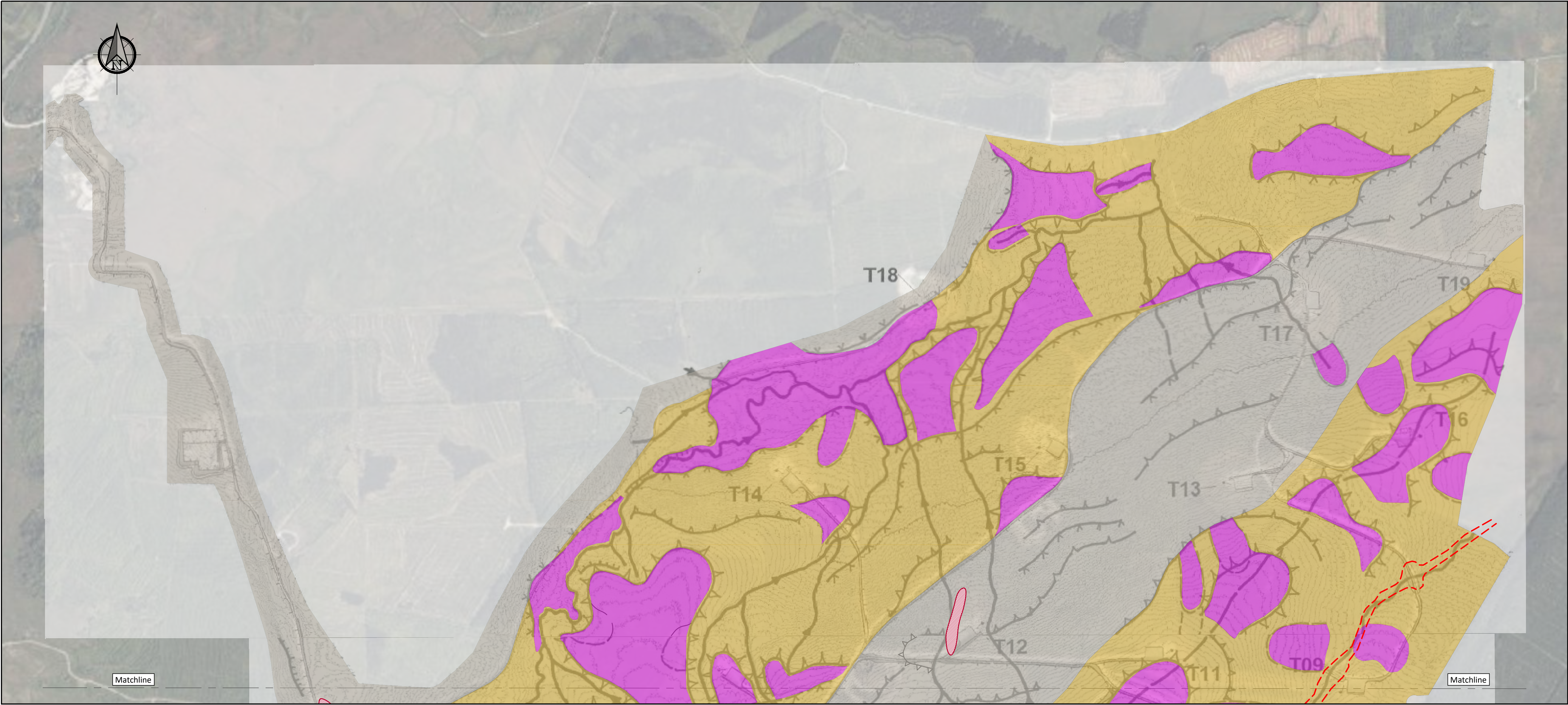
- Notes -**
- Preparation of the geomorphological plan requires a level of subjectivity based on the knowledge and experience of the compiler. This approach is a qualitative assessment of the peat stability and is for use as guidance only.
 - The geomorphological plan principally shows the morphology of the terrain which is presented as symbols and individual units. The individual units are intended to represent areas of similar character with respect to ground conditions. These ground conditions need to be confirmed by appropriate ground investigation.
 - The geomorphological plan should be read in conjunction with any previous stability assessment for the site.
 - For any construction works, detailed design is required to be carried out. The geomorphological plan is not to be used as a substitute for ground investigation.
 - For derivation of the geomorphological plan refer to the accompanying report.
 - Base plan comprises LIDAR topographic survey showing 1m contour lines and wind farm layout.



If Applicable : Tailte Éireann Licence No. CYAL50368274 © Ordnance Survey Ireland and Government of Ireland

Rev.	Description	App By	Date
P01	FOR INFORMATION	BDH	28.04.26

PROJECT		CLIENT					
MEENBOG WIND FARM (PROSPECTIVE DEVELOPMENT)		MKO					
SHEET GEOMORPHOLOGICAL PLAN (SHEET 2 OF 2)		Date	28.04.26	Project number	P24-234	Scale (@ A1)	
		Drawn by	POR	Drawing Number		P24-234-0601-0013	Rev
		Checked by	IH	P24-234-0601-0013			P01
		(Sheet not subject D502)					



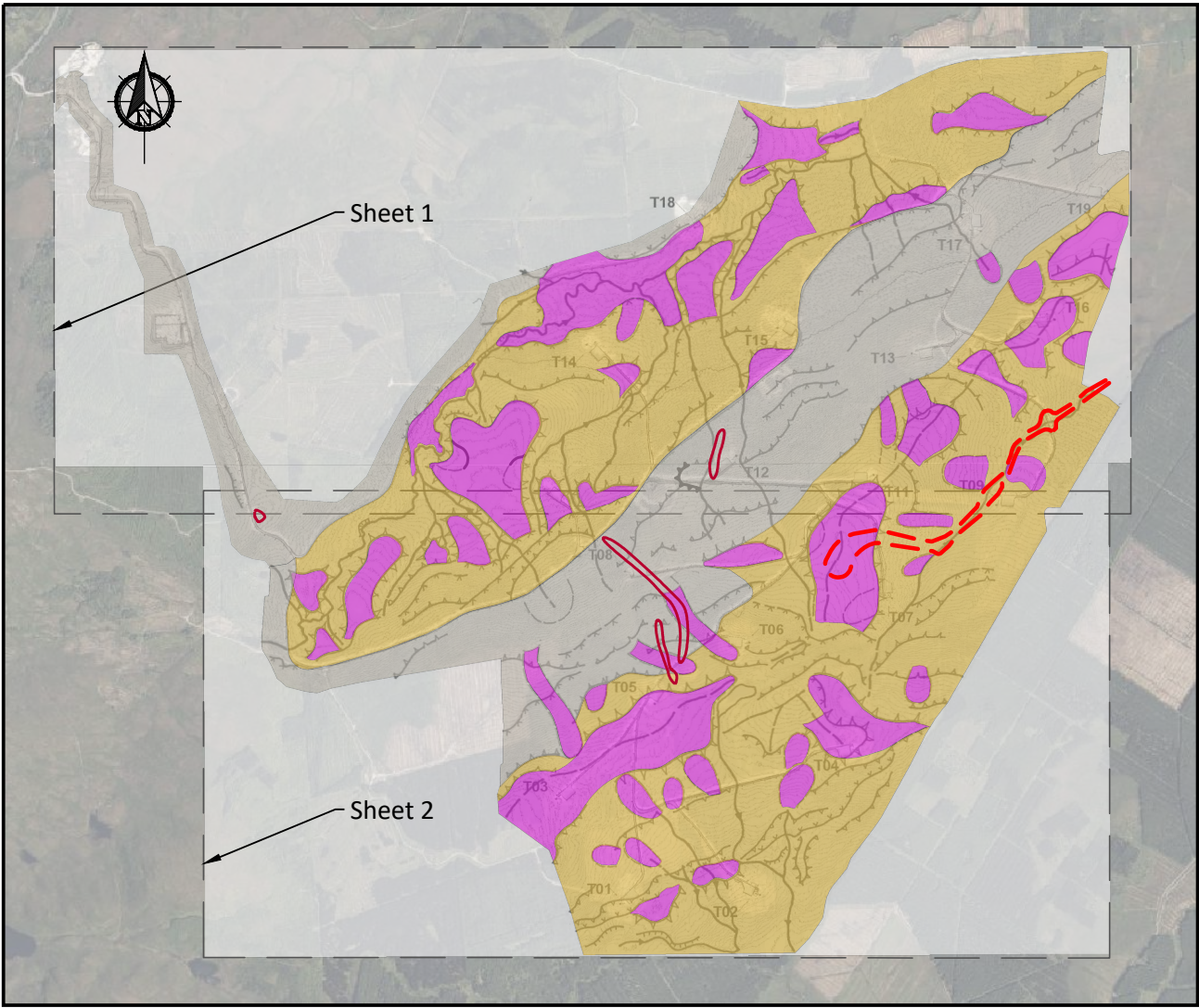
PLAN
Scale 1:7000

If Applicable : Tailte Éireann Licence No. CYAL50368274 © Ordnance Survey Ireland and Government of Ireland

Rev.	Description	App By	Date
P01	FOR INFORMATION	BDH	02.04.26

PROJECT MEENBOG WIND FARM (PROSPECTIVE DEVELOPMENT)		CLIENT MKO				
SHEET GEOMORPHOLOGICAL PLAN SHOWING ZONATION OF PEAT STABILITY RISK (SHEET 1 OF 2)	Date 02.04.26		Project number P24-234		Scale (@ A1)	
	Drawn by POR		Drawing Number			Rev
	Checked by IH		P24-234-0601-0014			P01
			(Sheet not subject DSD)			

O:\ACAD\2024\P24-234\P24-234-0601-0014

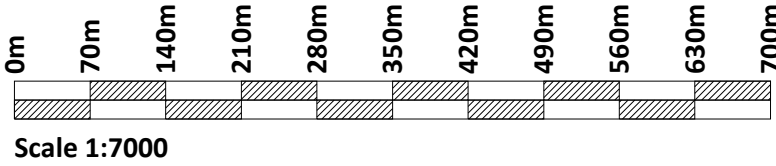


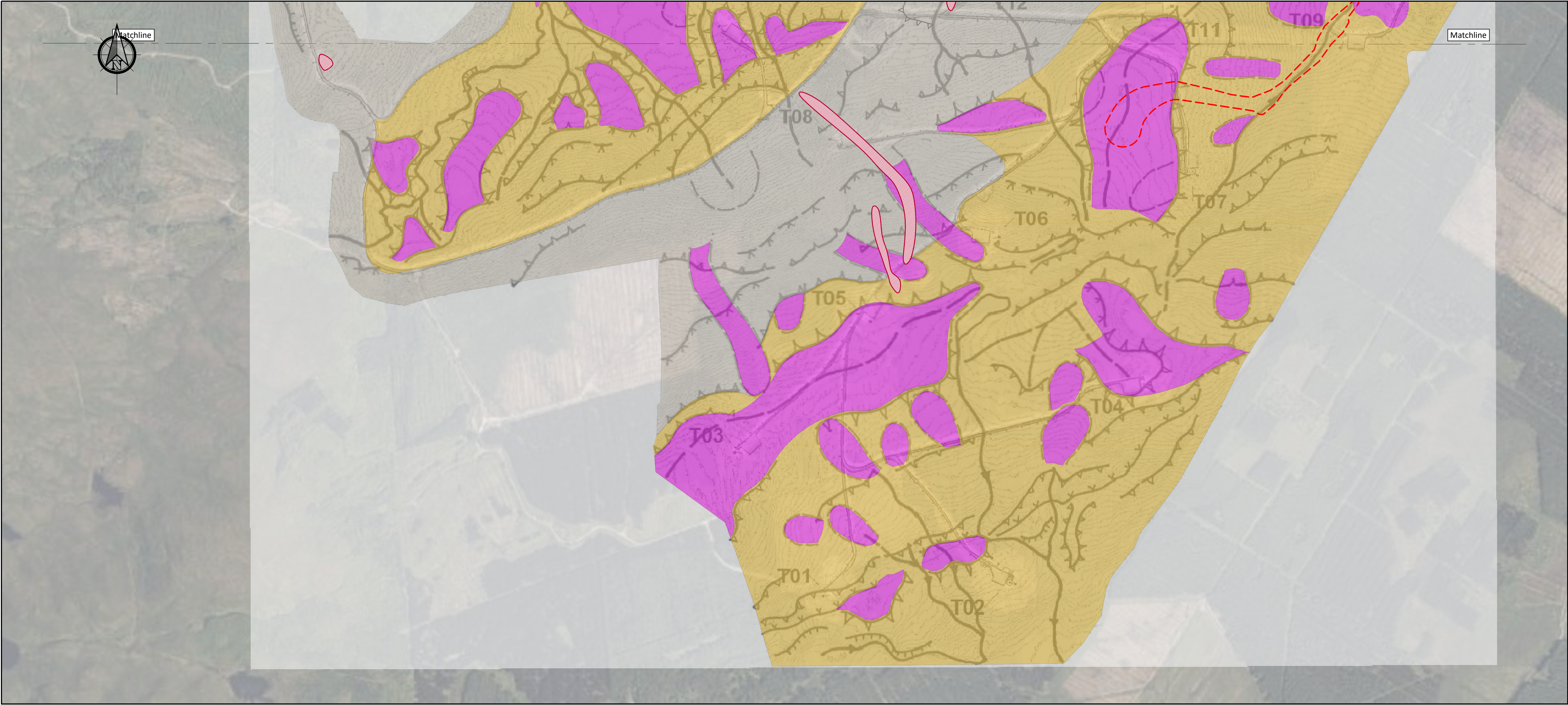
KEY PLAN
Scale 1:30000

- Symbol Legend -
- Major ridge line
 - Scarp (sharp convex change in slope)
 - Convex break in slope (major)
 - Convex break in slope (minor)
 - Concave break in slope
 - Shallow concave depression (possible headwaters of stream)
 - Water course
 - 12 November 2020 peat failure extent (approximate)
 - Previous peat failure extent (approximate)

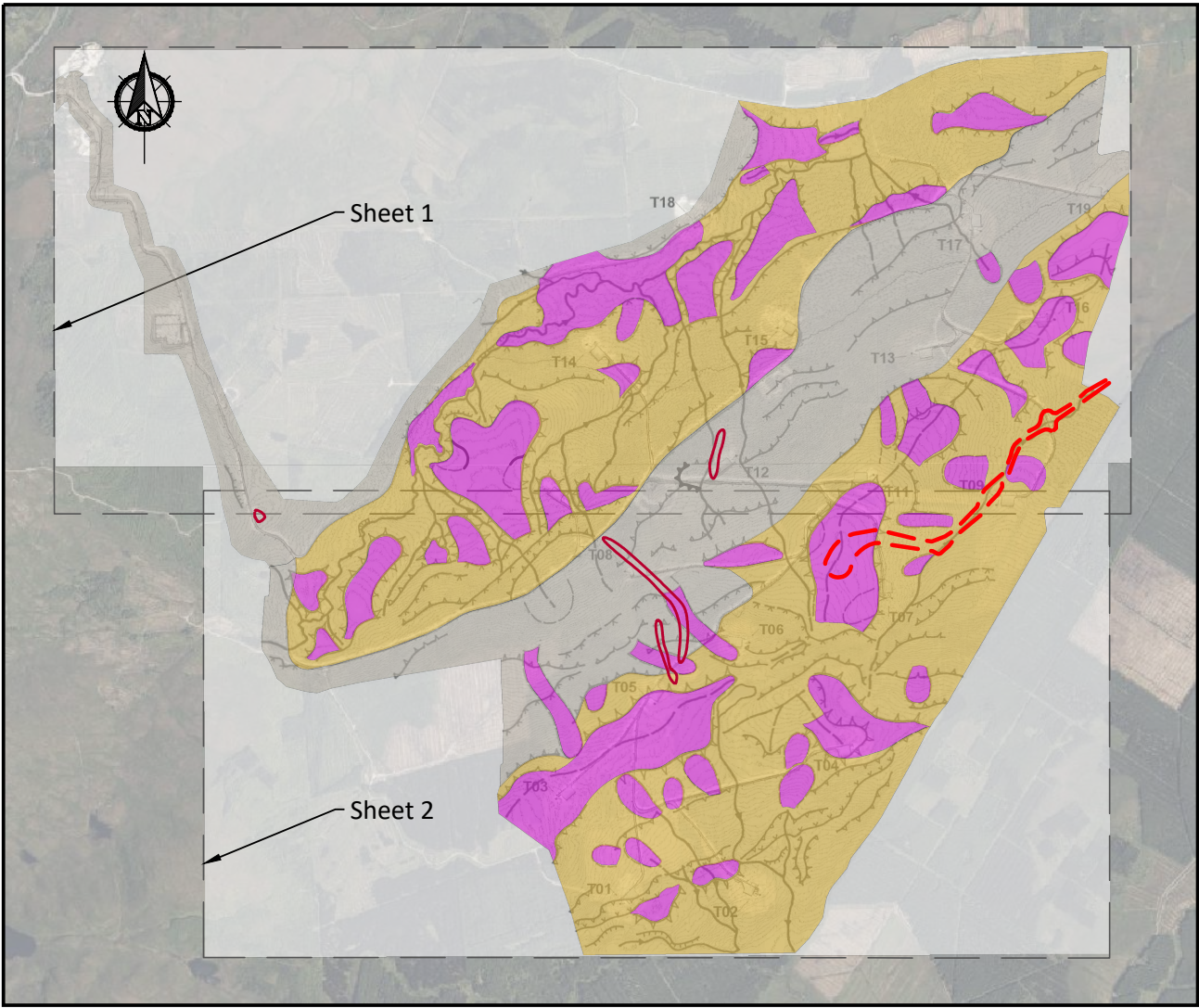
- Notes -
- Preparation of the geomorphological plan requires a level of subjectivity based on the knowledge and experience of the compiler. This approach is a qualitative assessment of the peat stability and is for use as guidance only.
 - The geomorphological plan principally shows the morphology of the terrain which is presented as symbols and individual units. The individual units are intended to represent areas of similar character with respect to ground conditions. These ground conditions need to be confirmed by appropriate ground investigation.
 - The geomorphological plan should be read in conjunction with any previous stability assessment for the site.
 - For any construction works, detailed design is required to be carried out. The geomorphological plan is not to be used as a substitute for ground investigation.
 - For derivation of the geomorphological plan refer to the accompanying report.
 - Base plan comprises LIDAR topographic survey showing 1m contour lines and wind farm layout.

- Legend - Relative Potential Peat Stability Hazard
- Probable
 - Likely
 - Unlikely
- Note - For explanation of legend refer to report text.





PLAN
Scale 1:7000

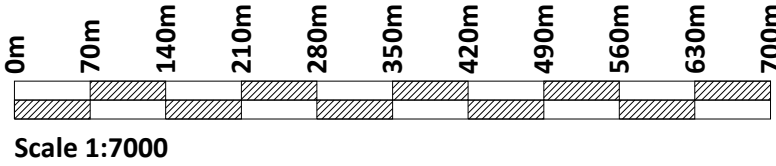


KEY PLAN
Scale 1:30000

- Symbol Legend -**
- Major ridge line
 - Scarp (sharp convex change in slope)
 - Convex break in slope (major)
 - Convex break in slope (minor)
 - Concave break in slope
 - Shallow concave depression (possible headwaters of stream)
 - Water course
 - 12 November 2020 peat failure extent (approximate)
 - Previous peat failure extent (approximate)

- Notes -**
- Preparation of the geomorphological plan requires a level of subjectivity based on the knowledge and experience of the compiler. This approach is a qualitative assessment of the peat stability and is for use as guidance only.
 - The geomorphological plan principally shows the morphology of the terrain which is presented as symbols and individual units. The individual units are intended to represent areas of similar character with respect to ground conditions. These ground conditions need to be confirmed by appropriate ground investigation.
 - The geomorphological plan should be read in conjunction with any previous stability assessment for the site.
 - For any construction works, detailed design is required to be carried out. The geomorphological plan is not to be used as a substitute for ground investigation.
 - For derivation of the geomorphological plan refer to the accompanying report.
 - Base plan comprises LIDAR topographic survey showing 1m contour lines and wind farm layout.

- Legend - Relative Potential Peat Stability Hazard**
- Probable
 - Likely
 - Unlikely
- Note - For explanation of legend refer to report text.



If Applicable : Tailte Éireann Licence No. CYAL50368274 © Ordnance Survey Ireland and Government of Ireland

Rev.	Description	App By	Date
P01	FOR INFORMATION	BDH	02.04.26

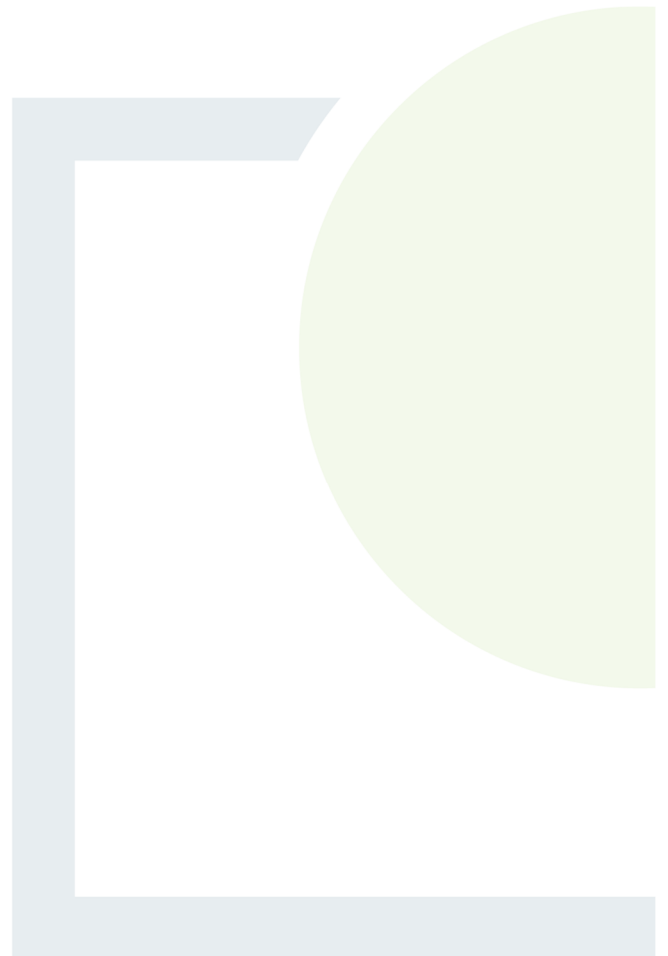
PROJECT	CLIENT		
MEENBOG WIND FARM (PROSPECTIVE DEVELOPMENT)	MKO		
SHEET	GEOMORPHOLOGICAL PLAN SHOWING ZONATION OF PEAT STABILITY RISK (SHEET 2 OF 2)	Date 02.04.26 Drawn by POR Checked by IH	Project number P24-234 Drawing Number P24-234-0601-0015 Scale (@ A1) Rev P01



DESIGNING AND DELIVERING
A SUSTAINABLE FUTURE

APPENDIX C

Calculated ODF for Peat
Slopes on Site



Infinite Slope – Load Condition 1 and 2 Undrained

	M1	M2
$V_{\phi'}$	1.00	1.25
$V_{c'}$	1.00	1.25

Location			Material Properties				Surcharge	EC7	
								Condition (1)	Condition (2), 1.0m Surcharge
								DA1.C2	DA1.C2
ID	Easting	Northing	Slope	Undrained shear strength	Weight density of Peat	Peat Depth	Surcharge Equivalent Placed Fill Depth (m)	Equivalent FOS	Equivalent ODF
			β (deg)	c_u (kPa)	γ (kN/m ³)	(m)	Condition (2)		
SUB-11	204852	387220	2.4	13.5	10.5	2.0	1.0	10.98	6.65
SUB-37	205353	386340	7.4	28	10.5	0.3	1.0	49.71	9.32
AGEC_MKOWP058	205372	386376	1.6	9	10.5	1.1	1.0	19.94	9.14
SUB-51	205566	385791	3.3	4	10.5	3.0	1.0	1.58	1.10
SUB-53	205590	385766	5.2	8	10.5	2.9	1.0	2.08	1.44
SUB-54	205572	385762	6.1	13	10.5	1.0	1.0	8.37	3.64
AGEC_MKOWP064	205550	385764	4.3	7	10.5	2.0	1.0	3.18	1.93
SUB-57	205529	385747	3.7	7	10.5	4.2	1.0	1.76	1.34
SUB-58	205572	385742	6.2	14	10.5	1.4	1.0	6.34	3.29
SUB-62	205709	385681	4.4	7.5	10.5	2.2	1.0	3.03	1.91
AGEC_MKOWP065	205694	385687	2.3	7.5	10.5	2.0	1.0	6.36	3.86
SR-26	206825	385591	4.4	12	10.5	0.6	1.0	17.79	5.62
AGEC_MKO126-SS	206845	385596	4.3	4.5	10.5	1.2	1.0	3.41	1.64
MM-5	206815	385590	4.3	4.5	10.5	1.8	1.0	2.27	1.32
AGEC_MKO100SS	207235	385785	5.5	10	10.5	1.8	1.0	3.96	2.30
AGEC_MKO105SS	207183	385808	7.7	10	10.5	0.9	1.0	5.69	2.33
AGEC_MKO130SS	207135	385869	3.6	10	10.5	1.5	1.0	7.24	3.88
SR-42	207880	386544	3.6	19	10.5	1.2	1.0	17.19	8.25
SR-45	207918	386637	7.2	25	10.5	1.0	1.0	13.68	5.95
T1-52	207172	384374	2.5	9	10.5	2.0	1.0	7.02	4.26
T1-56	207171	384338	4	9	10.5	1.2	1.0	7.33	3.52
T1-60	207225	384287	2.3	5	10.5	1.6	1.0	5.30	2.92
T1-62	207095	384243	3.5	7	10.5	1.9	1.0	4.11	2.44
T1-63	207183	384236	3.7	7	10.5	1.8	1.0	4.11	2.39
T1-64	207183	384236	3.7	7	10.5	1.8	1.0	4.11	2.39
T1-65	207348	384218	1.7	8	10.5	3.3	1.0	5.56	3.99
T1-68	207213	384163	1.8	5	10.5	4.0	1.0	2.71	2.04
T1-69	207264	384158	0.7	4.5	10.5	5.0	1.0	5.01	3.98
T1-70	207179	384135	2.1	4	10.5	3.4	1.0	2.19	1.58
AGEC_MKO115	207200	384345	3.5	9	10.5	1.6	1.0	6.28	3.46
AGEC_MKO116	207200	384296	4	5	10.5	0.8	1.0	6.11	2.33
AGEC_MKO117	207179	384256	4.7	7	10.5	0.9	1.0	6.48	2.65
AGEC_MKO4-SS	207103	384203	6.3	4	10.5	0.4	1.0	6.24	1.47
T2-30	207614	384320	2.6	11	10.5	2.2	1.0	7.51	4.72
T2-31	207710	384311	2.8	5	10.5	2.8	1.0	2.49	1.70
T2-35	207610	384265	4.4	15	10.5	1.0	1.0	13.34	5.80
T2-37	207754	384252	5	8	10.5	0.6	1.0	10.45	3.30
T2-38	207754	384252	3.1	8	10.5	0.6	1.0	16.80	5.30
T2-41	207726	384198	4.4	5	10.5	1.5	1.0	2.96	1.59
T2-42	207739	384193	4	5	10.5	1.5	1.0	3.26	1.75
T2-43	207610	384192	3.7	11	10.5	0.9	1.0	12.91	5.28
T3-30	206898	384700	1.4	3.5	10.5	4.0	1.0	2.44	1.84
T3-32	206933	384684	1.9	4	10.5	3.8	1.0	2.16	1.61
T3-34	206825	384674	2.6	4	10.5	2.0	1.0	3.00	1.82
T3-36	206928	384665	2.1	3	10.5	3.7	1.0	1.51	1.11
T3-37	206843	384652	3.1	4	10.5	3.2	1.0	1.57	1.12
MCKKOS51	206923	384694	1.7	3.5	10.5	3.6	1.0	2.23	1.64
T4-1	207187	384554	1.2	3	10.5	4.5	1.0	2.17	1.68
T4-2	207200	384557	1	2	10.5	5.9	1.0	1.32	1.08
T4-3	207207	384554	1.7	3.5	10.5	5.7	1.0	1.41	1.15
T4-4	207216	384557	1.7	5.5	10.5	7.3	1.0	1.73	1.47
T4-5	207222	384583	1.8	3.5	10.5	5.2	1.0	1.46	1.17
T4-6	207224	384560	2	6	10.5	5.0	1.0	2.34	1.86
T4-7	207244	384563	1.9	4	10.5	4.8	1.0	1.71	1.35
T4-8	207245	384554	3.1	4.5	10.5	4.1	1.0	1.38	1.05
T4-9	207264	384590	3.2	7	10.5	3.0	1.0	2.85	1.99
T4-10	207266	384572	4.4	7	10.5	3.0	1.0	2.08	1.45
T4-11	207286	384580	3.8	7	10.5	2.2	1.0	3.27	2.06
T4-12	207299	384608	3.6	5	10.5	2.0	1.0	2.71	1.64
T4-13	207306	384592	3.8	6	10.5	3.0	1.0	2.06	1.44
T4-14	207337	384609	3	8	10.5	3.0	1.0	3.47	2.42
T4-37	207616	384718	3.4	6	10.5	3.6	1.0	1.92	1.41
T4-38	207630	384735	2.5	4	10.5	2.3	1.0	2.71	1.73
T4-40	207644	384666	3.8	5	10.5	1.7	1.0	3.03	1.71
T4-41	207658	384724	1.8	2	10.5	2.7	1.0	1.61	1.08
T4-43	207671	384770	1.2	1.5	10.5	3.0	1.0	1.62	1.13
T4-44	207684	384693	4.6	11	10.5	1.5	1.0	6.24	3.34
T4-57	207858	384735	5.7	6	10.5	0.6	1.0	6.88	2.17
T4-58	207861	384686	3.2	4	10.5	1.9	1.0	2.57	1.53
T4-59	207862	384715	3	4	10.5	1.9	1.0	2.74	1.63
T4-60	207864	384761	4.8	6	10.5	1.5	1.0	3.26	1.75

	M1	M2							
V_{Φ}	1.00	1.25							
V_c	1.00	1.25							
T4-61	207873	384752	3.1	4	10.5	3.1	1.0	1.63	1.15
T4-62	207880	384784	3.5	5	10.5	2.0	1.0	2.79	1.69
T4-63	207881	384744	4	7	10.5	2.5	1.0	2.74	1.80
T4-64	207893	384726	3.8	6	10.5	3.0	1.0	2.06	1.44
T4-65	207898	384777	5.6	9	10.5	2.5	1.0	2.52	1.66
T4-66	207901	384802	5.7	5	10.5	1.7	1.0	2.02	1.15
T4-67	207907	384818	3.4	4	10.5	2.8	1.0	1.64	1.12
T4-68	207910	384765	4	5	10.5	3.0	1.0	1.63	1.14
T4-69	207911	384787	4.8	9	10.5	3.0	1.0	2.45	1.71
T4-73	207923	384803	5.6	7	10.5	3.0	1.0	1.63	1.14
T4-75	207939	384840	3.4	5	10.5	3.3	1.0	1.74	1.25
T4-76	207944	384828	3.8	7	10.5	2.8	1.0	2.57	1.76
T4-78	207954	384808	5.7	9	10.5	2.9	1.0	2.14	1.48
T4-79	207960	384880	1.7	4	10.5	3.9	1.0	2.35	1.76
T4-82	207984	384813	3	6	10.5	2.0	1.0	3.90	2.37
T4-91	208014	384816	2.1	3.5	10.5	2.3	1.0	2.83	1.81
T4-92	208020	384790	2.1	5	10.5	2.4	1.0	3.87	2.51
T4-93	208022	384859	1.7	7.5	10.5	2.2	1.0	7.82	4.92
T4-95	208032	384848	1.7	5	10.5	2.0	1.0	5.74	3.48
T4-97	208054	384879	1.6	5	10.5	1.9	1.0	6.41	3.81
T4-98	208056	384864	2.1	6.5	10.5	1.7	1.0	7.10	4.03
T4-99	208064	384901	2.3	7	10.5	2.1	1.0	5.65	3.49
T4-100	208082	384800	3	5.5	10.5	2.0	1.0	3.58	2.17
T4-101	208088	384878	3	10	10.5	1.9	1.0	6.85	4.07
AGEC_MKO38-SS	207875	384747	3.3	4	10.5	1.1	1.0	4.30	1.97
AGEC_MKO39-SS	207933	384794	3.8	7	10.5	2.7	1.0	2.67	1.80
AGEC_MKO40-SS	207991	384842	3	6	10.5	1.5	1.0	5.21	2.79
T5-10	207266	385133	5.4	9.5	10.5	2.0	1.0	3.45	2.09
AGEC_MKO63-SS	207236	385081	3.4	9.5	10.5	3.4	1.0	3.21	2.32
AGEC_MKO64-SS	207284	385138	5.4	9.5	10.5	1.6	1.0	4.31	2.38
T6-6	207589	385318	4.8	7	10.5	1.7	1.0	3.36	1.90
T6-9	207637	385328	7.6	9	10.5	2.0	1.0	2.34	1.42
T6-11	207649	385330	7.6	7	10.5	1.7	1.0	2.14	1.21
T6-12	207655	385318	7.6	7	10.5	0.5	1.0	7.26	2.02
T7-3	208150	385874	2.1	13	10.5	2.1	1.0	11.50	7.10
T7-4	208100	385856	1.9	8	10.5	2.9	1.0	5.66	3.91
T7-6	208175	385825	2.4	8	10.5	2.8	1.0	4.65	3.17
T7-8	208166	385808	2.8	5	10.5	3.5	1.0	1.99	1.45
T7-10	208226	385784	2.4	7	10.5	2.9	1.0	3.92	2.71
T7-14	208213	385692	3.2	7	10.5	3.4	1.0	2.51	1.82
T7-15	208171	385683	2.6	5	10.5	3.5	1.0	2.14	1.56
T7-17	208262	385677	4	9	10.5	1.2	1.0	7.33	3.52
T7-18	208244	385654	3.9	8	10.5	2.0	1.0	4.01	2.43
T7-20	208278	385637	3.3	7	10.5	1.6	1.0	5.18	2.86
T7-22	208248	385623	2.7	4.5	10.5	2.0	1.0	3.25	1.97
T7-24	208247	385599	4.8	6	10.5	1.5	1.0	3.26	1.75
T7-26	208218	385592	4.9	9	10.5	3.0	1.0	2.40	1.67
T7-27	208248	385586	5.1	5	10.5	2.1	1.0	1.83	1.13
T7-29	208256	385566	3.9	4	10.5	2.2	1.0	1.82	1.15
T7-30	208273	385556	4.1	9	10.5	1.6	1.0	5.37	2.96
T7-31	208325	385547	3.7	5	10.5	1.4	1.0	3.77	1.96
T7-32	208272	385537	3.8	16	10.5	2.2	1.0	7.48	4.70
T7-34	208265	385529	3.7	4	10.5	2.5	1.0	1.69	1.11
T7-36	208322	385521	5.2	4	10.5	1.2	1.0	2.51	1.21
T7-37	208153	385518	1.7	3.5	10.5	3.5	1.0	2.29	1.67
T7-38	208246	385515	2.6	7	10.5	3.0	1.0	3.50	2.44
T7-39	208284	385509	3.3	5	10.5	1.5	1.0	3.95	2.11
T7-40	208159	385442	1.8	2.5	10.5	5.5	1.0	0.98	0.80
AGEC_MKO84	208165	385836	1.5	8	10.5	2.3	1.0	9.04	5.78
AGEC_MKO79-SS	208210	385807	1.5	8	10.5	3.4	1.0	6.12	4.42
MCCKOS89	208214	385785	3	4	10.5	3.0	1.0	1.74	1.21
AGEC_MKO80-SS	208212	385732	2.1	4	10.5	2.7	1.0	2.75	1.86
MCCKOS90	208214	385699	5.1	7	10.5	3.4	1.0	1.58	1.14
AGEC_MKO81-SS	208212	385657	2.7	8	10.5	2.2	1.0	5.26	3.30
MCCKOS91	208212	385639	3	8	10.5	1.1	1.0	9.47	4.34
MCCKOS92	208219	385589	4.5	9	10.5	0.9	1.0	8.70	3.56
MCCKOS93	208257	385597	5	5	10.5	1.8	1.0	2.18	1.26
MCCKOS94	208274	385596	5	5	10.5	2.5	1.0	1.57	1.03
AGEC_MKO82-SS	208212	385582	2.8	9	10.5	2.9	1.0	4.33	2.99
T8-5	207264	385591	5.7	10	10.5	1.7	1.0	4.05	2.29
T8-7	207129	385573.6	6.8	21	10.5	1.2	1.0	10.13	4.86
AGEC_MKO92	207392	385571	4.5	10	10.5	0.8	1.0	10.87	4.14
AGEC_MKO93	207342	385563	5	10	10.5	0.3	1.0	26.12	4.90
T8-8	207125	385603	6.7	16	10.5	1.0	1.0	9.39	4.08
T9-5	208792	385928	3.3	12	10.5	1.0	1.0	14.20	6.18
T9-7	208853	385891	2.7	6.5	10.5	1.9	1.0	4.95	2.94
T9-9	208888	385927	2.9	10	10.5	2.4	1.0	5.61	3.64
AGEC_MKO80	208867	385914	3	6.5	10.5	1.7	1.0	4.98	2.82
T10-5	206847	385888	1.9	3	10.5	1.8	1.0	3.42	1.99
AGEC_MKO46	206864	385871	1.9	3	10.5	1.3	1.0	4.74	2.37
T11-6	208076	385956	4.1	5	10.5	2.9	1.0	1.64	1.14
T11-12	208160	385962	4	5.5	10.5	3.1	1.0	1.73	1.22
T12-3	207511	386005	3.7	13	10.5	1.4	1.0	9.81	5.09
T12-6	207533	386021	4.9	13	10.5	1.9	1.0	5.47	3.25

	M1	M2							
V_{Φ}	1.00	1.25							
V_c	1.00	1.25							
MCCKOS102	207544	386011	4.9	13	10.5	1.2	1.0	8.66	4.16
T13-4	208512	386645	7.8	8	10.5	0.5	1.0	8.09	2.25
T13-6	208408	386596	3.8	7.5	10.5	0.9	1.0	8.57	3.51
T13-10	208399	386548	5	25	10.5	0.8	1.0	24.48	9.33
AGEC_MKO185SS	208460	386460	5	7.5	10.5	1.4	1.0	4.20	2.18
AGEC_MKO186SS	208510	386495	4.2	7	10.5	0.7	1.0	9.37	3.28
AGEC_MKO187SS	208600	386453	4.5	7	10.5	1.0	1.0	6.14	2.67
T9-2	208600	386435	5.8	23	10.5	0.9	1.0	17.29	7.07
MCCKOS203	208560	386637	7.8	8	10.5	0.1	1.0	40.47	2.89
T14-7	207066	386556	2.6	21	10.5	1.5	1.0	21.02	11.26
AGEC_MKO146-SS	207087	386547	2.3	21	10.5	2.6	1.0	13.70	9.13
T15-1	207810	386587	3.8	22	10.5	0.5	1.0	45.26	12.57
AGEC_MKO158SS	207872	386615	3.2	22	10.5	0.7	1.0	38.36	13.43
T16-11	208842	386661	2.2	3.5	10.5	1.4	1.0	4.43	2.30
MCCKOS222	208920	386656	1.8	3.5	10.5	2.5	1.0	3.03	2.00
AGEC_MKO66	208855	386686	2.2	3.5	10.5	3.0	1.0	2.07	1.44
T17-2	208553	387102	4.1	19	10.5	1.2	1.0	15.10	7.25
T17-3	208558	387082	5.7	23	10.5	1.0	1.0	15.83	6.88
T17-4	208678	387078	5.2	20	10.5	1.5	1.5	10.05	4.37
T17-5	208560	387065	7.6	22	10.5	1.4	1.0	8.15	4.23
AGEC_MKO171SS	208604	387019	4.6	20	10.5	1.6	1.0	10.64	5.87
T18-1	205739	385716	3.8	4	10.5	1.2	1.0	3.43	1.65
T18-2	205756	385730	3.4	6	10.5	2.0	1.0	3.45	2.09
T18-4	205778	385670	3.2	8	10.5	1.2	1.0	8.14	3.91
T18-5	205797	385702	2.7	12	10.5	2.0	1.0	8.67	5.26
T18-6	205812	385723	3.1	13	10.5	3.0	1.0	5.46	3.81
T18-13	205959	385895	5.2	5	10.5	1.0	1.0	3.77	1.64
T18-14	205976	385905	4.1	6	10.5	1.5	1.0	3.82	2.04
T18-17	206056	385906	4.9	12	10.5	1.5	1.0	6.39	3.43
T18-18	206060	385948	4.3	5	10.5	1.2	1.0	3.79	1.82
T18-20	206097	386062	2.9	13	10.5	1.0	1.0	17.50	7.61
T18-21	206100	385890	2	4	10.5	2.5	1.0	3.12	2.05
T18-22	206125	386128	4.4	8	10.5	1.0	1.0	7.11	3.09
T18-25	206171	386108	6.4	12	10.5	1.3	1.0	5.67	2.83
T18-26	206172	386241	4.8	10	10.5	0.7	1.0	11.65	4.08
T18-29	206233	386128	4.2	9	10.5	1.0	1.0	8.38	3.64
T18-30	206275	386270	2.5	11	10.5	1.5	1.0	11.45	6.13
T18-32	206287	386314	3.7	14	10.5	1.0	1.0	14.79	6.43
T18-34	206289	386293	3	6	10.5	1.9	1.0	4.11	2.44
T18-35	206318	386434	8.1	9	10.5	1.0	1.0	4.39	1.91
T18-39	206352	386478	7.6	16	10.5	1.0	1.0	8.30	3.61
T18-40	206368	386345	5.2	7	10.5	1.4	1.0	3.77	1.95
T18-41	206384	386412	3	15	10.5	1.9	1.0	10.28	6.10
T18-42	206399	386358	2.3	4.5	10.5	1.4	1.0	5.45	2.83
T18-45	206443	386532	4.3	8	10.5	1.6	1.0	4.55	2.51
T18-46	206461	386434	4.8	9	10.5	1.2	1.0	6.12	2.94
T18-47	206467	386510	4.6	9	10.5	1.6	1.0	4.79	2.64
T18-48	206488	386544	5.1	12	10.5	1.0	1.0	9.22	4.01
T18-50	206555	386709	5.6	5	10.5	1.5	1.0	2.33	1.25
T18-52	206565	386648	4.7	16	10.5	1.5	1.0	8.89	4.76
T18-53	206590	386732	4.6	13	10.5	1.5	1.0	7.38	3.95
T18-54	206590	386743	4.3	10	10.5	2.4	1.0	3.79	2.46
T18-55	206603	386673	4.9	10	10.5	1.5	1.0	5.33	2.85
T18-57	206654	386666	5.9	16	10.5	1.8	1.0	5.91	3.43
T18-58	206657	386806	3.3	6	10.5	1.6	1.0	4.44	2.45
T18-59	206667	386804	3.3	5	10.5	2.7	1.0	2.19	1.48
T18-63	206709	386797	3.2	7	10.5	2.4	1.0	3.56	2.31
T18-65	206745	386854	4.4	8	10.5	1.8	1.0	3.95	2.30
T18-67	206775	386790	2.3	6.5	10.5	2.0	1.0	5.51	3.34
T18-69	206790	386848	3.2	15	10.5	1.7	1.0	10.77	6.10
T18-70	206793	386906	2.4	7	10.5	2.4	1.0	4.74	3.08
T18-71	206798	386868	2.5	9.5	10.5	2.0	1.0	7.41	4.49
T18-73	206803	386859	4.8	9	10.5	1.5	1.0	4.89	2.62
T18-75	206830	386818	3.8	8	10.5	1.5	1.0	5.49	2.94
T18-76	206858	386839	1.7	10	10.5	1.2	1.0	19.12	9.18
T18-81	206892	386898	2.9	4.5	10.5	2.5	1.0	2.42	1.59
T18-82	206899	386875	2.9	8	10.5	3.1	1.0	3.47	2.45
T18-108	207370	387040	3.4	16	10.5	1.5	1.0	12.26	6.57
T18-109	207383	387013	3.1	12	10.5	2.0	1.0	7.56	4.58
T18-110	207393	387218	4.7	7	10.5	1.5	1.0	3.89	2.08
T18-111	207441	387026	4	13	10.5	1.5	1.0	8.47	4.54
T18-112	207481	387052	3.6	11	10.5	2.0	1.0	5.97	3.62
T18-113	207484	387187	3.9	12	10.5	0.7	1.0	17.19	6.01
T18-114	207522	387043	2.7	6	10.5	2.0	1.0	4.34	2.63
T18-115	207536	387086	2.1	7	10.5	1.6	1.0	8.13	4.48
T18-116	207540	387071	2.3	8	10.5	1.3	1.0	10.44	5.22
FT_PP036	605796	885760	4	13	10.5	0.6	1.0	21.18	6.69
FT_PP037	605802	885802	3	13	10.5	1.5	1.0	11.28	6.04
FT_PP038	605845	885801	3	13	10.5	1.3	1.0	13.02	6.51
FT_PP039	605867	885837	3	6	10.5	1.5	1.0	5.21	2.79
FT_PP040	605964	885890	3	6	10.5	1.5	1.0	5.21	2.79
FT_PP041	606053	885934	4	5	10.5	1.4	1.0	3.49	1.81
FT_PP042	606092	886034	4	8	10.5	0.5	1.0	15.64	4.34
FT_PP043	606114	886067	5	12	10.5	0.3	1.0	31.34	5.88
FT_PP044	606130	886147	6	12	10.5	0.3	1.0	26.18	4.91

	M1	M2							
$\gamma_{\phi'}$	1.00	1.25							
γ_c	1.00	1.25							
FT PP045	606165	886187	4	11	10.5	1.0	1.0	10.75	4.68
FT PP046	606260	886351	2	14	10.5	1.3	1.0	21.00	10.50
FT PP047	606367	886474	3	9	10.5	1.5	1.0	7.81	4.18
FT PP048	606458	886585	4	12	10.5	1.1	1.0	10.66	4.89
FT PP049	606498	886596	4	12	10.5	0.5	1.0	23.46	6.52
AGEC MKO T12-SS	205814	385728	2.6	13	10.5	2.9	1.0	6.73	4.65
AGEC MKOWP069	205974	385871	4.6	5	10.5	1.9	1.0	2.24	1.33
AGEC MKOWP070	206134	385993	6.3	8	10.5	1.6	1.0	3.12	1.72
AGEC MKOWP071	206254	386261	2.5	11	10.5	1.9	1.0	9.04	5.37
AGEC MKOWP072	206380	386431	3.2	12	10.5	0.8	1.0	18.31	6.97
AGEC MKOWP073	206573	386662	0.2	16	10.5	1.0	1.0	311.82	135.57
AGEC MKOWP076	206720	386805	3.1	7	10.5	1.8	1.0	4.90	2.84
AGEC MKOWP077	206901	386884	0.1	4.5	10.5	2.6	1.0	67.46	44.97
T19-4	209059	387236	3.8	9	10.5	1.7	1.0	5.45	3.09
T19-6	209112	387161	3.5	4	10.5	2.9	1.0	1.54	1.06
T19-7	209126	387242	2.7	6.5	10.5	1.9	1.0	4.95	2.94
AGEC MKO188	209106	387245	4.1	4	10.5	1.9	1.0	2.01	1.19
AGEC MKO189	209123	387238	3.7	4	10.5	2.0	1.0	2.11	1.28
AGEC MKO200SS	209100	387226	4	4	10.5	2.1	1.0	1.86	1.15

Undrained Infinite Slope Analysis Results for Sliding Failure in Peat and Peat Interface (Cu values based on Hand Vane Results)

Notes:

- (1) Assuming a bulk unit weight for peat of 10.5kN/m³
- (2) Assuming a surcharge equivalent to fill depth of 1.0 m (Condition 2).
- (3) β angles are based on contours and field measurements.
- (4) c_u are based on actual undrained strengths recorded using hand vane.

0.98
311.82

0.80
135.57

Location			Material Properties				Surcharge	EC7	
								Condition (1)	Condition (2), 1.0m Surcharge
								DA1.C2	DA1.C2
ID	Easting	Northing	Slope	Undrained shear strength	Weight density of Peat	Peat Depth	Surcharge Equivalent Placed Fill Depth (m)	Equivalent FOS	Equivalent FOS
			β (deg)	c _u (kPa)	γ (kN/m ³)	(m)	Condition (2)		
PP001	611669.2678	887495.733	3	5	10.5	1.5	1.0	4.34	2.32
PP002	611963.3111	887066.22	3	5	10.5	0.5	1.0	13.02	3.62
PP003	611880.9501	887122.798	2	5	10.5	1.2	1.0	8.13	3.90
PP004	611922.7158	887211.959	6	5	10.5	1.5	1.0	2.18	1.17
PP005	611924.6998	887311.955	6	5	10.5	1.0	1.0	3.27	1.42
PP006	611822.9565	887317.331	2	5	10.5	1.5	1.0	6.50	3.48
PP007	611769.9128	887396.092	2	5	10.5	1.8	1.0	5.42	3.15
PP008	611667.5782	887396.795	2	5	10.5	1.8	1.0	5.42	3.15
PP009	613533.3644	887797.778	2	5	10.5	4.5	1.0	2.17	1.68
PP010	613495.3511	887730.406	2	5	10.5	4.5	1.0	2.17	1.68
PP011	613624.8053	887763.461	3	5	10.5	3.6	1.0	1.81	1.33
PP012	613683.4442	887783.75	3	5	10.5	3.6	1.0	1.81	1.33
PP013	613656.2286	887982.058	3	5	10.5	2.5	1.0	2.60	1.71
PP014	613691.942	887888.864	3	5	10.5	3.0	1.0	2.17	1.51
PP015	613673.5399	887830.488	3	5	10.5	3.0	1.0	2.17	1.51
PP016	613573.821	887893.917	3	5	10.5	3.0	1.0	2.17	1.51
PP017	613576.1881	887944.142	3	5	10.5	2.5	1.0	2.60	1.71
PP018	613499.7735	887955.222	6	5	10.5	0.5	1.0	6.54	1.82
PP019	613490.0935	887908.146	5	5	10.5	1.0	1.0	3.92	1.70
PP020	613604.7299	888033.624	7	5	10.5	0.5	1.0	5.62	1.56
PP021	613687.674	888086.052	3	5	10.5	2.5	1.0	2.60	1.71
PP022	613554.7321	888139.119	7	5	10.5	1.0	1.0	2.81	1.22
PP023	613694.4974	888205.864	3.5	5	10.5	1.0	1.0	5.58	2.43
PP024	613636.734	888292.013	3.5	5	10.5	0.5	1.0	11.16	3.10
PP025	613540.9669	888273.706	5	5	10.5	1.5	1.0	2.61	1.40
PP026	613524.425	888346.658	4	5	10.5	2.0	1.0	2.44	1.48
PP027	613654.9561	888449.958	5	5	10.5	0.5	1.0	7.84	2.18
PP028	613515.6486	888497.286	4	5	10.5	1.0	1.0	4.89	2.13
PP029	613582.569	888653.395	5	5	10.5	1.5	1.0	2.61	1.40
PP030	613565.2121	888562.723	5	5	10.5	1.0	1.0	3.92	1.70
PP031	613418.8283	888550.878	1	5	10.5	3.2	1.0	6.09	4.33
PP032	613456.7791	888639.407	1	5	10.5	3.6	1.0	5.41	3.98
PP033	613501.2854	888729.292	1	5	10.5	3.6	1.0	5.41	3.98
PP034	613392.3447	888740.031	1	5	10.5	3.6	1.0	5.41	3.98
PP035	613346.2662	888634.605	1	5	10.5	3.6	1.0	5.41	3.98
PP036	613871.3325	888481.302	4	5	10.5	2.0	1.0	2.44	1.48
PP037	613756.3538	888525.159	4	5	10.5	1.0	1.0	4.89	2.13
PP038	613794.9631	888379.107	4	5	10.5	1.2	1.0	4.07	1.96
PP039	613881.2776	888329.331	2	5	10.5	3.6	1.0	2.71	1.99
PP040	613973.1353	888259.662	2	5	10.5	3.6	1.0	2.71	1.99
PP041	614015.2551	888120.39	3	5	10.5	3.6	1.0	1.81	1.33
PP042	613916.0494	888101.341	2	5	10.5	3.6	1.0	2.71	1.99
PP043	613888.9471	888174.17	3	5	10.5	3.6	1.0	1.81	1.33
PP044	613819.406	888151.685	2	5	10.5	2.5	1.0	3.90	2.57
PP045	613782.4703	888225.308	1.5	5	10.5	1.0	1.0	13.00	5.65
PP046	613755.8186	888019.935	2	5	10.5	3.6	1.0	2.71	1.99
PP047	613829.833	888022.832	2	5	10.5	3.6	1.0	2.71	1.99
PP048	613910.3898	887994.431	2	5	10.5	3.6	1.0	2.71	1.99
PP049	613904.6729	887916.493	2	5	10.5	3.6	1.0	2.71	1.99
PP050	613800.1879	887935.472	2	5	10.5	3.6	1.0	2.71	1.99
PP051	613934.4466	887875.949	2	5	10.5	3.0	1.0	3.25	2.27
PP052	613869.8595	887857.787	2	5	10.5	3.0	1.0	3.25	2.27
PP053	613796.6394	887851.163	2	5	10.5	3.6	1.0	2.71	1.99
PP054	613736.4242	887837.189	2	5	10.5	3.6	1.0	2.71	1.99
1421	614016.6968	887693.805	3	5	10.5	1.0	1.0	6.51	2.83
1422	613984.7036	887683.807	3	5	10.5	0.8	1.0	8.14	3.10
1423	613946.7117	887667.811	3	5	10.5	0.2	1.0	32.54	4.34
1424	613895.7227	887662.812	3	5	10.5	0.6	1.0	10.85	3.43
1425	613849.7325	887645.816	3	5	10.5	0.6	1.0	10.85	3.43
1426	613795.7439	887610.824	3	5	10.5	0.5	1.0	13.02	3.62
1427	613767.7499	887595.827	3	5	10.5	0.4	1.0	16.27	3.83
1428	613733.757	887560.835	3	5	10.5	0.5	1.0	13.02	3.62
1429	613677.7693	887592.829	3	5	10.5	0.1	1.0	65.08	4.65
1430	613625.7805	887594.828	4	5	10.5	0.5	1.0	9.78	2.72
1431	613592.7876	887603.827	4	5	10.5	0.4	1.0	12.22	2.88
1432	613578.7905	887564.835	5	5	10.5	0.4	1.0	9.79	2.30
1433	613568.7924	887525.844	5	5	10.5	0.3	1.0	13.06	2.45
1435	614016.6974	887818.778	2	5	10.5	0.4	1.0	24.38	5.74
1436	613990.703	887808.78	2	5	10.5	0.6	1.0	16.25	5.13

Location			Material Properties				Surcharge	EC7	
								Condition (1)	Condition (2), 1.0m Surcharge
								DA1.C2	DA1.C2
ID	Easting	Northing	Slope	Undrained shear strength	Weight density of Peat	Peat Depth	Surcharge Equivalent Placed Fill Depth (m)	Equivalent FOS	Equivalent FOS
1437	613939.7139	887795.783	2	5	10.5	0.4	1.0	24.38	5.74
1438	613891.7243	887804.782	1	5	10.5	0.8	1.0	24.37	9.28
1439	613844.7343	887788.785	1	5	10.5	2.3	1.0	8.47	5.41
1440	613802.7434	887799.783	1	5	10.5	2.6	1.0	7.50	5.00
1441	613812.7408	887713.802	1	5	10.5	2.5	1.0	7.80	5.13
1442	613794.7446	887692.806	3	5	10.5	1.5	1.0	4.34	2.32
1443	613751.7539	887699.805	2	5	10.5	1.7	1.0	5.74	3.25
1444	613704.7641	887704.804	1	5	10.5	2.8	1.0	6.96	4.75
1445	613650.7757	887698.806	1	5	10.5	3.5	1.0	5.57	4.06
1446	613594.7877	887703.805	1	5	10.5	3.0	1.0	6.50	4.53
1230	612297.1	887603.8	3	5	10.5	0.1	1.0	65.08	4.65
1231	612250.1	887583.8	2	5	10.5	2.0	1.0	4.88	2.96
1232	612188.1	887593.8	1	5	10.5	1.9	1.0	10.26	6.09
1233	612147.1	887604.8	1	5	10.5	2.4	1.0	8.12	5.27
1234	612093.1	887602.8	1	5	10.5	2.3	1.0	8.47	5.41
1235	612093.1	887551.8	1	5	10.5	2.1	1.0	9.28	5.73
1236	612097.1	887503.9	1	5	10.5	2.4	1.0	8.12	5.27
1237	612149.1	887502.9	1	5	10.5	2.3	1.0	8.47	5.41
1238	612195.1	887493.9	1	5	10.5	2.0	1.0	9.75	5.91
1239	612244.1	887490.9	2	5	10.5	2.0	1.0	4.88	2.96
1240	612296.1	887499.9	2	5	10.5	1.3	1.0	7.50	3.75
1241	612341.1	887505.9	4	5	10.5	1.5	1.0	3.26	1.75
1252	612292.1	887396.9	3	5	10.5	0.8	1.0	8.68	3.17
1253	612242.1	887405.9	3	5	10.5	0.5	1.0	13.02	3.62
1254	612194.1	887392.9	3	5	10.5	2.4	1.0	2.71	1.76
1255	612141.1	887403.9	3	5	10.5	1.0	1.0	6.51	2.83
1256	612096.1	887399.9	3	5	10.5	0.5	1.0	13.02	3.62
1257	612042.1	887403.9	3	5	10.5	1.4	1.0	4.65	2.41
1258	611992.1	887404.9	1	5	10.5	1.7	1.0	11.47	6.50
1259	611940.1	887395.9	2	5	10.5	2.2	1.0	4.43	2.79
1260	611888.2	887405.9	2	5	10.5	0.7	1.0	13.93	4.88
1261	611892.2	887454.9	2	5	10.5	1.2	1.0	8.13	3.90
1262	611894.2	887503.9	1	5	10.5	2.6	1.0	7.50	5.00
1263	611847.2	887511.9	1	5	10.5	1.8	1.0	10.83	6.29
1264	611793.2	887501.9	2	5	10.5	3.3	1.0	2.96	2.12
1265	611796.2	887556.8	1	5	10.5	3.1	1.0	6.29	4.43
1266	611785.2	887599.8	1	5	10.5	4.0	1.0	4.87	3.68
1267	611740.2	887608.8	2	5	10.5	1.9	1.0	5.13	3.05
1268	611695.2	887598.8	2	5	10.5	2.2	1.0	4.43	2.79
1269	611694.2	887650.8	2	5	10.5	0.3	1.0	32.51	6.10
1362	612293.1	887305.9	2	5	10.5	2.9	1.0	3.36	2.32
1363	612218.1	887304.9	2	5	10.5	2.0	1.0	4.88	2.96
1364	612151.1	887314.9	2	5	10.5	1.8	1.0	5.42	3.15
1365	612091.1	887309.9	2	5	10.5	1.7	1.0	5.74	3.25
1366	612006.1	887509.9	3	5	10.5	2.0	1.0	3.25	1.97
1367	612000.1	887559.8	3	5	10.5	2.1	1.0	3.10	1.91
1368	611992.1	887603.8	2	5	10.5	2.4	1.0	4.06	2.64
1369	611949.1	887596.8	3	5	10.5	2.0	1.0	3.25	1.97
1370	611898.2	887603.8	2	5	10.5	1.9	1.0	5.13	3.05
1371	611880.2	887671.8	3	5	10.5	1.6	1.0	4.07	2.24
1372	611885.2	887716.8	2	5	10.5	2.5	1.0	3.90	2.57
1373	611835.2	887694.8	3	5	10.5	2.1	1.0	3.10	1.91
1374	611798.2	887705.8	1	5	10.5	2.4	1.0	8.12	5.27
1400	612232.1	887703.8	4	5	10.5	0.7	1.0	6.98	2.44
1401	612194.1	887701.8	3	5	10.5	1.1	1.0	5.92	2.71
1402	612150.1	887712.8	1	5	10.5	1.5	1.0	12.99	6.96
1403	612095.1	887697.8	1	5	10.5	1.9	1.0	10.26	6.09
1404	612043.1	887708.8	2	5	10.5	2.0	1.0	4.88	2.96
1405	611998.1	887702.8	1	5	10.5	1.8	1.0	10.83	6.29
1406	611990.1	887759.8	2	5	10.5	1.5	1.0	6.50	3.48
1407	611993.1	887803.8	2	5	10.5	2.8	1.0	3.48	2.38
1408	611951.1	887776.8	1	5	10.5	3.0	1.0	6.50	4.53
1415	612087.1	887794.8	2	5	10.5	1.3	1.0	7.50	3.75
1416	612041.1	887805.8	1	5	10.5	2.1	1.0	9.28	5.73
1417	611933.1	887816.8	1	5	10.5	2.9	1.0	6.72	4.64
1418	611896.2	887803.8	2	5	10.5	2.3	1.0	4.24	2.71
1419	611847.2	887788.8	3	5	10.5	2.2	1.0	2.96	1.86
HHPP001	611963.3	887066.2	4	8	10.5	0.5	1.0	15.64	4.34
HHPP002	612004.7	887062.9	4	8	10.5	0.6	1.0	13.03	4.12
HHPP003	612025.9	887010.6	4	8	10.5	0.5	1.0	15.64	4.34
HHPP004	612064.0	886998.6	3	8	10.5	0.5	1.0	20.83	5.78
HHPP005	612107.2	886976.2	3	8	10.5	1.0	1.0	10.41	4.53

Location			Material Properties				Surcharge	EC7	
								Condition (1)	Condition (2), 1.0m Surcharge
								DA1.C2	DA1.C2
ID	Easting	Northing	Slope	Undrained shear strength	Weight density of Peat	Peat Depth	Surcharge Equivalent Placed Fill Depth (m)	Equivalent FOS	Equivalent FOS
HHPP006	612156.2	886967.2	3	8	10.5	0.5	1.0	20.83	5.78
HHPP007	612210.4	886957.9	3	8	10.5	0.2	1.0	52.06	6.94
HHPP008	612249.0	886940.7	2	8	10.5	0.2	1.0	78.02	10.40
HHPP009	612257.0	886926.5	2	8	10.5	1.0	1.0	15.60	6.78
HHPP010	612270.8	886876.8	2.5	8	10.5	0.5	1.0	24.98	6.94
HHPP011	612290.3	886821.7	2.5	8	10.5	1.5	1.0	8.33	4.46
HHPP012	612298.4	886777.9	2.5	8	10.5	1.0	1.0	12.49	5.43
HHPP013	612323.0	886754.6	2.5	8	10.5	1.5	1.0	8.33	4.46
HHPP014	612342.7	886703.6	3	8	10.5	2.0	1.0	5.21	3.16
HHPP015	612369.6	886659.0	3	8	10.5	2.0	1.0	5.21	3.16
HHPP016	612414.2	886627.1	3	8	10.5	1.0	1.0	10.41	4.53
HHPP017	612445.8	886608.9	5	8	10.5	0.5	1.0	12.54	3.48
HHPP018	612469.2	886590.4	5	8	10.5	1.0	1.0	6.27	2.73
HHPP019	612501.3	886563.1	6	8	10.5	0.5	1.0	10.47	2.91
HHPP020	612544.6	886550.1	6	8	10.5	0.5	1.0	10.47	2.91

Undrained Infinite Slope Analysis Results for Sliding Failure in Peat and Peat Interface (Cu values based on Hand Vane Results)

Notes:

- (1) Assuming a bulk unit weight for peat of 10.5kN/m³
- (2) Assuming a surcharge equivalent to fill depth of 1.0 m (Condition 2).
- (3) β angles are based on contours and field measurements.
- (4) c_u are based on actual undrained strengths recorded using hand vane.

Infinite Slope – Load Condition 3 Undrained

	M1	M2										
V _φ	1.00	1.25										
V _c	1.00	1.25										
Location			Material Properties				Loading		Loading		Condition (3), Road and Crane Loading	
									DA1.C1 A1 & M1 & R1	DA1.C2 A2 & M2 & R1		
ID	Easting	Northing	Slope	Undrained shear strength	Weight density of Peat	Peat Depth	Road Loading	Traffic Loading	Equivalent FOS	Equivalent FOS		
			β (deg)	c _u (kPa)	γ (kN/m ³)	(m)	Condition (3)					
AGEC_MKO104	207175	384918	2.4	5	10.5	3.5	26.0	10.3	1.19	1.12		
AGEC_MKO105	207171	384868	1.2	5	10.5	2.1	26.0	10.3	2.97	2.77		
AGEC_MKO106	207169	384818	1.5	14	10.5	3.6	26.0	10.3	5.11	4.80		
AGEC_MKO107	207170	384768	0.9	5	10.5	4.3	26.0	10.3	2.80	2.64		
AGEC_MKO108	207170	384718	0.9	11	10.5	4.0	26.0	10.3	6.41	6.04		
AGEC_MKO109	207171	384668	0.9	4	10.5	3.0	26.0	10.3	2.69	2.52		
AGEC_MKO110	207171	384618	1.1	5	10.5	3.5	26.0	10.3	2.50	2.35		
AGEC_MKO22-SS	207163	384546	2.0	4	10.5	1.3	26.0	10.3	1.66	1.54		
AGEC_MKO112	207180	384494	2.8	8	10.5	0.7	26.0	10.3	2.71	2.50		
AGEC_MKO113	207187	384445	3.5	5	10.5	1.7	26.0	10.3	1.10	1.03		
AGEC_MKO114	207193	384395	3.5	8	10.5	2.7	26.0	10.3	1.48	1.39		
AGEC_MKO115	207200	384346	3.5	9	10.5	1.6	26.0	10.3	2.02	1.88		
AGEC_MKO116	207200	384296	4.0	5	10.5	0.8	26.0	10.3	1.16	1.07		
AGEC_MKO117	207179	384257	4.7	7	10.5	0.9	26.0	10.3	1.34	1.24		
T2-3	207369	384581	3.2	5	10.5	1.7	26.0	10.3	1.20	1.12		
T2-4	207383	384570	5.6	15	10.5	0.7	26.0	10.3	2.55	2.36		
T2-6	207370	384556	5.2	14	10.5	1.5	26.0	10.3	2.16	2.01		
T2-10	207398	384535	3.8	7	10.5	1.1	26.0	10.3	1.60	1.48		
T2-16	207444	384468	2.4	11	10.5	2.4	26.0	10.3	3.11	2.91		
T2-21	207497	384412	5.2	11	10.5	2.6	26.0	10.3	1.39	1.31		
T2-27	207543	384367	5.2	8	10.5	0.9	26.0	10.3	1.40	1.30		
T2-32	207547	384307	4.6	22	10.5	3.0	26.0	10.3	2.96	2.77		
T2-35	207610	384265	4.4	15	10.5	1.0	26.0	10.3	3.03	2.81		
T3-2	207179	384986	1.8	6	10.5	3.7	26.0	10.3	1.86	1.74		
T3-5	207141	384948	2.7	4.5	10.5	2.5	26.0	10.3	1.11	1.04		
T3-7	207145	384902	1.5	4	10.5	3.3	26.0	10.3	1.57	1.47		
T3-10	207100	384886	1.7	5	10.5	3.6	26.0	10.3	1.66	1.56		
T3-12	207061	384849	1.7	4	10.5	2.7	26.0	10.3	1.52	1.42		
T3-16	207066	384807	1.5	5	10.5	3.8	26.0	10.3	1.83	1.72		
T3-20	206987	384778	2.1	5.5	10.5	3.0	26.0	10.3	1.61	1.51		
T3-29	206938	384738	1.6	3	10.5	3.4	26.0	10.3	1.09	1.02		
T3-30	206898	384700	1.4	3.5	10.5	4.0	26.0	10.3	1.34	1.26		
AGEC_MKO96	207179	384970	1.8	6	10.5	3.6	26.0	10.3	1.88	1.77		
AGEC_MKO98	207122	384888	1.7	5	10.5	3.7	26.0	10.3	1.64	1.54		
AGEC_MKO100	207051	384819	1.5	5	10.5	3.4	26.0	10.3	1.94	1.82		
AGEC_MKO103	206955	384733	1.6	3	10.5	2.7	26.0	10.3	1.21	1.13		
MCCO5S1	206923	384694	1.4	3.5	10.5	3.6	26.0	10.3	1.41	1.33		
T4-1	207187	384554	1.2	3	10.5	4.5	26.0	10.3	1.25	1.18		
T4-3	207207	384554	1.7	3.5	10.5	5.7	26.0	10.3	0.90	0.85		
T4-4	207216	384557	1.7	5.5	10.5	7.3	26.0	10.3	1.20	1.14		
T4-5	207222	384583	1.8	3.5	10.5	5.2	26.0	10.3	0.90	0.85		
T4-6	207224	384560	2	6	10.5	5.0	26.0	10.3	1.42	1.34		
T4-7	207244	384563	1.9	4	10.5	4.8	26.0	10.3	1.02	0.96		
T4-9	207264	384590	3.2	7	10.5	3.0	26.0	10.3	1.35	1.27		
T4-10	207266	384572	4.4	7	10.5	3.0	26.0	10.3	0.98	0.92		
T4-11	207286	384580	3.8	7	10.5	2.2	26.0	10.3	1.30	1.21		
T4-12	207299	384608	3.6	5	10.5	2.0	26.0	10.3	1.01	0.94		
T4-13	207306	384592	3.8	6	10.5	3.0	26.0	10.3	0.97	0.91		
T4-14	207337	384609	3	8	10.5	3.0	26.0	10.3	1.64	1.54		
T4-17	207366	384625	3	9	10.5	1.0	26.0	10.3	2.66	2.47		
T4-21	207444	384652	3	5	10.5	1.6	26.0	10.3	1.31	1.22		
T4-22	207454	384629	3	9	10.5	1.4	26.0	10.3	2.45	2.27		
T4-26	207510	384651	3	12	10.5	2.8	26.0	10.3	2.54	2.38		
T4-39	207636	384681	3.5	9	10.5	1.4	26.0	10.3	2.10	1.95		
T4-40	207644	384666	3.8	5	10.5	1.7	26.0	10.3	1.01	0.94		
T4-44	207684	384693	4.6	11	10.5	1.5	26.0	10.3	1.92	1.78		
T4-50	207764	384711	5.7	11	10.5	1.5	26.0	10.3	1.55	1.44		
T4-57	207858	384735	5.7	6	10.5	0.6	26.0	10.3	1.03	0.95		
AGEC_MKO23SS	207234	384571	2	6	10.5	4.6	26.0	10.3	1.49	1.40		
AGEC_MKO24SS	207305	384596	3.8	6	10.5	1.8	26.0	10.3	1.20	1.12		
AGEC_MKO32SS	207441	384636	3	9	10.5	1.2	26.0	10.3	2.55	2.37		
AGEC_MKO33SS	207514	384653	3	12	10.5	3.2	26.0	10.3	2.39	2.25		
AGEC_MKO34SS	207587	384671	3	4	10.5	1.7	26.0	10.3	1.03	0.96		
AGEC_MKO35SS	207660	384688	4.6	11	10.5	1.0	26.0	10.3	2.13	1.97		
AGEC_MKO36SS	207732	384706	5.7	11	10.5	2.5	26.0	10.3	1.29	1.21		
AGEC_MKO37SS	207805	384723	5.7	11	10.5	1.3	26.0	10.3	1.61	1.50		
HHPP001	611963.3	887066.2	4	8	10.5	0.5	16.0	10.0	2.63	2.40		
HHPP002	612004.7	887062.9	4	8	10.5	0.6	16.0	10.0	2.55	2.33		

	M1	M2								
$\gamma_{\phi'}$	1.00	1.25								
$\gamma_{c'}$	1.00	1.25								
HHPP003	612025.9	887010.6	4	8	10.5	0.5	16.0	10.0	2.63	2.40
HHPP004	612064.0	886998.6	3	8	10.5	0.5	16.0	10.0	3.50	3.19
HHPP005	612107.2	886976.2	3	8	10.5	1.0	16.0	10.0	3.01	2.77
HHPP006	612156.2	886967.2	3	8	10.5	0.5	16.0	10.0	3.50	3.19
HHPP007	612210.4	886957.9	3	8	10.5	0.2	16.0	10.0	3.88	3.52
HHPP008	612249.0	886940.7	2	8	10.5	0.2	16.0	10.0	5.82	5.27
HHPP009	612257.0	886926.5	2	8	10.5	1.0	16.0	10.0	4.52	4.15
HHPP010	612270.8	886876.8	2.5	8	10.5	0.5	16.0	10.0	4.20	3.83
HHPP011	612290.3	886821.7	2.5	8	10.5	1.5	16.0	10.0	3.17	2.93
HHPP012	612298.4	886777.9	2.5	8	10.5	1.0	16.0	10.0	3.62	3.32
HHPP013	612323.0	886754.6	2.5	8	10.5	1.5	16.0	10.0	3.17	2.93
HHPP014	612342.7	886703.6	3	8	10.5	2.0	16.0	10.0	2.36	2.19
HHPP015	612369.6	886659.0	3	8	10.5	2.0	16.0	10.0	2.36	2.19
HHPP016	612414.2	886627.1	3	8	10.5	1.0	16.0	10.0	3.01	2.77
HHPP017	612445.8	886608.9	5	8	10.5	0.5	16.0	10.0	2.11	1.92
HHPP018	612469.2	886590.4	5	8	10.5	1.0	16.0	10.0	1.81	1.67
HHPP019	612501.3	886563.1	6	8	10.5	0.5	16.0	10.0	1.76	1.60
HHPP020	612544.6	886550.1	6	8	10.5	0.5	16.0	10.0	1.76	1.60

Undrained Infinite Slope Analysis Results for Sliding Failure in Peat and Peat Interface (Cu values based on Hand Vane Results)

Notes:

- (1) Assuming a bulk unit weight for peat of 10.5kN/m³
- (2) Assuming a surcharge equivalent to road fill depth of 1.3m plus a live load (Condition 3).
- (3) β angles are based on contours and field measurements.
- (4) c_u are based on actual undrained strengths recorded using hand vane.

Infinite Slope – Load Condition 1 and 2 Drained

Location			Material Properties						Surcharge	EC7	
										Condition (1)	Condition (2), 1.0m Surcharge
										DA1 DA1.C2 A2 & M2 & R1	DA1 DA1.C2 A2 & M2 & R1
										Equivalent FOS	Equivalent FOS
ID	Easting	Northing	Slope	Design c'	Weight Density of Peat	100% Water to height of Peat	Depth of In situ Peat	Angle of Shearing Resistance	Surcharge Equivalent Placed Fill Depth	Condition (2)	
			β (deg)	c' (kPa)	γ (kN/m³)	(m)	(m)	φ' (deg)	Condition (2)		
SUB-11	204852	387220	2.4	4.0	10.5	2.00	2.0	25	1.00	4.23	2.56
SUB-37	205353	386340	7.4	4.0	10.5	0.30	0.3	25	1.00	8.14	1.53
SUB-51	205566	385791	3.3	4.0	10.5	3.00	3.0	25	1.00	2.19	1.53
SUB-53	205590	385766	5.2	4.0	10.5	2.90	2.9	25	1.00	1.43	0.99
SUB-54	205572	385762	6.1	4.0	10.5	1.00	1.0	25	1.00	3.11	1.35
SUB-57	205529	385747	3.7	4.0	10.5	4.20	4.2	25	1.00	1.51	1.15
SUB-58	205572	385742	6.2	4.0	10.5	1.40	1.4	25	1.00	2.25	1.17
SUB-62	205709	385681	4.4	4.0	10.5	2.20	2.2	25	1.00	2.13	1.34
SR-26	206825	385591	4.4	4.0	10.5	0.60	0.6	25	1.00	6.96	2.20
SR-42	207880	386544	3.6	4.0	10.5	1.20	1.2	25	1.00	4.44	2.13
SR-45	207918	386637	7.2	4.0	10.5	1.00	1.0	25	1.00	2.64	1.15
T1-52	207172	384374	2.5	4.0	10.5	2.00	2.0	25	1.00	4.06	2.46
T1-56	207171	384338	4	4.0	10.5	1.20	1.2	25	1.00	4.00	1.92
T1-60	207225	384287	2.3	4.0	10.5	1.60	1.6	25	1.00	5.36	2.96
T1-62	207095	384243	3.5	4.0	10.5	1.90	1.9	25	1.00	3.03	1.80
T1-63	207183	384236	3.7	4.0	10.5	1.80	1.8	25	1.00	3.01	1.75
T1-64	207183	384236	3.7	4.0	10.5	1.80	1.8	25	1.00	3.01	1.75
T1-65	207348	384218	1.7	4.0	10.5	3.30	3.3	25	1.00	3.94	2.83
T1-66	207053	384209	3.3	4.0	10.5	1.00	1.0	25	1.00	5.73	2.49
T1-67	207312	384183	1.5	4.0	10.5	4.40	4.4	25	1.00	3.58	2.77
T1-68	207213	384163	1.8	4.0	10.5	4.00	4.0	25	1.00	3.21	2.42
T1-69	207264	384158	0.7	4.0	10.5	5.00	5.0	25	1.00	7.00	5.55
T1-70	207179	384135	2.1	4.0	10.5	3.40	3.4	25	1.00	3.12	2.25
T2-30	207614	384320	2.6	4.0	10.5	2.20	2.2	25	1.00	3.60	2.26
T2-31	207710	384311	2.8	4.0	10.5	2.80	2.8	25	1.00	2.73	1.87
T2-35	207610	384265	4.4	4.0	10.5	1.00	1.0	25	1.00	4.30	1.87
T2-37	207754	384252	5	4.0	10.5	0.60	0.6	25	1.00	6.13	1.94
T2-38	207754	384252	3.1	4.0	10.5	0.60	0.6	25	1.00	9.86	3.11
T2-41	207726	384198	4.4	4.0	10.5	1.50	1.5	25	1.00	2.97	1.59
T2-42	207739	384193	4	4.0	10.5	1.50	1.5	25	1.00	3.27	1.75
T2-43	207610	384192	3.7	4.0	10.5	0.90	0.9	25	1.00	5.64	2.31
T3-30	206898	384700	1.4	4.0	10.5	4.00	4.0	25	1.00	4.12	3.11
T3-32	206933	384684	1.9	4.0	10.5	3.80	3.8	25	1.00	3.16	2.35
T3-34	206825	384674	2.6	4.0	10.5	2.00	2.0	25	1.00	3.90	2.37
T3-36	206928	384665	2.1	4.0	10.5	3.70	3.7	25	1.00	2.92	2.16
T3-37	206843	384652	3.1	4.0	10.5	3.20	3.2	25	1.00	2.22	1.58
T4-1	207187	384554	1.2	4.0	10.5	4.50	4.5	25	1.00	4.40	3.42
T4-2	207200	384557	1	4.0	10.5	5.90	5.9	25	1.00	4.36	3.58
T4-3	207207	384554	1.7	4.0	10.5	5.70	5.7	25	1.00	2.63	2.14
T4-4	207216	384557	1.7	4.0	10.5	7.30	7.3	25	1.00	2.23	1.90
T4-5	207222	384583	1.8	4.0	10.5	5.20	5.2	25	1.00	2.65	2.12
T4-6	207224	384560	2	4.0	10.5	5.00	5.0	25	1.00	2.45	1.94
T4-7	207244	384563	1.9	4.0	10.5	4.80	4.8	25	1.00	2.66	2.09
T4-8	207245	384554	3.1	4.0	10.5	4.10	4.1	25	1.00	1.83	1.39
T4-9	207264	384590	3.2	4.0	10.5	3.00	3.0	25	1.00	2.26	1.58
T4-10	207266	384572	3.4	4.0	10.5	3.00	3.0	25	1.00	2.13	1.49
T4-11	207286	384580	3.8	4.0	10.5	2.20	2.2	25	1.00	2.46	1.55
T4-12	207299	384608	3.6	4.0	10.5	2.00	2.0	25	1.00	2.82	1.71
T4-13	207306	384592	3.4	4.0	10.5	3.00	3.0	25	1.00	2.13	1.49
T4-14	207337	384609	3	4.0	10.5	3.00	3.0	25	1.00	2.41	1.68
T4-37	207616	384718	3.4	4.0	10.5	3.60	3.6	25	1.00	1.84	1.35
T4-38	207630	384735	2.5	4.0	10.5	2.30	2.3	25	1.00	3.60	2.30
T4-40	207644	384666	3.7	4.0	10.5	1.70	1.7	25	1.00	3.16	1.79
T4-41	207658	384724	1.8	4.0	10.5	2.70	2.7	25	1.00	4.38	2.95
T4-43	207671	384770	1.2	4.0	10.5	3.00	3.0	25	1.00	6.02	4.20
T4-44	207684	384693	4.6	4.0	10.5	1.50	1.5	25	1.00	2.85	1.52
T4-57	207858	384735	5.7	4.0	10.5	0.60	0.6	25	1.00	5.39	1.70
T4-58	207861	384686	3.2	4.0	10.5	1.90	1.9	25	1.00	3.32	1.97
T4-59	207862	384715	3	4.0	10.5	1.90	1.9	25	1.00	3.54	2.10
T4-60	207864	384761	4.6	4.0	10.5	1.50	1.5	25	1.00	2.85	1.52
T4-61	207873	384752	3.1	4.0	10.5	3.10	3.1	25	1.00	2.27	1.60
T4-62	207880	384784	3.5	4.0	10.5	2.00	2.0	25	1.00	2.90	1.76
T4-63	207881	384744	4	4.0	10.5	2.50	2.5	25	1.00	2.10	1.38
T4-64	207893	384726	3.8	4.0	10.5	3.00	3.0	25	1.00	1.91	1.33
T4-65	207898	384777	4.6	4.0	10.5	2.50	2.5	25	1.00	1.83	1.20
T4-66	207901	384802	5.7	4.0	10.5	1.70	1.7	25	1.00	2.06	1.17
T4-67	207907	384818	3.4	4.0	10.5	2.80	2.8	25	1.00	2.25	1.54
T4-68	207910	384765	4	4.0	10.5	3.00	3.0	25	1.00	1.81	1.26
T4-69	207911	384787	4.6	4.0	10.5	3.00	3.0	25	1.00	1.58	1.10
T4-73	207923	384803	4.1	4.0	10.5	3.00	3.0	25	1.00	1.77	1.23
T4-75	207939	384840	3.4	4.0	10.5	3.30	3.3	25	1.00	1.97	1.42
T4-76	207944	384828	3.6	4.0	10.5	2.80	2.8	25	1.00	2.13	1.45
T4-78	207954	384808	3.5	4.0	10.5	2.90	2.9	25	1.00	2.13	1.47
T4-79	207960	384880	1.7	4.0	10.5	3.90	3.9	25	1.00	3.46	2.60
T4-82	207984	384813	3	4.0	10.5	2.00	2.0	25	1.00	3.38	2.05
T4-91	208014	384816	2.1	4.0	10.5	2.30	2.3	25	1.00	4.29	2.74
T4-92	208020	384790	2.1	4.0	10.5	2.40	2.4	25	1.00	4.14	2.68
T4-93	208022	384859	1.7	4.0	10.5	2.20	2.2	25	1.00	5.50	3.46
T4-95	208032	384848	1.7	4.0	10.5	2.00	2.0	25	1.00	5.96	3.61
T4-97	208054	384879	1.6	4.0	10.5	1.90	1.9	25	1.00	6.62	3.93
T4-98	208056	384864	2.1	4.0	10.5	1.70	1.7	25	1.00	5.56	3.15
T4-99	208064	384901	2.3	4.0	10.5	2.10	2.1	25	1.00	4.23	2.61
T4-100	208082	384800	3	4.0	10.5	2.00	2.0	25	1.00	3.38	2.05

Location			Material Properties						Surcharge	EC7	
										Condition (1)	Condition (2), 1.0m Surcharge
										DA1 DA1.C2 A2 & M2 & R1	DA1 DA1.C2 A2 & M2 & R1
										Equivalent FOS	Equivalent FOS
ID	Easting	Northing	Slope	Design c'	Weight Density of Peat	100% Water to height of Peat	Depth of In situ Peat	Angle of Shearing Resistance	Surcharge Equivalent Placed Fill Depth		
			β (deg)	c' (kPa)	γ (kN/m ³)	(m)	(m)	φ' (deg)	Condition (2)		
T4-101	208088	384878	3	4.0	10.5	1.90	1.9	25	1.00	3.54	2.10
T5-10	207266	385133	5.4	4.0	10.5	2.00	2.0	25	1.00	1.89	1.14
T6-6	207589	385318	4.8	4.0	10.5	1.70	1.7	25	1.00	2.44	1.38
T6-9	207637	385328	7.6	4.0	10.5	2.00	2.0	25	1.00	1.35	0.82
T6-11	207649	385330	7.6	4.0	10.5	1.70	1.7	25	1.00	1.55	0.88
T6-12	207655	385318	7.6	4.0	10.5	0.50	0.5	25	1.00	4.83	1.34
T7-3	208150	385874	2.1	4.0	10.5	2.10	2.1	25	1.00	4.63	2.86
T7-4	208100	385856	1.9	4.0	10.5	2.90	2.9	25	1.00	3.91	2.70
T7-6	208175	385825	2.4	4.0	10.5	2.80	2.8	25	1.00	3.19	2.18
T7-8	208166	385808	2.8	4.0	10.5	3.50	3.5	25	1.00	2.29	1.67
T7-10	208226	385784	2.4	4.0	10.5	2.90	2.9	25	1.00	3.10	2.14
T7-14	208213	385692	3.2	4.0	10.5	3.40	3.4	25	1.00	2.05	1.48
T7-15	208171	385683	2.6	4.0	10.5	3.50	3.5	25	1.00	2.46	1.79
T7-17	208262	385677	4	4.0	10.5	1.20	1.2	25	1.00	4.00	1.92
T7-18	208244	385654	3.9	4.0	10.5	2.00	2.0	25	1.00	2.61	1.58
T7-20	208278	385637	3.3	4.0	10.5	1.60	1.6	25	1.00	3.74	2.06
T7-22	208248	385623	2.7	4.0	10.5	2.00	2.0	25	1.00	3.76	2.28
T7-24	208247	385599	4.8	4.0	10.5	1.50	1.5	25	1.00	2.73	1.46
T7-26	208218	385592	4.9	4.0	10.5	3.00	3.0	25	1.00	1.48	1.03
T7-27	208248	385586	5.1	4.0	10.5	2.10	2.1	25	1.00	1.91	1.18
T7-29	208256	385566	3.9	4.0	10.5	2.20	2.2	25	1.00	2.40	1.51
T7-30	208273	385556	4.1	4.0	10.5	1.60	1.6	25	1.00	3.01	1.66
T7-31	208325	385547	3.7	4.0	10.5	1.40	1.4	25	1.00	3.76	1.95
T7-32	208272	385537	3.8	4.0	10.5	2.20	2.2	25	1.00	2.46	1.55
T7-34	208265	385529	3.7	4.0	10.5	2.50	2.5	25	1.00	2.27	1.49
T7-36	208322	385521	5.2	4.0	10.5	1.20	1.2	25	1.00	3.08	1.48
T7-37	208153	385518	1.7	4.0	10.5	3.50	3.5	25	1.00	3.76	2.74
T7-38	208246	385515	2.6	4.0	10.5	3.00	3.0	25	1.00	2.78	1.94
T7-39	208284	385509	3.3	4.0	10.5	1.50	1.5	25	1.00	3.96	2.12
T7-40	208159	385442	1.8	4.0	10.5	5.50	5.5	25	1.00	2.55	2.06
T8-5	207264	385591	5.7	4.0	10.5	1.70	1.7	25	1.00	2.06	1.17
T8-7	207129	385573.6	6.8	4.0	10.5	1.20	1.2	25	1.00	2.37	1.14
T8-8	207125	385603	6.7	4.0	10.5	1.00	1.0	25	1.00	2.84	1.23
T9-5	208792	385928	3.3	4.0	10.5	1.00	1.0	25	1.00	5.73	2.49
T9-7	208853	385891	2.7	4.0	10.5	1.90	1.9	25	1.00	3.93	2.33
T9-9	208888	385927	2.9	4.0	10.5	2.40	2.4	25	1.00	3.00	1.94
T10-5	206847	385888	1.9	4.0	10.5	1.80	1.8	25	1.00	5.85	3.40
T11-6	208076	385956	4.1	4.0	10.5	2.90	2.9	25	1.00	1.82	1.25
T11-12	208160	385962	4	4.0	10.5	3.10	3.1	25	1.00	1.76	1.24
T12-3	207511	386005	3.7	4.0	10.5	1.40	1.4	25	1.00	3.76	1.95
T12-6	207533	386021	4.9	4.0	10.5	1.90	1.9	25	1.00	2.17	1.29
T13-4	208512	386645	7.8	4.0	10.5	0.50	0.5	25	1.00	4.71	1.31
T13-6	208408	386596	3.8	4.0	10.5	0.90	0.9	25	1.00	5.49	2.25
T13-10	208399	386548	5	4.0	10.5	0.80	0.8	25	1.00	4.67	1.78
T14-7	207066	386556	2.6	4.0	10.5	1.50	1.5	25	1.00	5.02	2.69
T15-1	207810	386587	3.8	4.0	10.5	0.50	0.5	25	1.00	9.59	2.66
T16-11	208842	386661	2.2	4.0	10.5	1.40	1.4	25	1.00	6.31	3.27
T17-2	208553	387102	4.1	4.0	10.5	1.20	1.2	25	1.00	3.90	1.87
T17-3	208558	387082	5.7	4.0	10.5	1.00	1.0	25	1.00	3.33	1.45
T17-4	208678	387078	5.2	4.0	10.5	1.50	1.5	25	1.00	2.52	1.35
T17-5	208560	387065	7.6	4.0	10.5	1.40	1.4	25	1.00	1.84	0.96
T18-1	205739	385716	3.8	4.0	10.5	1.20	1.2	25	1.00	4.21	2.02
T18-2	205756	385730	3.4	4.0	10.5	2.00	2.0	25	1.00	2.99	1.81
T18-4	205778	385670	3.2	4.0	10.5	1.20	1.2	25	1.00	5.00	2.40
T18-5	205797	385702	2.7	4.0	10.5	2.00	2.0	25	1.00	3.76	2.28
T18-6	205812	385723	3.1	4.0	10.5	3.00	3.0	25	1.00	2.33	1.63
T18-13	205959	385895	5.2	4.0	10.5	1.00	1.0	25	1.00	3.65	1.59
T18-14	205976	385905	4.1	4.0	10.5	1.50	1.5	25	1.00	3.19	1.71
T18-17	206056	385906	4	4.0	10.5	1.50	1.5	25	1.00	3.27	1.75
T18-18	206060	385948	4.3	4.0	10.5	1.20	1.2	25	1.00	3.72	1.79
T18-20	206097	386062	2.9	4.0	10.5	1.00	1.0	25	1.00	6.52	2.83
T18-21	206100	385890	2	4.0	10.5	2.50	2.5	25	1.00	4.20	2.76
T18-22	206125	386128	4.4	4.0	10.5	1.00	1.0	25	1.00	4.30	1.87
T18-25	206171	386108	5.4	4.0	10.5	1.30	1.3	25	1.00	2.76	1.38
T18-26	206172	386241	4.8	4.0	10.5	0.70	0.7	25	1.00	5.51	1.93
T18-29	206233	386128	4.2	4.0	10.5	1.00	1.0	25	1.00	4.51	1.96
T18-30	206275	386270	2.5	4.0	10.5	1.50	1.5	25	1.00	5.22	2.80
T18-32	206287	386314	3.7	4.0	10.5	1.00	1.0	25	1.00	5.11	2.22
T18-34	206289	386293	3	4.0	10.5	1.90	1.9	25	1.00	3.54	2.10
T18-35	206318	386434	8.1	4.0	10.5	1.00	1.0	25	1.00	2.36	1.02
T18-39	206352	386478	7.6	4.0	10.5	1.00	1.0	25	1.00	2.51	1.09
T18-40	206368	386345	5.2	4.0	10.5	1.40	1.4	25	1.00	2.68	1.39
T18-41	206384	386412	3	4.0	10.5	1.90	1.9	25	1.00	3.54	2.10
T18-42	206399	386358	2.3	4.0	10.5	1.40	1.4	25	1.00	6.04	3.13
T18-45	206443	386532	4.3	4.0	10.5	1.60	1.6	25	1.00	2.87	1.59
T18-46	206461	386434	4.8	4.0	10.5	1.20	1.2	25	1.00	3.34	1.60
T18-47	206467	386510	4.5	4.0	10.5	1.60	1.6	25	1.00	2.75	1.52
T18-48	206488	386544	5.1	4.0	10.5	1.00	1.0	25	1.00	3.72	1.62
T18-50	206555	386709	5.6	4.0	10.5	1.50	1.5	25	1.00	2.34	1.25
T18-52	206565	386648	4.6	4.0	10.5	1.50	1.5	25	1.00	2.85	1.52
T18-53	206590	386732	4.6	4.0	10.5	1.50	1.5	25	1.00	2.85	1.52
T18-54	206590	386743	4.3	4.0	10.5	2.40	2.4	25	1.00	2.02	1.31
T18-55	206603	386673	4.9	4.0	10.5	1.50	1.5	25	1.00	2.67	1.43
T18-57	206654	386666	5.9	4.0	10.5	1.80	1.8	25	1.00	1.89	1.10

Location			Material Properties						Surcharge	EC7	
										Condition (1)	Condition (2), 1.0m Surcharge
										DA1 DA1.C2 A2 & M2 & R1	DA1 DA1.C2 A2 & M2 & R1
										Equivalent FOS	Equivalent FOS
ID	Easting	Northing	Slope	Design c'	Weight Density of Peat	100% Water to height of Peat	Depth of In situ Peat	Angle of Shearing Resistance	Surcharge Equivalent Placed Fill Depth		
			β (deg)	c' (kPa)	γ (kN/m ³)	(m)	(m)	φ' (deg)	Condition (2)		
T18-58	206657	386806	3.3	4.0	10.5	1.60	1.6	25	1.00	3.74	2.06
T18-59	206667	386804	3.3	4.0	10.5	2.70	2.7	25	1.00	2.39	1.61
T18-63	206709	386797	3.2	4.0	10.5	2.40	2.4	25	1.00	2.72	1.76
T18-65	206745	386854	4.4	4.0	10.5	1.80	1.8	25	1.00	2.53	1.47
T18-67	206775	386790	2.3	4.0	10.5	2.00	2.0	25	1.00	4.41	2.67
T18-69	206790	386848	3.2	4.0	10.5	1.70	1.7	25	1.00	3.66	2.07
T18-71	206798	386868	2.5	4.0	10.5	2.00	2.0	25	1.00	4.06	2.46
T18-73	206803	386859	3.8	4.0	10.5	1.50	1.5	25	1.00	3.44	1.84
T18-75	206830	386818	3.8	4.0	10.5	1.50	1.5	25	1.00	3.44	1.84
T18-76	206858	386839	1.7	4.0	10.5	1.20	1.2	25	1.00	9.39	4.51
T18-81	206892	386898	2.9	4.0	10.5	2.50	2.5	25	1.00	2.90	1.91
T18-82	206899	386875	2.9	4.0	10.5	3.10	3.1	25	1.00	2.43	1.71
T18-108	207370	387040	3.4	4.0	10.5	1.50	1.5	25	1.00	3.84	2.06
T18-109	207383	387013	3.1	4.0	10.5	2.00	2.0	25	1.00	3.27	1.98
T18-110	207393	387218	4.7	4.0	10.5	1.50	1.5	25	1.00	2.79	1.49
T18-111	207441	387026	4	4.0	10.5	1.50	1.5	25	1.00	3.27	1.75
T18-112	207481	387052	3.6	4.0	10.5	2.00	2.0	25	1.00	2.82	1.71
T18-113	207484	387187	3.9	4.0	10.5	0.70	0.7	25	1.00	6.78	2.37
T18-114	207522	387043	2.7	4.0	10.5	2.00	2.0	25	1.00	3.76	2.28
T18-115	207536	387086	2.1	4.0	10.5	1.60	1.6	25	1.00	5.87	3.24
T18-116	207540	387071	2.3	4.0	10.5	1.30	1.3	25	1.00	6.46	3.23
T19-4	209059	387236	3.8	4.0	10.5	1.70	1.7	25	1.00	3.08	1.75
T19-6	209112	387161	3.5	4.0	10.5	2.90	2.9	25	1.00	2.13	1.47
T19-7	209126	387242	2.7	4.0	10.5	1.90	1.9	25	1.00	3.93	2.33
MM-5	206815	385590	4.3	4.0	10.5	1.80	1.8	25	1.00	2.59	1.50
MCKOS 51	206923	384694	1.7	4.0	10.5	3.60	3.6	25	1.00	3.77	2.77
MCKOS 89	208214	385785	1.5	4.0	10.5	3.00	3.0	25	1.00	4.67	3.26
MCKOS 90	208214	385699	2.9	4.0	10.5	3.40	3.4	25	1.00	2.29	1.65
MCKOS 91	208212	385639	3.0	4.0	10.5	1.10	1.1	25	1.00	5.70	2.61
MCKOS 92	208219	385589	3.1	4.0	10.5	2.50	2.5	25	1.00	2.72	1.79
MCKOS 93	208257	385597	3.3	4.0	10.5	1.80	1.8	25	1.00	3.35	1.95
MCKOS 94	208274	385596	3.8	4.0	10.5	0.90	0.9	25	1.00	5.44	2.23
MCKOS 102	207544	386011	4.3	4.0	10.5	1.20	1.2	25	1.00	3.68	1.77
MCKOS 188	209106	387245	4.1	4.0	10.5	1.90	1.9	25	1.00	2.58	1.53
MCKOS 189	209123	387238	3.7	4.0	10.5	2.00	2.0	25	1.00	2.77	1.68
MCKOS 203	208560	386637	4.7	4.0	10.5	0.10	0.1	25	1.00	37.71	2.69
MCKOS 222	208920	386656	1.8	4.0	10.5	2.50	2.5	25	1.00	4.73	3.11
AGEC_MKO T12-SS	205814	385728	2.6	4.0	10.5	2.90	2.9	25	1.00	2.82	1.95
AGEC_MKOWP058	205372	386376	1.6	4.0	10.5	1.10	1.1	25	1.00	10.80	4.95
AGEC_MKOWP064	205550	385764	4.3	4.0	10.5	2.00	2.0	25	1.00	2.37	1.44
AGEC_MKOWP065	205694	385687	2.3	4.0	10.5	2.00	2.0	25	1.00	4.43	2.68
AGEC_MKOWP069	205974	385871	4.2	4.0	10.5	1.90	1.9	25	1.00	2.53	1.50
AGEC_MKOWP070	206134	385993	4.5	4.0	10.5	1.60	1.6	25	1.00	2.75	1.52
AGEC_MKOWP071	206254	386261	2.5	4.0	10.5	1.90	1.9	25	1.00	4.21	2.50
AGEC_MKOWP072	206380	386431	3.2	4.0	10.5	0.80	0.8	25	1.00	7.26	2.77
AGEC_MKOWP073	206573	386662	0.2	4.0	10.5	1.00	1.0	25	1.00	109.76	47.72
AGEC_MKOWP076	206720	386805	3.1	4.0	10.5	1.80	1.8	25	1.00	3.60	2.09
AGEC_MKOWP077	206901	386884	0.1	4.0	10.5	2.60	2.6	25	1.00	141.73	94.49
AGEC_MKO4-SS	207103	384203	6.3	4.0	10.5	0.40	0.4	25	1.00	7.17	1.69
AGEC_MKO38-SS	207875	384747	3.3	4.0	10.5	1.05	1.1	25	1.00	5.54	2.47
AGEC_MKO39-SS	207933	384794	3.8	4.0	10.5	2.70	2.7	25	1.00	2.06	1.39
AGEC_MKO40-SS	207991	384842	3.0	4.0	10.5	1.50	1.5	25	1.00	4.39	2.35
AGEC_MKO63-SS	207236	385081	3.4	4.0	10.5	3.40	3.4	25	1.00	1.94	1.40
AGEC_MKO64-SS	207284	385138	5.4	4.0	10.5	1.60	1.6	25	1.00	2.28	1.26
AGEC_MKO79-SS	208210	385807	1.5	4.0	10.5	3.40	3.4	25	1.00	4.39	3.18
AGEC_MKO80-SS	208212	385732	2.1	4.0	10.5	2.70	2.7	25	1.00	3.82	2.58
AGEC_MKO81-SS	208212	385657	2.7	4.0	10.5	2.20	2.2	25	1.00	3.48	2.18
AGEC_MKO82-SS	208212	385582	2.8	4.0	10.5	2.90	2.9	25	1.00	2.65	1.83
AGEC_MKO100SS	207235	385785	5.5	4.0	10.5	1.80	1.8	25	1.00	2.04	1.18
AGEC_MKO105SS	207183	385808	7.7	4.0	10.5	0.90	0.9	25	1.00	2.74	1.12
AGEC_MKO126-SS	206845	385596	2.6	4.0	10.5	1.20	1.2	25	1.00	6.07	2.91
AGEC_MKO130SS	207135	385869	3.6	4.0	10.5	1.50	1.5	25	1.00	3.63	1.94
AGEC_MKO146-SS	207087	386547	2.3	4.0	10.5	2.60	2.6	25	1.00	3.55	2.37
AGEC_MKO158SS	207872	386615	3.2	4.0	10.5	0.70	0.7	25	1.00	8.24	2.88
AGEC_MKO171SS	208604	387019	4.6	4.0	10.5	1.60	1.6	25	1.00	2.67	1.47
AGEC_MKO185SS	208460	386581	5.0	4.0	10.5	1.40	1.4	25	1.00	2.80	1.45
AGEC_MKO186SS	208510	386495	4.2	4.0	10.5	0.70	0.7	25	1.00	6.33	2.22
AGEC_MKO187SS	208600	386453	4.5	4.0	10.5	1.00	1.0	25	1.00	4.25	1.85
AGEC_MKO200 SS	209100	387226	4.0	4.0	10.5	2.10	2.1	25	1.00	2.43	1.50
AGEC_MKO46	206864	385872	2.0	4.0	10.5	1.30	1.3	25	1.00	7.42	3.71
AGEC_MKO66	208855	386676	2.2	4.0	10.5	3.00	3.0	25	1.00	3.29	2.29
AGEC_MKO80	208867	385914	6.0	4.0	10.5	1.70	1.7	25	1.00	1.96	1.11
AGEC_MKO84	208165	385837	1.0	4.0	10.5	2.30	2.3	25	1.00	9.00	5.75
AGEC_MKO92	207392	385571	5.0	4.0	10.5	0.80	0.8	25	1.00	4.67	1.78
AGEC_MKO93	207342	385564	1.0	4.0	10.5	0.30	0.3	25	1.00	59.62	11.18
AGEC_MKO115	207200	384346	3.0	4.0	10.5	1.60	1.6	25	1.00	4.11	2.27
AGEC_MKO116	207200	384296	2.0	4.0	10.5	0.80	0.8	25	1.00	11.62	4.43
AGEC_MKO117	207179	384257	3.0	4.0	10.5	0.90	0.9	25	1.00	6.95	2.84
FT_PP036	605796	885760	4	4.0	10.5	0.60	0.6	25	1.00	12.63	3.99
FT_PP037	605802	885802	3	4.0	10.5	1.50	1.5	25	1.00	11.01	5.90
FT_PP038	605845	885801	3	4.0	10.5	1.30	1.3	25	1.00	11.60	5.80
FT_PP039	605867	885837	3	4.0	10.5	1.50	1.5	25	1.00	11.01	5.90
FT_PP040	605964	885890	3	4.0	10.5	1.50	1.5	25	1.00	11.01	5.90
FT_PP041	606053	885934	4	4.0	10.5	1.40	1.4	25	1.00	8.46	4.39

- (1) Assuming a bulk unit weight for peat of 10.5 kN/m^3
- (2) Assuming a surcharge equivalent to fill depth of 1.0 m (Condition 2).
- (3) β angles are based on contours and field measurements.
- (4) ϕ' and c' are based on published data, see Peat Stability Assessment Report.

Infinite Slope – Load Condition 3a Drained

Location			Material Properties					Surcharge	EC7
									Condition (3a), Road Surcharge
									DA1
									DA1.C2 A2 & M2 & R1
ID	Easting	Northing	Slope	Design c'	Weight Density of Peat	Depth of In situ Peat	Angle of Shearing Resistance	Road load	Equivalent ODF
			β (deg)	c' (kPa)	γ (kN/m ³)	(m)	ϕ' (deg)	Condition (3a)	
AGEC_MKO104	207175	384918	2.4	4.0	10.5	3.5	25	1.30	1.39
AGEC_MKO105	207171	384868	1.2	4.0	10.5	2.1	25	1.30	3.19
AGEC_MKO106	207169	384818	1.5	4.0	10.5	3.6	25	1.30	2.14
AGEC_MKO107	207170	384768	0.9	4.0	10.5	4.3	25	1.30	3.41
AGEC_MKO108	207170	384718	0.9	4.0	10.5	4.0	25	1.30	3.49
AGEC_MKO109	207171	384668	0.9	4.0	10.5	3.0	25	1.30	3.80
AGEC_MKO110	207171	384618	1.1	4.0	10.5	3.5	25	1.30	2.91
AGEC_MKO22-SS	207163	384546	2.0	4.0	10.5	1.3	25	1.30	2.14
AGEC_MKO112	207180	384494	2.8	4.0	10.5	0.7	25	1.30	1.68
AGEC_MKO113	207187	384445	3.5	4.0	10.5	1.7	25	1.30	1.16
AGEC_MKO114	207193	384395	3.5	4.0	10.5	2.7	25	1.30	1.03
AGEC_MKO115	207200	384346	3.5	4.0	10.5	1.6	25	1.30	1.17
AGEC_MKO116	207200	384296	4.0	4.0	10.5	0.8	25	1.30	1.16
AGEC_MKO117	207179	384257	4.7	4.0	10.5	0.9	25	1.30	0.96
T2-3	207369	384581	3.2	4.0	10.5	1.7	25	1.30	1.26
T2-4	207383	384570	7.6	4.0	10.5	0.7	25	1.30	0.63
T2-6	207370	384556	5.2	4.0	10.5	1.5	25	1.30	0.80
T2-10	207398	384535	3.8	4.0	10.5	1.1	25	1.30	1.16
T2-16	207444	384468	2.4	4.0	10.5	2.4	25	1.30	1.55
T2-21	207497	384412	5.2	4.0	10.5	2.6	25	1.30	0.70
T2-27	207543	384367	5.2	4.0	10.5	0.9	25	1.30	0.88
T2-32	207547	384307	4.6	4.0	10.5	3.0	25	1.30	0.76
T2-35	207610	384265	4.4	4.0	10.5	1.0	25	1.30	1.02
T3-2	207179	384986	1.8	4.0	10.5	3.7	25	1.30	1.82
T3-5	207141	384948	2.7	4.0	10.5	2.5	25	1.30	1.36
T3-7	207145	384902	1.5	4.0	10.5	3.3	25	1.30	2.26
T3-10	207100	384886	1.7	4.0	10.5	3.6	25	1.30	1.94
T3-12	207061	384849	1.7	4.0	10.5	2.7	25	1.30	2.11
T3-16	207066	384807	1.5	4.0	10.5	3.8	25	1.30	2.17
T3-20	206987	384778	2.1	4.0	10.5	3.0	25	1.30	1.66
T3-29	206938	384738	1.6	4.0	10.5	3.4	25	1.30	2.10
T3-30	206898	384700	1.4	4.0	10.5	4.0	25	1.30	2.28
AGEC_MKO96	207179	384970	1.8	4.0	10.5	3.6	25	1.30	1.84
AGEC_MKO98	207122	384888	1.7	4.0	10.5	3.7	25	1.30	1.93
AGEC_MKO100	207051	384819	1.5	4.0	10.5	3.4	25	1.30	2.24
AGEC_MKO103	206955	384733	1.6	4.0	10.5	2.7	25	1.30	2.25
MCCKOS51	206923	384694	1.4	4.0	10.5	3.6	25	1.30	2.36
T4-1	207187	384554	1.2	4.0	10.5	4.5	25	1.30	2.57
T4-3	207207	384554	1.7	4.0	10.5	5.7	25	1.30	1.68
T4-4	207216	384557	1.7	4.0	10.5	7.3	25	1.30	1.55
T4-5	207222	384583	1.8	4.0	10.5	5.2	25	1.30	8.48
T4-6	207224	384560	2	4.0	10.5	5.0	25	1.30	1.49
T4-7	207244	384563	1.9	4.0	10.5	4.8	25	1.30	1.59
T4-9	207264	384590	3.2	4.0	10.5	3.0	25	1.30	1.09
T4-10	207266	384572	3.6	4.0	10.5	3.0	25	1.30	0.97
T4-11	207286	384580	3.8	4.0	10.5	2.2	25	1.30	1.00
T4-12	207299	384608	3.6	4.0	10.5	2.0	25	1.30	1.08
T4-13	207306	384592	3.8	4.0	10.5	3.0	25	1.30	0.92
T4-14	207337	384609	3	4.0	10.5	3.0	25	1.30	1.16
T4-17	207366	384625	3	4.0	10.5	1.0	25	1.30	1.49
T4-18	207395	384623	2.2	4.0	10.5	0.7	25	1.30	2.14
T4-19	207408	384688	1.5	4.0	10.5	4.0	25	1.30	2.13
T4-22	207454	384629	3	4.0	10.5	1.4	25	1.30	1.40
T4-26	207510	384651	3	4.0	10.5	2.8	25	1.30	1.19
T4-39	207636	384681	3.5	4.0	10.5	1.4	25	1.30	1.20
T4-44	207684	384693	4.6	4.0	10.5	1.5	25	1.30	0.90
T4-50	207764	384711	5.7	4.0	10.5	1.5	25	1.30	0.73
T4-57	207858	384735	5.7	4.0	10.5	0.6	25	1.30	0.85
AGEC_MKO23SS	207234	384571	2	4.0	10.5	4.6	25	1.30	1.53
AGEC_MKO24SS	207305	384596	3.8	4.0	10.5	1.8	25	1.30	1.06
AGEC_MKO32SS	207441	384636	3	4.0	10.5	1.2	25	1.30	1.45

AGEC_MKO33SS	207514	384653	3	4.0	10.5	3.2	25	1.30	1.14
AGEC_MKO34SS	207587	384671	3	4.0	10.5	1.7	25	1.30	1.35
AGEC_MKO35SS	207660	384688	4.6	4.0	10.5	1.0	25	1.30	0.98
AGEC_MKO36SS	207732	384706	5.7	4.0	10.5	2.5	25	1.30	0.65
AGEC_MKO37SS	207805	384723	5.7	4.0	10.5	1.3	25	1.30	0.75
HHPP001	611963.3	887066.2	4	4.0	10.5	0.5	25	0.80	1.84
HHPP002	612004.7	887062.9	4	4.0	10.5	0.6	25	0.80	1.78
HHPP003	612025.9	887010.6	4	4.0	10.5	0.5	25	0.80	1.84
HHPP004	612064.0	886998.6	3	4.0	10.5	0.5	25	0.80	2.44
HHPP005	612107.2	886976.2	3	4.0	10.5	1.0	25	0.80	2.11
HHPP006	612156.2	886967.2	3	4.0	10.5	0.5	25	0.80	2.44
HHPP007	612210.4	886957.9	3	4.0	10.5	0.2	25	0.80	2.72
HHPP008	612249.0	886940.7	2	4.0	10.5	0.2	25	0.80	4.07
HHPP009	612257.0	886926.5	2	4.0	10.5	1.0	25	0.80	3.17
HHPP010	612270.8	886876.8	2.5	4.0	10.5	0.5	25	0.80	2.93
HHPP011	612290.3	886821.7	2.5	4.0	10.5	1.5	25	0.80	2.25
HHPP012	612298.4	886777.9	2.5	4.0	10.5	1.0	25	0.80	2.53
HHPP013	612323.0	886754.6	2.5	4.0	10.5	1.5	25	0.80	2.25
HHPP014	612342.7	886703.6	3	4.0	10.5	2.0	25	0.80	1.70
HHPP015	612369.6	886659.0	3	4.0	10.5	2.0	25	0.80	1.70
HHPP016	612414.2	886627.1	3	4.0	10.5	1.0	25	0.80	2.11
HHPP017	612445.8	886608.9	5	4.0	10.5	0.5	25	0.80	1.47
HHPP018	612469.2	886590.4	5	4.0	10.5	1.0	25	0.80	1.27
HHPP019	612501.3	886563.1	6	4.0	10.5	0.5	25	0.80	1.23
HHPP020	612544.6	886550.1	6	4.0	10.5	0.5	25	0.80	1.23

Drained Infinite Slope Analysis Results for Sliding Failure in Peat and at the Peat Interface (Using Parameters derived from Published)

Notes:

- (1) Assuming a bulk unit weight for peat of 10.5kN/m³
- (2) Assuming a surcharge equivalent to fill depth of 1.3 m (Condition 3a) (0.8m in Biodiversity Enhancement Site).
- (3) β angles are based on contours and field measurements.
- (4) ϕ' and c' are based on published data, see Peat Stability Assessment Report.



DESIGNING AND DELIVERING
A SUSTAINABLE FUTURE

APPENDIX D

Peat Stability Risk Assessment

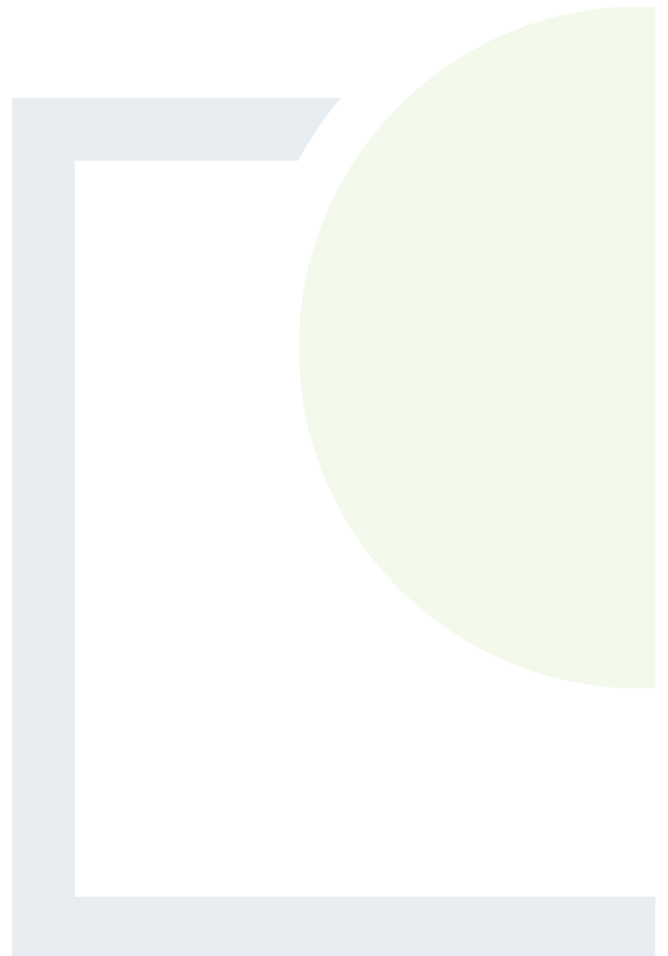


TABLE 1: PEAT/SUBSOIL CONDITIONS	Rating			
	Negligible	Low	Medium	High
Peat				
Peat Depth	<0.5 m	0.5 - 1.0	1.0 - 2.0	>2.0
Water Content	0-500%	500-1000%	1000-1500%	>1500%
Min Peak Undrained Shear Strength	>20 kPa	10-20 kPa	5-10 kPa	<=5 kPa
Peat Classification at c_u min	Very Fibrous	Fibrous	Pseudo-Fibrous/Slightly Fibrous	Amorphous/Clayey
Stability of peat in trial pits	Stable	Slight spalling	Collapse @ >3 m Depth	Collapse/squeezing <3 m Depth
Very Soft Clay Layer Below Peat [applies to uniform clay of high plasticity, & excludes well-graded gravelly Cohesive Glacial Till or decomposed rock]				
Very soft clay layer at base of peat	No			Yes
Sensitivity Coefficient (C_u peak/ C_u residual)	1.0	1.0-1.5	1.5 - 2.0	>2
Peak Undrained Shear Strength	>20 kPa	10-20 kPa	5-10 kPa	<=5 kPa
Residual Undrained Shear Strength	>20 kPa	10-20 kPa	5-10 kPa	<=5 kPa
Transition - Peat to Mineral Soil				
Sharp discontinuity (possible or potential shear plane) identified in peat or at base of peat in trial pits, probes or piston samples	No			Yes
Underlying Mineral Soil/Rock				
Granular soil/Fractured rock at base of peat	No			Yes
Nested Flat Boulders	No			Yes
Rock below Peat - Interface Characteristics	Rough/ Weathered	Rough/Fractured	Smooth Undulating	Smooth Planar

TABLE 2: TOPOGRAPHY	Rating			
	Negligible	Low	Medium	High
Slope Angle	Flat	Shallow	Intermediate	High
Slope Angle - Ground Surface	<1°	1-3°	3°-5°	>5°
Slope Angle - Base of Peat	<1°	1-3°	3°-5°	>5°
In broad valley upslope from defined watercourses	No	Yes, slopes <3°	Yes, slopes 3-5°	Yes, slopes > 5°
Distance from topographical low-point upslope from defined watercourses	>250 m	100-250 m	50-100 m	<50 m
General slope characteristics downslope from road/turbine	Concave	Planar to Concave	Planar to Convex	Convex
Distance from break in convex slope	>100 m	50-100 m	10-50 m	<10 m

TABLE 3: FACTOR OF SAFETY CALCULATIONS	Rating			
	Negligible	Low	Medium	High
FOS Infinite Slope - No Surcharge (Existing Condition)				
$c_u = 5\text{kPa}$ (or minimum)	>3	2.0 - 3.0	1.5 - 2.0	<1.5
$c_u = 2.5\text{kPa}$ (Worst Case)	>2	1.5 - 2.0	1.0 - 1.5	<1.0
FOS Infinite Slope - Surcharge of 1.0m Peat with Partial Factor = 1.3				
$c_u = 5\text{kPa}$ (or minimum)	>3	2.0 - 3.0	1.5 - 2.0	<1.5
$c_u = 2.5\text{kPa}$ (Worst Case)	>2	1.5 - 2.0	1.0 - 1.5	<1.0
FOS - Floating Road				
Planar Sliding ($c_u = 5\text{kPa}$)	>2	1.4 - 2.0	1.0 - 1.4	<1.0
Bearing Capacity	>2	1.4 - 2.0	1.0 - 1.4	<1.0
Extrusion	>2	1.4 - 2.0	1.0 - 1.4	<1.0

TABLE 4: HYDROLOGY/HYDROGEOLOGY	Rating			
	Negligible	Low	Medium	High
Surface water	Dry	Localised/ Flowing in Drains	Ponded in drains	Springs/Surface Water
Existing drainage ditches	None/ Downslope	Varied (Gen. Downslope)	Varied (Gen. Across Slope)	Across slope
Groundwater observations in peat in trial pits.	Dry	Slight Seepage	Moderate Seepage	Strong Flow
Piping observed in trial pits	No	Slight Flow/Small Dia. (<25 mm)	Moderate Flow/Medium Dia. (25-50 mm)	Strong Flow/Large Dia. (>50 mm)
Seepage at Base of Peat	No			Yes
Evidence of piping from walkover survey	No	Possibly	Probably	Yes

TABLE 5: OTHER CONTRIBUTORY FACTORS	Rating			
	Negligible	Low	Medium	High
Slide History				
Evidence of historic slides		General Area	On Site	<1 km
Tension Cracks in Peat				Yes
Aerial Photography				
Evidence of historic slides in area		Possibly	Probably	Yes
Evidence of subterranean drainage/piping		Possibly	Probably	Yes
Other notable contributory features		Possibly	Probably	Yes
Vegetation				
Tree Growth (Coniferous Forestry)	Good		Fair	Poor
Vegetation (no trees)	Grass/Crops	Improved Grass/Dry Heather	Wet grassland/juncus	Wetlands Sphagnum/ sedge
Land Use				
Peat Workings	None/Cutaway to <0.5 m Peat	Forestry	Turbury Plots	Sausage Cutter

	Meenbog Wind Farm Peat Stability Assessment Worksheet (Hazard Likelihood) Turbine No. T01		
Factor	Characteristic properties:	Hazard Rating	
Peat/Subsoil Conditions	• Peat depth: Generally 0.2-1.8m, locally 3-4m southeast of H/S • C_u (Geonor H-10) in Peat: 3-5kPa • Water Content: 1000-1500% • Max degree of humification: H2-H9 • Stability of peat in trial pits: Slight spalling* • Soft Clay layer at base of peat?: No • Subsoil conditions: Glacial Till	M	10
Topography	• Slope angles: Generally 2-3°; locally 1-2° • General slope characteristics: On gently sloping ground, ground slopes down to southeast, slight concave break southeast of H/S, • In broad flat or buried valley directly upslope from a watercourse?: No	H	15
Factors of Safety (Infinite Slope) [assuming turbine constructed on flat slope at crest of ridge]	No surcharge: • *c_u = 3-5kPa: > 1.0 Surcharge (10kPa): • *c_u = 3-5kPa: > 1.0 <i>*Undrained shear strength at base of Peat</i>	M	10
Hydrology/ Hydrogeology	• Surface Water: Possible small amount of surface water on flat ground to the southeast • Drainage: Water course to the south; Forestry Furrows to the east • Seepage in trial pits: Not known • Evidence of piping/subsurface flow: No	M	10
Significant Contributory Factors	• Slide History: On Site • Tension Cracks: No. • Piping: No • Vegetation: Forestry north & west; cut forest to southeast • Peat Harvesting: No	M	10
Notes: 1. Max hazard rating for each factor = 20 and ratings are assigned on the basis of interpreted significance, as follows: Negligible = 0, Low = 5, Medium = 10, High = 15, Very High = 20. 2. Hazard Likelihood (L) prior to mitigation measures is interpreted from Total Hazard Rating as follows: 0-19: L=1 (Negligible); 20-39: L = 2 (Low); 40-59 L = 3 (Possible); 60-79: L = 4 (Very Possible); 80-100: L = 5 (Likely without appropriate mitigation measures). H/S = Hardstanding at turbine locations *Assumed, no information available, therefore, data conservatively assumed based on general on site experience		Total Hazard Rating	55
		Hazard Likelihood (L)	3

	Meenbog Wind Farm Peat Stability Assessment Worksheet (Hazard Likelihood) Turbine No. T02		
Factor	Characteristic properties:	Hazard Rating	
Peat/Subsoil Conditions	• Peat depth: Generally 0.4-2.2m • C_u (Geonor H-10) in Peat: 2.5-11kPa • Water Content: 1000-1500%* • Max degree of humification: H3-H9 • Stability of peat in trial pits: Slight spalling* • Soft Clay layer at base of peat?: No • Subsoil conditions: Glacial Till	M	10
Topography	• Slope angles: Generally 2-3°; locally 1-2° • General slope characteristics: On gently sloping ground, ground slopes down to south-southeast, • In broad flat or buried valley directly upslope from a watercourse?: No	M	10
Factors of Safety (Infinite Slope) [assuming turbine constructed on flat slope at crest of ridge]	No surcharge: • *c_u = 2.5-11kPa: > 1.0 <1.5 Surcharge (10kPa): • *c_u = 2.5-11kPa: > 1.0 <1.5 <i>*Undrained shear strength at base of Peat</i>	H	15
Hydrology/ Hydrogeology	• Surface Water: Possible small amount of surface water on flat ground to the south • Drainage: Water course to the east and west; Forestry Furrows running south • Seepage in trial pits: Not known • Evidence of piping/subsurface flow: No	M	10
Significant Contributory Factors	• Slide History: On Site • Tension Cracks: No. • Piping: No • Vegetation: Forestry north, east & south; cut forest to west • Peat Harvesting: No	M	10
Notes: 1. Max hazard rating for each factor = 20 and ratings are assigned on the basis of interpreted significance, as follows: Negligible = 0, Low = 5, Medium = 10, High = 15, Very High = 20. 2. Hazard Likelihood (L) prior to mitigation measures is interpreted from Total Hazard Rating as follows: 0-19: L=1 (Negligible); 20-39: L = 2 (Low); 40-59 L = 3 (Possible); 60-79: L = 4 (Very Possible); 80-100: L = 5 (Likely without appropriate mitigation measures). H/S = Hardstanding at turbine locations *Assumed, no information available, therefore, data conservatively assumed based on general on site experience		Total Hazard Rating	55
		Hazard Likelihood (L)	3

	Meenbog Wind Farm Peat Stability Assessment Worksheet (Hazard Likelihood) Turbine No. T03		
Factor	Characteristic properties:	Hazard Rating	
Peat/Subsoil Conditions	• Peat depth: Generally 1.0-3.8m • C_u (Geonor H-10) in Peat: 2-7.5kPa • Water Content: 1000-1500%* • Max degree of humification: H2-H9 • Stability of peat in trial pits: Slight spalling* • Soft Clay layer at base of peat?: No • Subsoil conditions: Glacial Till	H	15
Topography	• Slope angles: Generally 2-3°; locally 1-2° • General slope characteristics: On gently sloping ground, ground slopes down to southwest • In broad flat or buried valley directly upslope from a watercourse?: No	M	10
Factors of Safety (Infinite Slope) [assuming turbine constructed on flat slope at crest of ridge]	No surcharge: • *c_u = 2-7.5kPa: > 1.0 < 1.5 Surcharge (10kPa): • *c_u = 2-7.5kPa: > 1.0 < 1.5 <i>*Undrained shear strength at base of Peat</i>	H	15
Hydrology/ Hydrogeology	• Surface Water: Ponded in drains • Drainage: No water course within 150m; Forestry Furrows running south • Seepage in trial pits: Not known • Evidence of piping/subsurface flow: No	M	10
Significant Contributory Factors	• Slide History: On Site • Tension Cracks: No. • Piping: No • Vegetation: Forestry north, east & south; cut forest to west • Peat Harvesting: No	M	10
Notes: 1. Max hazard rating for each factor = 20 and ratings are assigned on the basis of interpreted significance, as follows: Negligible = 0, Low = 5, Medium = 10, High = 15, Very High = 20. 2. Hazard Likelihood (L) prior to mitigation measures is interpreted from Total Hazard Rating as follows: 0-19: L=1 (Negligible); 20-39: L = 2 (Low); 40-59 L = 3 (Possible); 60-79: L = 4 (Very Possible); 80-100: L = 5 (Likely without appropriate mitigation measures). H/S = Hardstanding at turbine locations *Assumed, no information available, therefore, data conservatively assumed based on general on site experience		Total Hazard Rating	60
		Hazard Likelihood (L)	4

	Meenbog Wind Farm Peat Stability Assessment Worksheet (Hazard Likelihood) Turbine No. T04		
Factor	Characteristic properties:	Hazard Rating	
Peat/Subsoil Conditions	• Peat depth: Generally 0.5-3.3m • C_u (Geonor H-10) in Peat: 3.5-12kPa • Water Content: 1000-1500% • Max degree of humification: H3-H9 • Stability of peat in trial pits: Slight spalling/instability below 1.5m • Soft Clay layer at base of peat?: No • Subsoil conditions: Glacial Till	H	15
Topography	• Slope angles: Generally 2-3°; locally 1-2° • General slope characteristics: On elevated ground, ground slopes down to south, east and west • In broad flat or buried valley directly upslope from a watercourse?: No	M	10
Factors of Safety (Infinite Slope) [assuming turbine constructed on flat slope at crest of ridge]	No surcharge: • *c_u = 3.5-12kPa: > 1.0 <1.5 Surcharge (10kPa): • *c_u = 3.5-12kPa: > 1.0 <1.5 <i>*Undrained shear strength at base of Peat</i>	H	15
Hydrology/ Hydrogeology	• Surface Water: Ponded in drains • Drainage: No water course within 150m; Forestry Furrows running south and north • Seepage in trial pits: None recorded • Evidence of piping/subsurface flow: No	M	10
Significant Contributory Factors	• Slide History: On Site • Tension Cracks: No. • Piping: No • Vegetation: Forestry surrounds location • Peat Harvesting: No	M	10
Notes: 1. Max hazard rating for each factor = 20 and ratings are assigned on the basis of interpreted significance, as follows: Negligible = 0, Low = 5, Medium = 10, High = 15, Very High = 20. 2. Hazard Likelihood (L) prior to mitigation measures is interpreted from Total Hazard Rating as follows: 0-19: L=1 (Negligible); 20-39: L = 2 (Low); 40-59 L = 3 (Possible); 60-79: L = 4 (Very Possible); 80-100: L = 5 (Likely without appropriate mitigation measures). H/S = Hardstanding at turbine locations *Assumed, no information available, therefore, data conservatively assumed based on general on site experience		Total Hazard Rating	60
		Hazard Likelihood (L)	4

	Meenbog Wind Farm Peat Stability Assessment Worksheet (Hazard Likelihood) Turbine No. T05		
Factor	Characteristic properties:	Hazard Rating	
Peat/Subsoil Conditions	• Peat depth: Generally 1.6-4.6m • C_u (Geonor H-10) in Peat: 5-20kPa • Water Content: 1000-1500%* • Max degree of humification: H3-H7 • Stability of peat in trial pits: Partial collapse at 1.5m • Soft Clay layer at base of peat?: No • Subsoil conditions: Glacial Till	H	15
Topography	• Slope angles: Generally 2-3°; locally 5-9° to north • General slope characteristics: On gently sloping ground, convex slope to north of hardstand. • In broad flat or buried valley directly upslope from a watercourse?: No	H	15
Factors of Safety (Infinite Slope) [assuming turbine constructed on flat slope at crest of ridge]	No surcharge: • *c_u = 5-20kPa: > 1.0 <1.5 Surcharge (10kPa): • *c_u = 5-20kPa: > 1.0 <1.5 <i>*Undrained shear strength at base of Peat</i>	H	15
Hydrology/ Hydrogeology	• Surface Water: Ponded in drains • Drainage: No water course within 150m; Forestry Furrows running south • Seepage in trial pits: None recorded • Evidence of piping/subsurface flow: No	M	10
Significant Contributory Factors	• Slide History: On Site • Tension Cracks: Yes. • Piping: No • Vegetation: Forestry north, east & west; unplanted area to southeast of hardstand • Peat Harvesting: No	M	10
Notes: 1. Max hazard rating for each factor = 20 and ratings are assigned on the basis of interpreted significance, as follows: Negligible = 0, Low = 5, Medium = 10, High = 15, Very High = 20. 2. Hazard Likelihood (L) prior to mitigation measures is interpreted from Total Hazard Rating as follows: 0-19: L=1 (Negligible); 20-39: L = 2 (Low); 40-59 L = 3 (Possible); 60-79: L = 4 (Very Possible); 80-100: L = 5 (Likely without appropriate mitigation measures). H/S = Hardstanding at turbine locations *Assumed, no information available, therefore, data conservatively assumed based on general on site experience		Total Hazard Rating	65
		Hazard Likelihood (L)	4

	Meenbog Wind Farm Peat Stability Assessment Worksheet (Hazard Likelihood) Turbine No. T06		
Factor	Characteristic properties:	Hazard Rating	
Peat/Subsoil Conditions	• Peat depth: Generally 0.8-2.4m • C_u (Geonor H-10) in Peat: 4-9kPa • Water Content: 1000-1500%* • Max degree of humification: H7-H10* • Stability of peat in trial pits: Slight spalling* • Soft Clay layer at base of peat?: No • Subsoil conditions: Glacial Till	M	10
Topography	• Slope angles: Generally 2-7° • General slope characteristics: On gently sloping ground, convex slope to northwest of hardstand. • In broad flat or buried valley directly upslope from a watercourse?: No	H	15
Factors of Safety (Infinite Slope) [assuming turbine constructed on flat slope at crest of ridge]	No surcharge: • *c_u = 4-9kPa: > 1.0 < 1.5 Surcharge (10kPa): • *c_u = 4-9kPa: > 1.0 < 1.5 <i>*Undrained shear strength at base of Peat</i>	H	15
Hydrology/ Hydrogeology	• Surface Water: Flowing in drains • Drainage: No water course within 150m; Forestry Furrows running north • Seepage in trial pits: Not known • Evidence of piping/subsurface flow: No	M	10
Significant Contributory Factors	• Slide History: Adjacent to slide • Tension Cracks: No. • Piping: No • Vegetation: Forestry north, south & west; cut forestry to east • Peat Harvesting: No	H	15
Notes: 1. Max hazard rating for each factor = 20 and ratings are assigned on the basis of interpreted significance, as follows: Negligible = 0, Low = 5, Medium = 10, High = 15, Very High = 20. 2. Hazard Likelihood (L) prior to mitigation measures is interpreted from Total Hazard Rating as follows: 0-19: L=1 (Negligible); 20-39: L = 2 (Low); 40-59 L = 3 (Possible); 60-79: L = 4 (Very Possible); 80-100: L = 5 (Likely without appropriate mitigation measures). H/S = Hardstanding at turbine locations *Assumed, no information available, therefore, data conservatively assumed based on general on site experience		Total Hazard Rating	65
		Hazard Likelihood (L)	4

	Meenbog Wind Farm Peat Stability Assessment Worksheet (Hazard Likelihood) Turbine No. T07		
Factor	Characteristic properties:	Hazard Rating	
Peat/Subsoil Conditions	• Peat depth: Generally 0.3-2.2m, locally 2.5-4.5m west of H/S • C_u (Geonor H-10) in Peat: 2.5-13kPa • Water Content: 1000-1500% • Max degree of humification: H3-H9 • Stability of peat in trial pits: Partial collapse at 1.5m • Soft Clay layer at base of peat?: No • Subsoil conditions: Glacial Till	H	15
Topography	• Slope angles: Generally 2-7° • General slope characteristics: On gently sloping ground, convex slope to east of hardstand. • In broad flat or buried valley directly upslope from a watercourse?: No	H	15
Factors of Safety (Infinite Slope) [assuming turbine constructed on flat slope at crest of ridge]	No surcharge: • *c_u = 2.5-13kPa: > 1.0 < 1.5 Surcharge (10kPa): • *c_u = 2.5-13kPa: > 1.0 < 1.5 <i>*Undrained shear strength at base of Peat</i>	H	15
Hydrology/ Hydrogeology	• Surface Water: Potentially ponded water in localised areas to west of hardstand • Drainage: Water course to east; Forestry Furrows running east • Seepage in trial pits: Not known • Evidence of piping/subsurface flow: No	M	10
Significant Contributory Factors	• Slide History: Adjacent to slide • Tension Cracks: No. • Piping: No • Vegetation: Forestry north, south & east; large unplanted area to west • Peat Harvesting: No	VH	20
Notes: 1. Max hazard rating for each factor = 20 and ratings are assigned on the basis of interpreted significance, as follows: Negligible = 0, Low = 5, Medium = 10, High = 15, Very High = 20. 2. Hazard Likelihood (L) prior to mitigation measures is interpreted from Total Hazard Rating as follows: 0-19: L=1 (Negligible); 20-39: L = 2 (Low); 40-59 L = 3 (Possible); 60-79: L = 4 (Very Possible); 80-100: L = 5 (Likely without appropriate mitigation measures). H/S = Hardstanding at turbine locations *Assumed, no information available, therefore, data conservatively assumed based on general on site experience		Total Hazard Rating	75
		Hazard Likelihood (L)	4

	Meenbog Wind Farm Peat Stability Assessment Worksheet (Hazard Likelihood) Turbine No. T08		
Factor	Characteristic properties:	Hazard Rating	
Peat/Subsoil Conditions	• Peat depth: Generally 0.9-3.3m • C_u (Geonor H-10) in Peat: 6-21kPa • Water Content: 1000-1500%* • Max degree of humification: H7-H10* • Stability of peat in trial pits: Slight spalling* • Soft Clay layer at base of peat?: No • Subsoil conditions: Glacial Till	M	10
Topography	• Slope angles: Generally 2-7° • General slope characteristics: On gently sloping ground, ground slopes to north. • In broad flat or buried valley directly upslope from a watercourse?: No	M	10
Factors of Safety (Infinite Slope) [assuming turbine constructed on flat slope at crest of ridge]	No surcharge: • *c_u = 6-21kPa: > 1.0 Surcharge (10kPa): • *c_u = 6-21kPa: > 1.0 <i>*Undrained shear strength at base of Peat</i>	L	5
Hydrology/ Hydrogeology	• Surface Water: Flowing in drains • Drainage: Water course to northwest; Forestry Furrows running north-northwest • Seepage in trial pits: Not known • Evidence of piping/subsurface flow: No	M	10
Significant Contributory Factors	• Slide History: Adjacent to slide • Tension Cracks: No. • Piping: No • Vegetation: Forestry surrounding area • Peat Harvesting: No	H	15
Notes: 1. Max hazard rating for each factor = 20 and ratings are assigned on the basis of interpreted significance, as follows: Negligible = 0, Low = 5, Medium = 10, High = 15, Very High = 20. 2. Hazard Likelihood (L) prior to mitigation measures is interpreted from Total Hazard Rating as follows: 0-19: L=1 (Negligible); 20-39: L = 2 (Low); 40-59 L = 3 (Possible); 60-79: L = 4 (Very Possible); 80-100: L = 5 (Likely without appropriate mitigation measures). H/S = Hardstanding at turbine locations *Assumed, no information available, therefore, data conservatively assumed based on general on site experience		Total Hazard Rating	50
		Hazard Likelihood (L)	3

	Meenbog Wind Farm Peat Stability Assessment Worksheet (Hazard Likelihood) Turbine No. T09		
Factor	Characteristic properties:	Hazard Rating	
Peat/Subsoil Conditions	• Peat depth: Generally 0.4-1.8m • C_u (Geonor H-10) in Peat: 6.5-20kPa • Water Content: 1000-1500%* • Max degree of humification: H7-H10* • Stability of peat in trial pits: Slight spalling* • Soft Clay layer at base of peat?: No • Subsoil conditions: Glacial Till	M	10
Topography	• Slope angles: Generally 2-6° • General slope characteristics: On gently sloping ground, ground slopes to northeast. • In broad flat or buried valley directly upslope from a watercourse?: No	M	10
Factors of Safety (Infinite Slope) [assuming turbine constructed on flat slope at crest of ridge]	No surcharge: • *c_u = 6.5-20kPa: > 1.0 Surcharge (10kPa): • *c_u = 6.5-20kPa: > 1.0 <i>*Undrained shear strength at base of Peat</i>	M	10
Hydrology/ Hydrogeology	• Surface Water: Flowing in drains • Drainage: Water course to northwest of hardstand; Forestry Furrows running north-northwest • Seepage in trial pits: Not known • Evidence of piping/subsurface flow: No	H	15
Significant Contributory Factors	• Slide History: Downslope of slide • Tension Cracks: No. • Piping: No • Vegetation: Forestry surrounding area • Peat Harvesting: No	H	15
Notes: 1. Max hazard rating for each factor = 20 and ratings are assigned on the basis of interpreted significance, as follows: Negligible = 0, Low = 5, Medium = 10, High = 15, Very High = 20. 2. Hazard Likelihood (L) prior to mitigation measures is interpreted from Total Hazard Rating as follows: 0-19: L=1 (Negligible); 20-39: L = 2 (Low); 40-59 L = 3 (Possible); 60-79: L = 4 (Very Possible); 80-100: L = 5 (Likely without appropriate mitigation measures). H/S = Hardstanding at turbine locations *Assumed, no information available, therefore, data conservatively assumed based on general on site experience		Total Hazard Rating	60
		Hazard Likelihood (L)	3

	Meenbog Wind Farm Peat Stability Assessment Worksheet (Hazard Likelihood) Turbine No. T10		
Factor	Characteristic properties:	Hazard Rating	
Peat/Subsoil Conditions	• Peat depth: Generally 0.5-3.6m • C_u (Geonor H-10) in Peat: 3-12kPa • Water Content: 1000-1500%* • Max degree of humification: H3-H9 • Stability of peat in trial pits: Slight spalling* • Soft Clay layer at base of peat?: No • Subsoil conditions: Glacial Till	M	10
Topography	• Slope angles: Generally 2-5° • General slope characteristics: On gently sloping ground, concave break in slope downslope of hardstand, ground slopes to northwest. • In broad flat or buried valley directly upslope from a watercourse?: No	M	10
Factors of Safety (Infinite Slope) [assuming turbine constructed on flat slope at crest of ridge]	No surcharge: • *c_u = 3-12kPa: > 1.0 Surcharge (10kPa): • *c_u = 3-12kPa: > 1.0 <i>*Undrained shear strength at base of Peat</i>	M	10
Hydrology/ Hydrogeology	• Surface Water: Flowing in drains • Drainage: Water course to west of hardstand; Forestry Furrows running north • Seepage in trial pits: Not known • Evidence of piping/subsurface flow: No	H	15
Significant Contributory Factors	• Slide History: On site • Tension Cracks: No. • Piping: No • Vegetation: Forestry surrounding area • Peat Harvesting: No	M	10
Notes: 1. Max hazard rating for each factor = 20 and ratings are assigned on the basis of interpreted significance, as follows: Negligible = 0, Low = 5, Medium = 10, High = 15, Very High = 20. 2. Hazard Likelihood (L) prior to mitigation measures is interpreted from Total Hazard Rating as follows: 0-19: L=1 (Negligible); 20-39: L = 2 (Low); 40-59 L = 3 (Possible); 60-79: L = 4 (Very Possible); 80-100: L = 5 (Likely without appropriate mitigation measures). H/S = Hardstanding at turbine locations *Assumed, no information available, therefore, data conservatively assumed based on general on site experience		Total Hazard Rating	55
		Hazard Likelihood (L)	3

	Meenbog Wind Farm Peat Stability Assessment Worksheet (Hazard Likelihood) Turbine No. T11		
Factor	Characteristic properties:	Hazard Rating	
Peat/Subsoil Conditions	• Peat depth: Generally 0.8-3.3m • C_u (Geonor H-10) in Peat: 3.5-12kPa • Water Content: 1000-1500%* • Max degree of humification: H7-H10* • Stability of peat in trial pits: Slight spalling* • Soft Clay layer at base of peat?: No • Subsoil conditions: Glacial Till	H	15
Topography	• Slope angles: Generally 2-5° • General slope characteristics: On gently sloping ground, ground slopes to north. • In broad flat or buried valley directly upslope from a watercourse?: No	M	10
Factors of Safety (Infinite Slope) [assuming turbine constructed on flat slope at crest of ridge]	No surcharge: • *c_u = 3.5-12kPa: > 1.0 < 1.5 Surcharge (10kPa): • *c_u = 3.5-12kPa: 1.0 < 1.5 <i>*Undrained shear strength at base of Peat</i>	M	10
Hydrology/ Hydrogeology	• Surface Water: None noted • Drainage: No water course within 150m of hardstand; Forestry Furrows running north • Seepage in trial pits: Not known • Evidence of piping/subsurface flow: No	M	10
Significant Contributory Factors	• Slide History: On site • Tension Cracks: No. • Piping: No • Vegetation: Forestry surrounding area • Peat Harvesting: No	M	10
Notes: 1. Max hazard rating for each factor = 20 and ratings are assigned on the basis of interpreted significance, as follows: Negligible = 0, Low = 5, Medium = 10, High = 15, Very High = 20. 2. Hazard Likelihood (L) prior to mitigation measures is interpreted from Total Hazard Rating as follows: 0-19: L=1 (Negligible); 20-39: L = 2 (Low); 40-59 L = 3 (Possible); 60-79: L = 4 (Very Possible); 80-100: L = 5 (Likely without appropriate mitigation measures). H/S = Hardstanding at turbine locations *Assumed, no information available, therefore, data conservatively assumed based on general on site experience		Total Hazard Rating	55
		Hazard Likelihood (L)	3

	Meenbog Wind Farm Peat Stability Assessment Worksheet (Hazard Likelihood) Turbine No. T12		
Factor	Characteristic properties:	Hazard Rating	
Peat/Subsoil Conditions	• Peat depth: Generally 0.5-2.2m • C_u (Geonor H-10) in Peat: 4.5-30kPa • Water Content: 1000-1500%* • Max degree of humification: H7-H10* • Stability of peat in trial pits: Slight spalling* • Soft Clay layer at base of peat?: No • Subsoil conditions: Glacial Till	M	10
Topography	• Slope angles: Generally 2-6° • General slope characteristics: On gently sloping ground, ground slopes to north. • In broad flat or buried valley directly upslope from a watercourse?: No	M	10
Factors of Safety (Infinite Slope) [assuming turbine constructed on flat slope at crest of ridge]	No surcharge: • *cu = 4.5-30kPa: > 1.0 < 1.5 Surcharge (10kPa): • *cu = 4.5-30kPa: > 1.0 < 1.5 <i>*Undrained shear strength at base of Peat</i>	M	10
Hydrology/ Hydrogeology	• Surface Water: Flowing in drains • Drainage: Water course to west of hardstand; Forestry Furrows running north • Seepage in trial pits: Not known • Evidence of piping/subsurface flow: No	H	15
Significant Contributory Factors	• Slide History: Adjacent to minor slide • Tension Cracks: No. • Piping: No • Vegetation: Forestry surrounding area • Peat Harvesting: No	VH	20
Notes: 1. Max hazard rating for each factor = 20 and ratings are assigned on the basis of interpreted significance, as follows: Negligible = 0, Low = 5, Medium = 10, High = 15, Very High = 20. 2. Hazard Likelihood (L) prior to mitigation measures is interpreted from Total Hazard Rating as follows: 0-19: L=1 (Negligible); 20-39: L = 2 (Low); 40-59 L = 3 (Possible); 60-79: L = 4 (Very Possible); 80-100: L = 5 (Likely without appropriate mitigation measures). H/S = Hardstanding at turbine locations *Assumed, no information available, therefore, data conservatively assumed based on general on site experience		Total Hazard Rating	65
		Hazard Likelihood (L)	4

	Meenbog Wind Farm Peat Stability Assessment Worksheet (Hazard Likelihood) Turbine No. T13		
Factor	Characteristic properties:	Hazard Rating	
Peat/Subsoil Conditions	• Peat depth: Generally 0.5-1.0m • C_u (Geonor H-10) in Peat: 7.5-30kPa • Water Content: 1000-1500%* • Max degree of humification: H7-H10* • Stability of peat in trial pits: Slight spalling* • Soft Clay layer at base of peat?: No • Subsoil conditions: Glacial Till	M	10
Topography	• Slope angles: Generally 4-8° • General slope characteristics: On gently sloping ground, ground slopes to north. • In broad flat or buried valley directly upslope from a watercourse?: No	M	10
Factors of Safety (Infinite Slope) [assuming turbine constructed on flat slope at crest of ridge]	No surcharge: • *c_u = 3.5-12kPa: > 1.5 Surcharge (10kPa): • *c_u = 3.5-12kPa: > 1.5 <i>*Undrained shear strength at base of Peat</i>	L	5
Hydrology/ Hydrogeology	• Surface Water: Flowing in drains • Drainage: No water course within 150m of hardstand; Forestry Furrows running north • Seepage in trial pits: Not known • Evidence of piping/subsurface flow: No	M	10
Significant Contributory Factors	• Slide History: On site • Tension Cracks: No. • Piping: No • Vegetation: Forestry surrounding area • Peat Harvesting: No	M	10
Notes: 1. Max hazard rating for each factor = 20 and ratings are assigned on the basis of interpreted significance, as follows: Negligible = 0, Low = 5, Medium = 10, High = 15, Very High = 20. 2. Hazard Likelihood (L) prior to mitigation measures is interpreted from Total Hazard Rating as follows: 0-19: L=1 (Negligible); 20-39: L = 2 (Low); 40-59 L = 3 (Possible); 60-79: L = 4 (Very Possible); 80-100: L = 5 (Likely without appropriate mitigation measures). H/S = Hardstanding at turbine locations *Assumed, no information available, therefore, data conservatively assumed based on general on site experience		Total Hazard Rating	45
		Hazard Likelihood (L)	3

	Meenbog Wind Farm Peat Stability Assessment Worksheet (Hazard Likelihood) Turbine No. T14		
Factor	Characteristic properties:	Hazard Rating	
Peat/Subsoil Conditions	• Peat depth: Generally 0.9-2.4m • C_u (Geonor H-10) in Peat: 8.5-26kPa • Water Content: 1000-1500%* • Max degree of humification: H3-H9 • Stability of peat in trial pits: Slight spalling* • Soft Clay layer at base of peat?: No • Subsoil conditions: Glacial Till	M	10
Topography	• Slope angles: Generally 3-7° • General slope characteristics: On gently sloping ground, ground slopes to north. • In broad flat or buried valley directly upslope from a watercourse?: No	M	10
Factors of Safety (Infinite Slope) [assuming turbine constructed on flat slope at crest of ridge]	No surcharge: • *c_u = 8.5-26kPa: > 1.0 Surcharge (10kPa): • *c_u = 8.5-26kPa: > 1.0 <i>*Undrained shear strength at base of Peat</i>	L	5
Hydrology/ Hydrogeology	• Surface Water: Flowing in drains • Drainage: Water course to east and north of hardstand; Forestry Furrows running north • Seepage in trial pits: Not known • Evidence of piping/subsurface flow: No	M	10
Significant Contributory Factors	• Slide History: On site • Tension Cracks: No. • Piping: No • Vegetation: Forestry surrounding area • Peat Harvesting: No	M	10
Notes: 1. Max hazard rating for each factor = 20 and ratings are assigned on the basis of interpreted significance, as follows: Negligible = 0, Low = 5, Medium = 10, High = 15, Very High = 20. 2. Hazard Likelihood (L) prior to mitigation measures is interpreted from Total Hazard Rating as follows: 0-19: L=1 (Negligible); 20-39: L = 2 (Low); 40-59 L = 3 (Possible); 60-79: L = 4 (Very Possible); 80-100: L = 5 (Likely without appropriate mitigation measures). H/S = Hardstanding at turbine locations *Assumed, no information available, therefore, data conservatively assumed based on general on site experience		Total Hazard Rating	45
		Hazard Likelihood (L)	3

	Meenbog Wind Farm Peat Stability Assessment Worksheet (Hazard Likelihood) Turbine No. T15		
Factor	Characteristic properties:	Hazard Rating	
Peat/Subsoil Conditions	• Peat depth: Generally 0.5-1.0m • C_u (Geonor H-10) in Peat: 10-15kPa • Water Content: 1000-1500%* • Max degree of humification: H7-H10* • Stability of peat in trial pits: Slight spalling* • Soft Clay layer at base of peat?: No • Subsoil conditions: Glacial Till	M	10
Topography	• Slope angles: Generally 3-4° • General slope characteristics: On gently sloping ground, ground slopes to north. • In broad flat or buried valley directly upslope from a watercourse?: No	M	10
Factors of Safety (Infinite Slope) [assuming turbine constructed on flat slope at crest of ridge]	No surcharge: • *c_u = 10-15kPa: > 1.5 Surcharge (10kPa): • *c_u = 10-15kPa: > 1.5 <i>*Undrained shear strength at base of Peat</i>	L	5
Hydrology/ Hydrogeology	• Surface Water: None noted • Drainage: Water course to east and north of hardstand; Forestry Furrows running north • Seepage in trial pits: Not known • Evidence of piping/subsurface flow: No	M	10
Significant Contributory Factors	• Slide History: On site • Tension Cracks: No. • Piping: No • Vegetation: Forestry surrounding area • Peat Harvesting: No	M	10
Notes: 1. Max hazard rating for each factor = 20 and ratings are assigned on the basis of interpreted significance, as follows: Negligible = 0, Low = 5, Medium = 10, High = 15, Very High = 20. 2. Hazard Likelihood (L) prior to mitigation measures is interpreted from Total Hazard Rating as follows: 0-19: L=1 (Negligible); 20-39: L = 2 (Low); 40-59 L = 3 (Possible); 60-79: L = 4 (Very Possible); 80-100: L = 5 (Likely without appropriate mitigation measures). H/S = Hardstanding at turbine locations *Assumed, no information available, therefore, data conservatively assumed based on general on site experience		Total Hazard Rating	45
		Hazard Likelihood (L)	3

	Meenbog Wind Farm Peat Stability Assessment Worksheet (Hazard Likelihood) Turbine No. T16		
Factor	Characteristic properties:	Hazard Rating	
Peat/Subsoil Conditions	• Peat depth: Generally 1.5-4.0m • C_u (Geonor H-10) in Peat: 2-7kPa • Water Content: 1000-1500%* • Max degree of humification: H4-H9 • Stability of peat in trial pits: Slight spalling* • Soft Clay layer at base of peat?: No • Subsoil conditions: Glacial Till	H	15
Topography	• Slope angles: Generally 2-4° • General slope characteristics: On gently sloping ground, ground slopes to north. • In broad flat or buried valley directly upslope from a watercourse?: No	M	10
Factors of Safety (Infinite Slope) [assuming turbine constructed on flat slope at crest of ridge]	No surcharge: • *c_u = 2-7kPa: > 1.0 < 1.5 Surcharge (10kPa): • *c_u = 2-7kPa: > 1.0 < 1.5 <i>*Undrained shear strength at base of Peat</i>	M	10
Hydrology/ Hydrogeology	• Surface Water: Ponded in drains • Drainage: No water course within 150m of hardstand; Forestry Furrows running north • Seepage in trial pits: Not known • Evidence of piping/subsurface flow: No	M	10
Significant Contributory Factors	• Slide History: On site • Tension Cracks: No. • Piping: No • Vegetation: Forestry to west, open peatland to east • Peat Harvesting: No	M	10
Notes: 1. Max hazard rating for each factor = 20 and ratings are assigned on the basis of interpreted significance, as follows: Negligible = 0, Low = 5, Medium = 10, High = 15, Very High = 20. 2. Hazard Likelihood (L) prior to mitigation measures is interpreted from Total Hazard Rating as follows: 0-19: L=1 (Negligible); 20-39: L = 2 (Low); 40-59 L = 3 (Possible); 60-79: L = 4 (Very Possible); 80-100: L = 5 (Likely without appropriate mitigation measures). H/S = Hardstanding at turbine locations *Assumed, no information available, therefore, data conservatively assumed based on general on site experience		Total Hazard Rating	55
		Hazard Likelihood (L)	3

	Meenbog Wind Farm Peat Stability Assessment Worksheet (Hazard Likelihood) Turbine No. T17		
Factor	Characteristic properties:	Hazard Rating	
Peat/Subsoil Conditions	• Peat depth: Generally 0.7-1.5m • C_u (Geonor H-10) in Peat: 4-8kPa • Water Content: 1000-1500%* • Max degree of humification: H7-H10* • Stability of peat in trial pits: Slight spalling* • Soft Clay layer at base of peat?: No • Subsoil conditions: Glacial Till	M	10
Topography	• Slope angles: Generally 4-8° • General slope characteristics: On gently sloping ground, ground slopes to north. • In broad flat or buried valley directly upslope from a watercourse?: No	M	10
Factors of Safety (Infinite Slope) [assuming turbine constructed on flat slope at crest of ridge]	No surcharge: • *c_u = 4-8kPa: > 1.5 Surcharge (10kPa): • *c_u = 4-8kPa: > 1.5 <i>*Undrained shear strength at base of Peat</i>	L	5
Hydrology/ Hydrogeology	• Surface Water: Flowing in drains • Drainage: No water course within 150m of hardstand; Forestry Furrows running north • Seepage in trial pits: Not known • Evidence of piping/subsurface flow: No	M	10
Significant Contributory Factors	• Slide History: On site • Tension Cracks: No. • Piping: No • Vegetation: Forestry surrounding area • Peat Harvesting: No	M	10
Notes: 1. Max hazard rating for each factor = 20 and ratings are assigned on the basis of interpreted significance, as follows: Negligible = 0, Low = 5, Medium = 10, High = 15, Very High = 20. 2. Hazard Likelihood (L) prior to mitigation measures is interpreted from Total Hazard Rating as follows: 0-19: L=1 (Negligible); 20-39: L = 2 (Low); 40-59 L = 3 (Possible); 60-79: L = 4 (Very Possible); 80-100: L = 5 (Likely without appropriate mitigation measures). H/S = Hardstanding at turbine locations *Assumed, no information available, therefore, data conservatively assumed based on general on site experience		Total Hazard Rating	45
		Hazard Likelihood (L)	3

	Meenbog Wind Farm Peat Stability Assessment Worksheet (Hazard Likelihood) Turbine No. T18		
Factor	Characteristic properties:	Hazard Rating	
Peat/Subsoil Conditions	• Peat depth: Generally 0.2-2.0m • C_u (Geonor H-10) in Peat: 6-14Pa • Water Content: 1000-1500%* • Max degree of humification: H3-H4 • Stability of peat in trial pits: Stable • Soft Clay layer at base of peat?: No • Subsoil conditions: Glacial Till	M	10
Topography	• Slope angles: Generally 2-5° • General slope characteristics: On gently sloping ground, ground slopes to southeast. • In broad flat or buried valley directly upslope from a watercourse?: Yes	H	15
Factors of Safety (Infinite Slope) [assuming turbine constructed on flat slope at crest of ridge]	No surcharge: • *c_u = 6-14kPa: > 1.5 Surcharge (10kPa): • *c_u = 6-14kPa: > 1.5 <i>*Undrained shear strength at base of Peat</i>	L	5
Hydrology/ Hydrogeology	• Surface Water: None noted • Drainage: Watercourse southeast of hardstand; Forestry Furrows running east • Seepage in trial pits: Not known • Evidence of piping/subsurface flow: No	H	15
Significant Contributory Factors	• Slide History: On site • Tension Cracks: No. • Piping: No • Vegetation: Forestry surrounding area • Peat Harvesting: No	M	10
Notes: 1. Max hazard rating for each factor = 20 and ratings are assigned on the basis of interpreted significance, as follows: Negligible = 0, Low = 5, Medium = 10, High = 15, Very High = 20. 2. Hazard Likelihood (L) prior to mitigation measures is interpreted from Total Hazard Rating as follows: 0-19: L=1 (Negligible); 20-39: L = 2 (Low); 40-59 L = 3 (Possible); 60-79: L = 4 (Very Possible); 80-100: L = 5 (Likely without appropriate mitigation measures). H/S = Hardstanding at turbine locations *Assumed, no information available, therefore, data conservatively assumed based on general on site experience		Total Hazard Rating	55
		Hazard Likelihood (L)	3

	Meenbog Wind Farm Peat Stability Assessment Worksheet (Hazard Likelihood) Turbine No. T19		
Factor	Characteristic properties:	Hazard Rating	
Peat/Subsoil Conditions	• Peat depth: Generally 0.4-2.5m • C_u (Geonor H-10) in Peat: 3.5-10Pa • Water Content: 1000-1500% • Max degree of humification: H3-H9 • Stability of peat in trial pits: Slight spalling* • Soft Clay layer at base of peat?: No • Subsoil conditions: Glacial Till	H	15
Topography	• Slope angles: Generally 2-4° • General slope characteristics: On gently sloping ground, ground slopes to northwest. • In broad flat or buried valley directly upslope from a watercourse?: No	M	10
Factors of Safety (Infinite Slope) [assuming turbine constructed on flat slope at crest of ridge]	No surcharge: • *c_u = 3.5-10kPa: > 1.0 < 1.5 Surcharge (10kPa): • *c_u = 3.5-10kPa: > 1.0 < 1.5 <i>*Undrained shear strength at base of Peat</i>	M	10
Hydrology/ Hydrogeology	• Surface Water: Ponded in drains • Drainage: No water course within 150m of hardstand; Forestry Furrows running north • Seepage in trial pits: Not known • Evidence of piping/subsurface flow: No	H	15
Significant Contributory Factors	• Slide History: On site • Tension Cracks: No. • Piping: No • Vegetation: Forestry to west of hardstand, open peatland to east. • Peat Harvesting: No	M	10
Notes: 1. Max hazard rating for each factor = 20 and ratings are assigned on the basis of interpreted significance, as follows: Negligible = 0, Low = 5, Medium = 10, High = 15, Very High = 20. 2. Hazard Likelihood (L) prior to mitigation measures is interpreted from Total Hazard Rating as follows: 0-19: L=1 (Negligible); 20-39: L = 2 (Low); 40-59 L = 3 (Possible); 60-79: L = 4 (Very Possible); 80-100: L = 5 (Likely without appropriate mitigation measures). H/S = Hardstanding at turbine locations *Assumed, no information available, therefore, data conservatively assumed based on general on site experience		Total Hazard Rating	60
		Hazard Likelihood (L)	3

	Meenbog Wind Farm Peat Stability Assessment Worksheet (Hazard Likelihood) Floating Road to T01		
Factor	Characteristic properties:	Hazard Rating	
Peat/Subsoil Conditions	• Peat depth: Generally 0.7-3.5m • C_u (Geonor H-10) in Peat: 3-14kPa • Water Content: 1000-1500% • Max degree of humification: H2-H9 • Stability of peat in trial pits: Slight spalling* • Soft Clay layer at base of peat?: No • Subsoil conditions: Glacial Till	H	15
Topography	• Slope angles: Generally 2-3°; locally 1-2° • General slope characteristics: On gently sloping ground, ground slopes down to southeast, slight concave break southeast of H/S, • In broad flat or buried valley directly upslope from a watercourse?: No	H	15
Factors of Safety (Infinite Slope) [assuming turbine constructed on flat slope at crest of ridge]	No surcharge: • *c_u = 3-14kPa: > 1.0 Floating Road Surcharge (23kPa): • *c_u = 3-14kPa: 0.98 to > 1.0 <i>*Undrained shear strength at base of Peat</i>	H	15
Hydrology/ Hydrogeology	• Surface Water: Possible small amount of surface water on flat ground to the southeast • Drainage: Water course to the south; Forestry Furrows to the east ανδ ωεστ • Seepage in trial pits: Not known • Evidence of piping/subsurface flow: No	M	10
Significant Contributory Factors	• Slide History: On Site • Tension Cracks: No. • Piping: No • Vegetation: Forestry north & west; cut forest to southeast • Peat Harvesting: No	H	15
Notes: 1. Max hazard rating for each factor = 20 and ratings are assigned on the basis of interpreted significance, as follows: Negligible = 0, Low = 5, Medium = 10, High = 15, Very High = 20. 2. Hazard Likelihood (L) prior to mitigation measures is interpreted from Total Hazard Rating as follows: 0-19: L=1 (Negligible); 20-39: L = 2 (Low); 40-59 L = 3 (Possible); 60-79: L = 4 (Very Possible); 80-100: L = 5 (Likely without appropriate mitigation measures). H/S = Hardstanding at turbine locations *Assumed, no information available, therefore, data conservatively assumed based on general on site experience		Total Hazard Rating	70
		Hazard Likelihood (L)	4

	Meenbog Wind Farm Peat Stability Assessment Worksheet (Hazard Likelihood) Floating Road to T02		
Factor	Characteristic properties:	Hazard Rating	
Peat/Subsoil Conditions	• Peat depth: Generally 0.7-3.2m • C_u (Geonor H-10) in Peat: 2.5-22kPa • Water Content: 1000-1500%* • Max degree of humification: H3-H9 • Stability of peat in trial pits: Slight spalling* • Soft Clay layer at base of peat?: No • Subsoil conditions: Glacial Till	H	15
Topography	• Slope angles: Generally 2-3°; locally 1-2° • General slope characteristics: On gently sloping ground, ground slopes down to south-southeast, • In broad flat or buried valley directly upslope from a watercourse?: No	H	15
Factors of Safety (Infinite Slope) [assuming turbine constructed on flat slope at crest of ridge]	No surcharge: • *c_u = 2.5-22kPa: > 1.0 < 1.5 Floating Road Surcharge (23kPa): • *c_u = 2.5-11kPa: > 1.0 < 1.5 <i>*Undrained shear strength at base of Peat</i>	H	15
Hydrology/ Hydrogeology	• Surface Water: Possible small amount of surface water on flat ground to the south • Drainage: Water course to the east and west; Forestry Furrows running south • Seepage in trial pits: Not known • Evidence of piping/subsurface flow: No	M	10
Significant Contributory Factors	• Slide History: On Site • Tension Cracks: No. • Piping: No • Vegetation: Forestry north, east & south; cut forest to west • Peat Harvesting: No	H	15
Notes: 1. Max hazard rating for each factor = 20 and ratings are assigned on the basis of interpreted significance, as follows: Negligible = 0, Low = 5, Medium = 10, High = 15, Very High = 20. 2. Hazard Likelihood (L) prior to mitigation measures is interpreted from Total Hazard Rating as follows: 0-19: L=1 (Negligible); 20-39: L = 2 (Low); 40-59 L = 3 (Possible); 60-79: L = 4 (Very Possible); 80-100: L = 5 (Likely without appropriate mitigation measures). H/S = Hardstanding at turbine locations *Assumed, no information available, therefore, data conservatively assumed based on general on site experience		Total Hazard Rating	70
		Hazard Likelihood (L)	3

Meenbog Wind Farm		
Peat Stability Assessment Worksheet (Hazard Likelihood)		
Floating Road to T03		
Factor	Hazard Rating	
Peat/Subsoil Conditions	Characteristic properties: • Peat depth: Generally 2.1-4.0m • C_u (Geonor H-10) in Peat: 2-9kPa • Water Content: 1000-1500%* • Max degree of humification: H2-H9 • Stability of peat in trial pits: Slight spalling* • Soft Clay layer at base of peat?: No • Subsoil conditions: Glacial Till	H 15
Topography	• Slope angles: Generally 2-3°; locally 1-2° • General slope characteristics: On gently sloping ground, ground slopes down to southwest • In broad flat or buried valley directly upslope from a watercourse?: No	H 15
Factors of Safety (Infinite Slope) [assuming turbine constructed on flat slope at crest of ridge]	No surcharge: • *cu = 2-9kPa: > 1.0 < 1.5 Floating Road Surcharge (23kPa): • *cu = 2-9kPa: > 1.0 < 1.5 <i>*Undrained shear strength at base of Peat</i>	H 15
Hydrology/ Hydrogeology	• Surface Water: Ponded in drains • Drainage: No water course within 150m; Forestry Furrows running south • Seepage in trial pits: Not known • Evidence of piping/subsurface flow: No	M 10
Significant Contributory Factors	• Slide History: On Site • Tension Cracks: No. • Piping: No • Vegetation: Forestry north, east & south; cut forest to west • Peat Harvesting: No	H 15
Notes: 1. Max hazard rating for each factor = 20 and ratings are assigned on the basis of interpreted significance, as follows: Negligible = 0, Low = 5, Medium = 10, High = 15, Very High = 20. 2. Hazard Likelihood (L) prior to mitigation measures is interpreted from Total Hazard Rating as follows: 0-19: L=1 (Negligible); 20-39: L = 2 (Low); 40-59 L = 3 (Possible); 60-79: L = 4 (Very Possible); 80-100: L = 5 (Likely without appropriate mitigation measures). H/S = Hardstanding at turbine locations *Assumed, no information available, therefore, data conservatively assumed based on general on site experience		Total Hazard Rating 70
		Hazard Likelihood (L) 3

	Meenbog Wind Farm Peat Stability Assessment Worksheet (Hazard Likelihood) Floating Road to T04		
Factor	Characteristic properties:	Hazard Rating	
Peat/Subsoil Conditions	• Peat depth: Generally 0.7-7.0m • C_u (Geonor H-10) in Peat: 2-15kPa • Water Content: 1000-1500% • Max degree of humification: H3-H9 • Stability of peat in trial pits: Slight spalling/instability below 1.5m • Soft Clay layer at base of peat?: No • Subsoil conditions: Glacial Till	H	15
Topography	• Slope angles: Generally 2-3°; locally 1-2° • General slope characteristics: Ground slopes down to south • In broad flat or buried valley directly upslope from a watercourse?: No	H	15
Factors of Safety (Infinite Slope) [assuming turbine constructed on flat slope at crest of ridge]	No surcharge: • *cu = 2-15kPa: 0.97 to > 1.0 Floating Road Surcharge (23kPa): • *cu = 2-15kPa: 0.87 to > 1.0 <i>*Undrained shear strength at base of Peat</i>	H	15
Hydrology/ Hydrogeology	• Surface Water: Ponded in drains • Drainage: No water course within 150m; Forestry Furrows running south and north • Seepage in trial pits: None recorded • Evidence of piping/subsurface flow: No	M	10
Significant Contributory Factors	• Slide History: On Site • Tension Cracks: No. • Piping: No • Vegetation: Forestry surrounds location • Peat Harvesting: No	H	15
Notes: 1. Max hazard rating for each factor = 20 and ratings are assigned on the basis of interpreted significance, as follows: Negligible = 0, Low = 5, Medium = 10, High = 15, Very High = 20. 2. Hazard Likelihood (L) prior to mitigation measures is interpreted from Total Hazard Rating as follows: 0-19: L=1 (Negligible); 20-39: L = 2 (Low); 40-59 L = 3 (Possible); 60-79: L = 4 (Very Possible); 80-100: L = 5 (Likely without appropriate mitigation measures). H/S = Hardstanding at turbine locations *Assumed, no information available, therefore, data conservatively assumed based on general on site experience		Total Hazard Rating	70
		Hazard Likelihood (L)	4

	Meenbog Wind Farm Peat Stability Assessment Worksheet (Hazard Likelihood) Floating Road to T07		
Factor	Characteristic properties:	Hazard Rating	
Peat/Subsoil Conditions	• Peat depth: Generally 1.0-3.4m, locally 2.5-4.7m west of H/S • C_u (Geonor H-10) in Peat: 4.5-13kPa • Water Content: 1000-1500% • Max degree of humification: H3-H9 • Stability of peat in trial pits: Partial collapse at 1.5m • Soft Clay layer at base of peat?: No • Subsoil conditions: Glacial Till	H	15
Topography	• Slope angles: Generally 2-3° • General slope characteristics: On gently sloping ground, convex slope to east of road. • In broad flat or buried valley directly upslope from a watercourse?: No	H	15
Factors of Safety (Infinite Slope) [assuming turbine constructed on flat slope at crest of ridge]	No surcharge: • *c_u = 4.5-13kPa: Generally > 1.0 Floating Road Surcharge (23kPa): • *c_u = 4.5-13kPa: Generally > 1.0 <i>*Undrained shear strength at base of Peat</i>	M	10
Hydrology/ Hydrogeology	• Surface Water: Potentially ponded water in localised areas to west of road • Drainage: Water course to east; Forestry Furrows running east • Seepage in trial pits: Not known • Evidence of piping/subsurface flow: No	M	10
Significant Contributory Factors	• Slide History: Adjacent to slide • Tension Cracks: No. • Piping: No • Vegetation: Forestry north, south & east; large unplanted area to west • Peat Harvesting: No	VH	20
Notes: 1. Max hazard rating for each factor = 20 and ratings are assigned on the basis of interpreted significance, as follows: Negligible = 0, Low = 5, Medium = 10, High = 15, Very High = 20. 2. Hazard Likelihood (L) prior to mitigation measures is interpreted from Total Hazard Rating as follows: 0-19: L=1 (Negligible); 20-39: L = 2 (Low); 40-59 L = 3 (Possible); 60-79: L = 4 (Very Possible); 80-100: L = 5 (Likely without appropriate mitigation measures). H/S = Hardstanding at turbine locations *Assumed, no information available, therefore, data conservatively assumed based on general on site experience		Total Hazard Rating	70
		Hazard Likelihood (L)	4

	Meenbog Wind Farm Peat Stability Assessment Worksheet (Hazard Likelihood) Upgraded Floating Road to T18		
Factor	Characteristic properties:	Hazard Rating	
Peat/Subsoil Conditions	• Peat depth: Generally 0.5-2.6m • C_u (Geonor H-10) in Peat: 4-21Pa • Water Content: 1000-1500%* • Max degree of humification: H3-H4 • Stability of peat in trial pits: Stable • Soft Clay layer at base of peat?: No • Subsoil conditions: Glacial Till	M	10
Topography	• Slope angles: Generally 2-5° • General slope characteristics: On gently sloping ground, ground slopes to southeast. Sidelong ground along the majority of the road. • In broad flat or buried valley directly upslope from a watercourse?: Yes	H	15
Factors of Safety (Infinite Slope) [assuming turbine constructed on flat slope at crest of ridge]	No surcharge: • *c_u = 4-21kPa: > 1.0 Surcharge (10kPa): • *c_u = 4-21kPa: > 1.0 <i>*Undrained shear strength at base of Peat</i>	M	10
Hydrology/ Hydrogeology	• Surface Water: Flowing in drains • Drainage: Water course southeast of road; Forestry Furrows running east • Seepage in trial pits: Not known • Evidence of piping/subsurface flow: No	H	15
Significant Contributory Factors	• Slide History: On site • Tension Cracks: No. • Piping: No • Vegetation: Forestry surrounding area • Peat Harvesting: No	H	15
Notes: 1. Max hazard rating for each factor = 20 and ratings are assigned on the basis of interpreted significance, as follows: Negligible = 0, Low = 5, Medium = 10, High = 15, Very High = 20. 2. Hazard Likelihood (L) prior to mitigation measures is interpreted from Total Hazard Rating as follows: 0-19: L=1 (Negligible); 20-39: L = 2 (Low); 40-59 L = 3 (Possible); 60-79: L = 4 (Very Possible); 80-100: L = 5 (Likely without appropriate mitigation measures). H/S = Hardstanding at turbine locations *Assumed, no information available, therefore, data conservatively assumed based on general on site experience		Total Hazard Rating	65
		Hazard Likelihood (L)	3

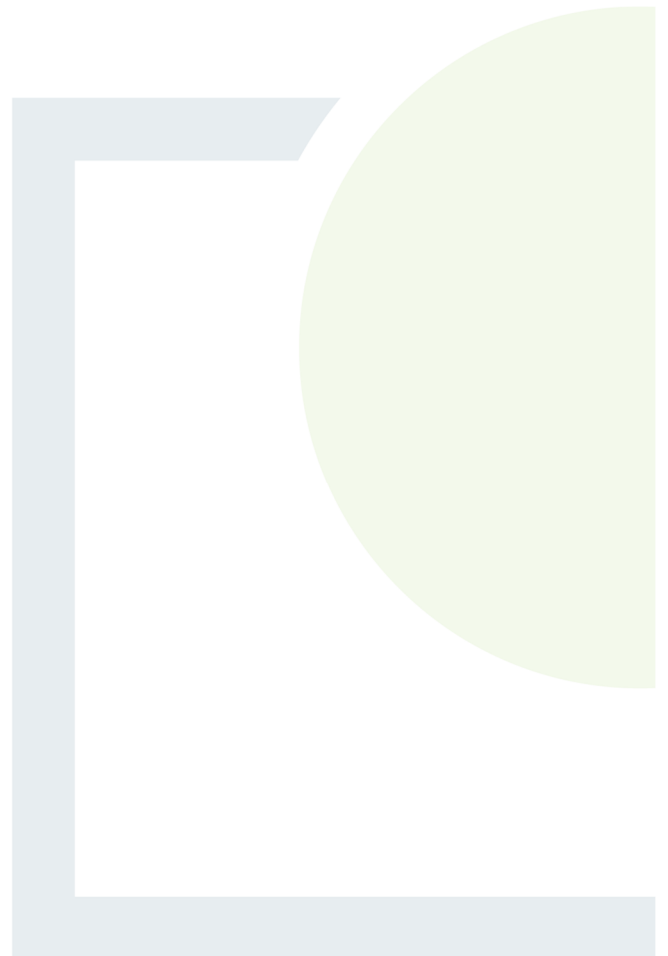
	Meenbog Wind Farm Peat Stability Assessment Worksheet (Hazard Likelihood) Floating Road to Biodiversity Enhancement Site		
Factor	Characteristic properties:	Hazard Rating	
Peat/Subsoil Conditions	• Peat depth: 0.5-2.0m • C_u (Geonor H-10) in Peat: 9-21kPa • Water Content: 1000-1500%* • Max degree of humification: H3-H9* • Stability of peat in trial pits: N/A • Soft Clay layer at base of peat?: No • Subsoil conditions: Glacial Till	M	10
Topography	• Slope angles: Generally 2-3° • General slope characteristics: On gently sloping ground, planat/concave slope to west of road. • In broad flat or buried valley directly upslope from a watercourse?: No	M	10
Factors of Safety (Infinite Slope) [assuming turbine constructed on flat slope at crest of ridge]	No surcharge: • $*c_u = 8\text{kPa}$: > 1.5 Floating Road Surcharge (16kPa): • $*c_u = 8\text{kPa}$: > 1.5 <i>*Undrained shear strength at base of Peat</i>	L	5
Hydrology/ Hydrogeology	• Surface Water: Potentially ponded water in localised areas to west of road • Drainage: Water course to west; Forestry Furrows running east–west • Seepage in trial pits: Not known • Evidence of piping/subsurface flow: No	M	10
Significant Contributory Factors	• Slide History: General Area • Tension Cracks: No. • Piping: No • Vegetation: Forestry east, west and, south: unplanted area to north • Peat Harvesting: No	L	5
Notes: 1. Max hazard rating for each factor = 20 and ratings are assigned on the basis of interpreted significance, as follows: Negligible = 0, Low = 5, Medium = 10, High = 15, Very High = 20. 2. Hazard Likelihood (L) prior to mitigation measures is interpreted from Total Hazard Rating as follows: 0-19: L=1 (Negligible); 20-39: L = 2 (Low); 40-59 L = 3 (Possible); 60-79: L = 4 (Very Possible); 80-100: L = 5 (Likely without appropriate mitigation measures). H/S = Hardstanding at turbine locations *Assumed, no information available, therefore, data conservatively assumed based on general on site experience		Total Hazard Rating	40
		Hazard Likelihood (L)	2



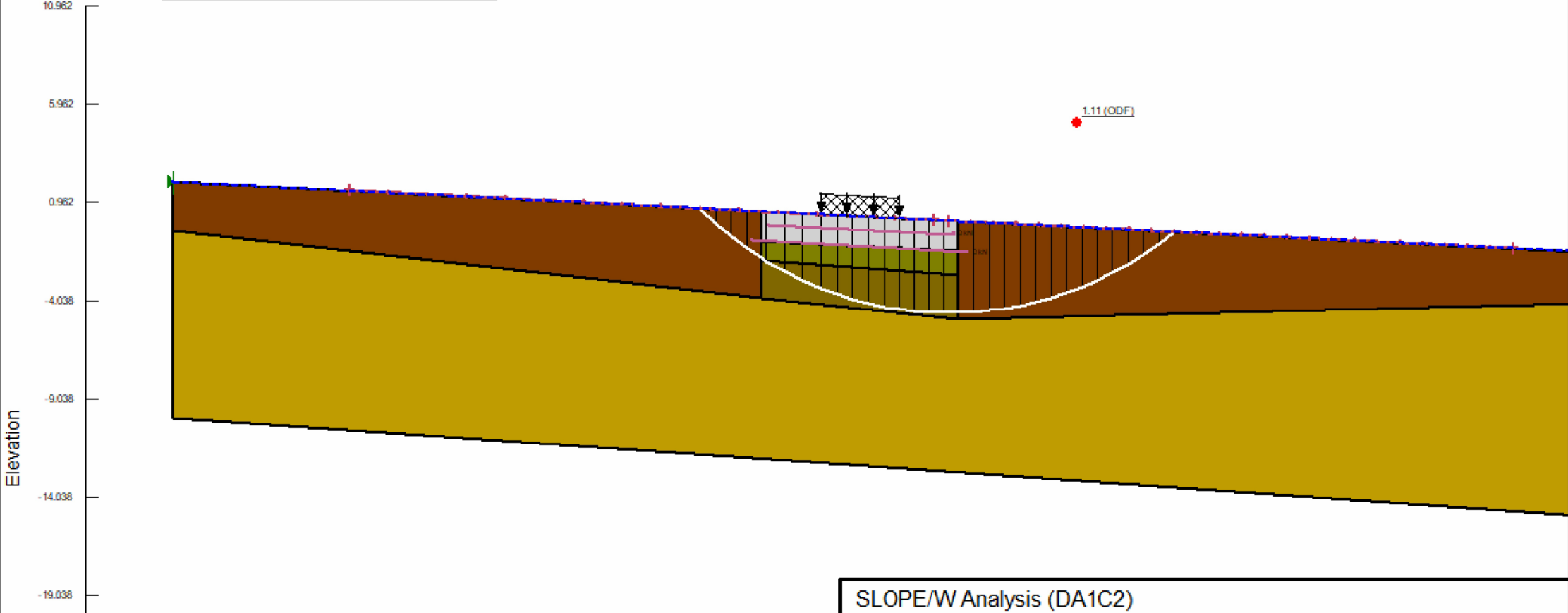
DESIGNING AND DELIVERING
A SUSTAINABLE FUTURE

APPENDIX E

SlopeW Stability Outputs

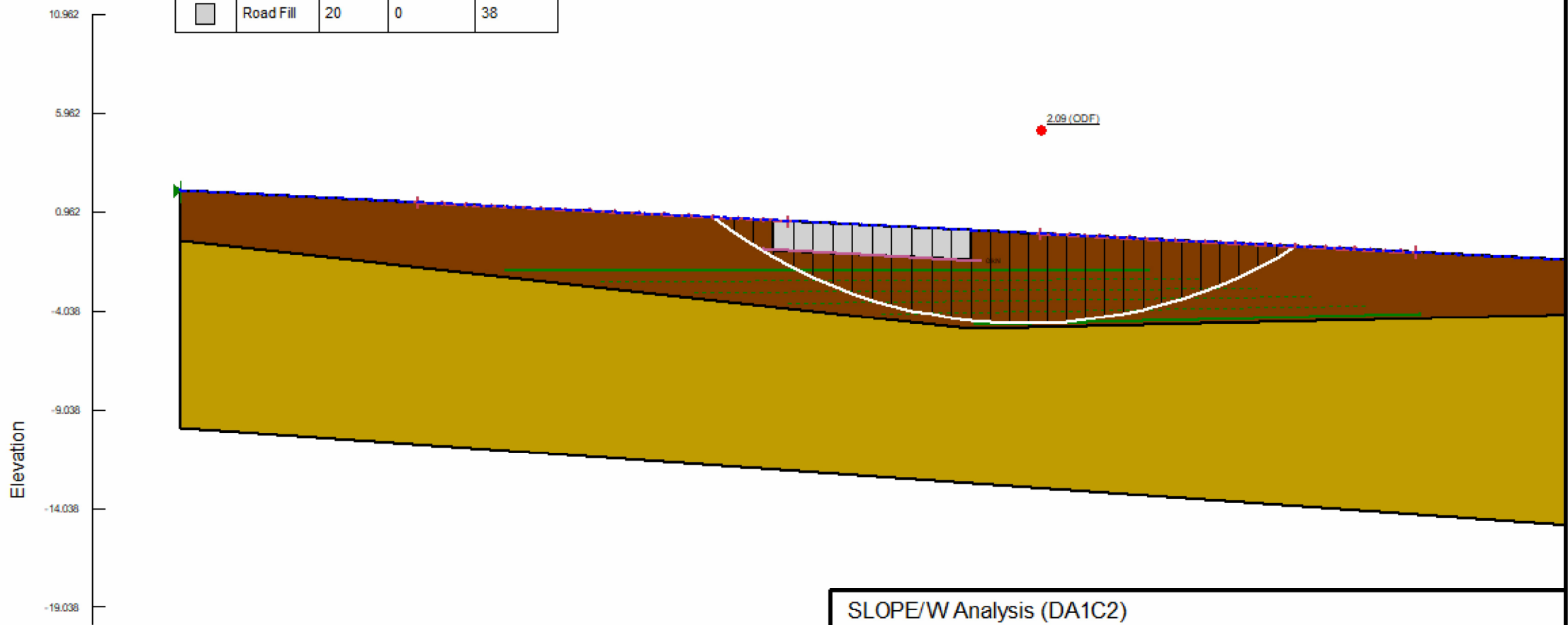


Color	Name	Unit Weight (kN/m³)	Effective Cohesion (kPa)	Effective Friction Angle (°)	Undrained Shear Strength (kPa)
	Cohesive Gravel	20			40
	Peat	10.5			4
	Peat (below road lower)	10.5			8.5
	Peat (below road upper)	10.5			6.5
	Road Fill	20	0	38	



SLOPE/W Analysis (DA1C2)
T01_T04 Junction floating road (UD).gsz
08/04/2026
1:300

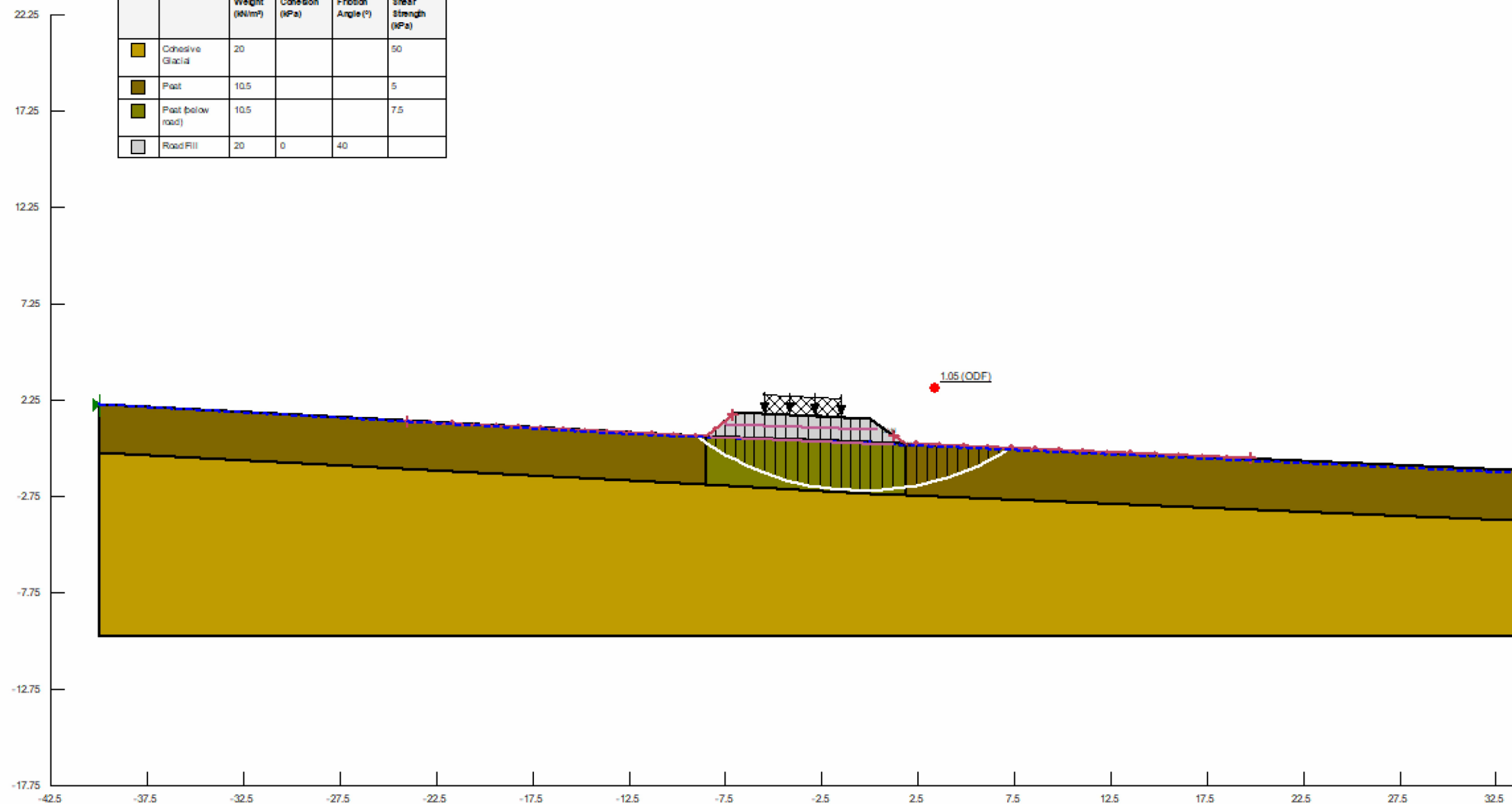
Color	Name	Unit Weight (kN/m³)	Effective Cohesion (kPa)	Effective Friction Angle (°)
	Cohesive Glacial	20	0	30
	Peat	10.5	4	25
	Road Fill	20	0	38



SLOPE/W Analysis (DA1C2)	
T01_T04 Junction floating road (dr).gsz	
16/04/2026	1:300

Color	Name	Unit Weight (kN/m³)	Effective Cohesion (kPa)	Effective Friction Angle (°)	Undrained Shear Strength (kPa)
	Cohesive Glacial	20			50
	Peat	10.5			5
	Peat (below road)	10.5			7.5
	Road Fill	20	0	40	

Elevation



Distance

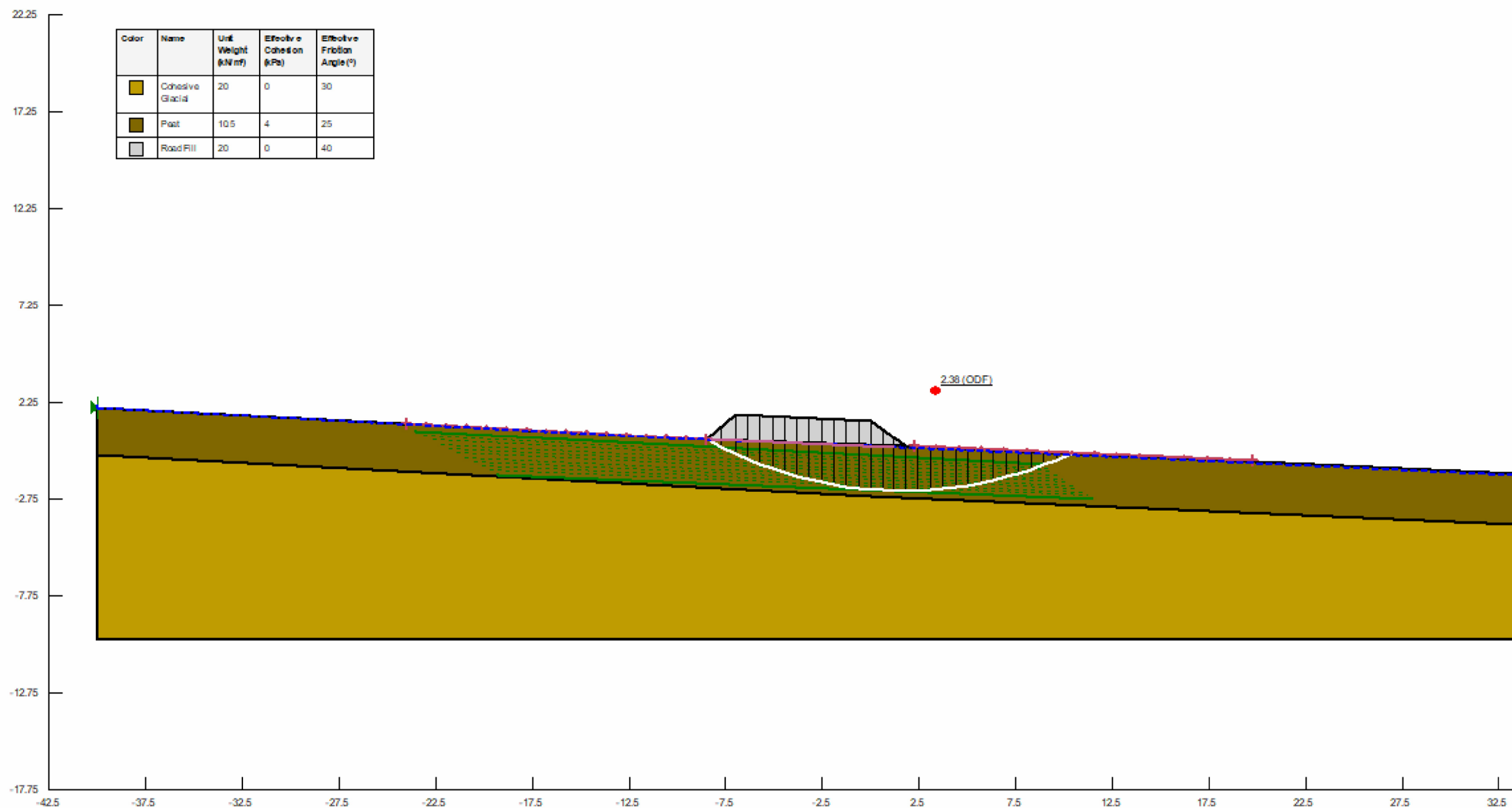
SLOPE/W Analysis (DA1C2)

floating road to T01 (UD).gsz

28/04/2026

1:300

Elevation



Distance

SLOPE/W Analysis (DA1C2)

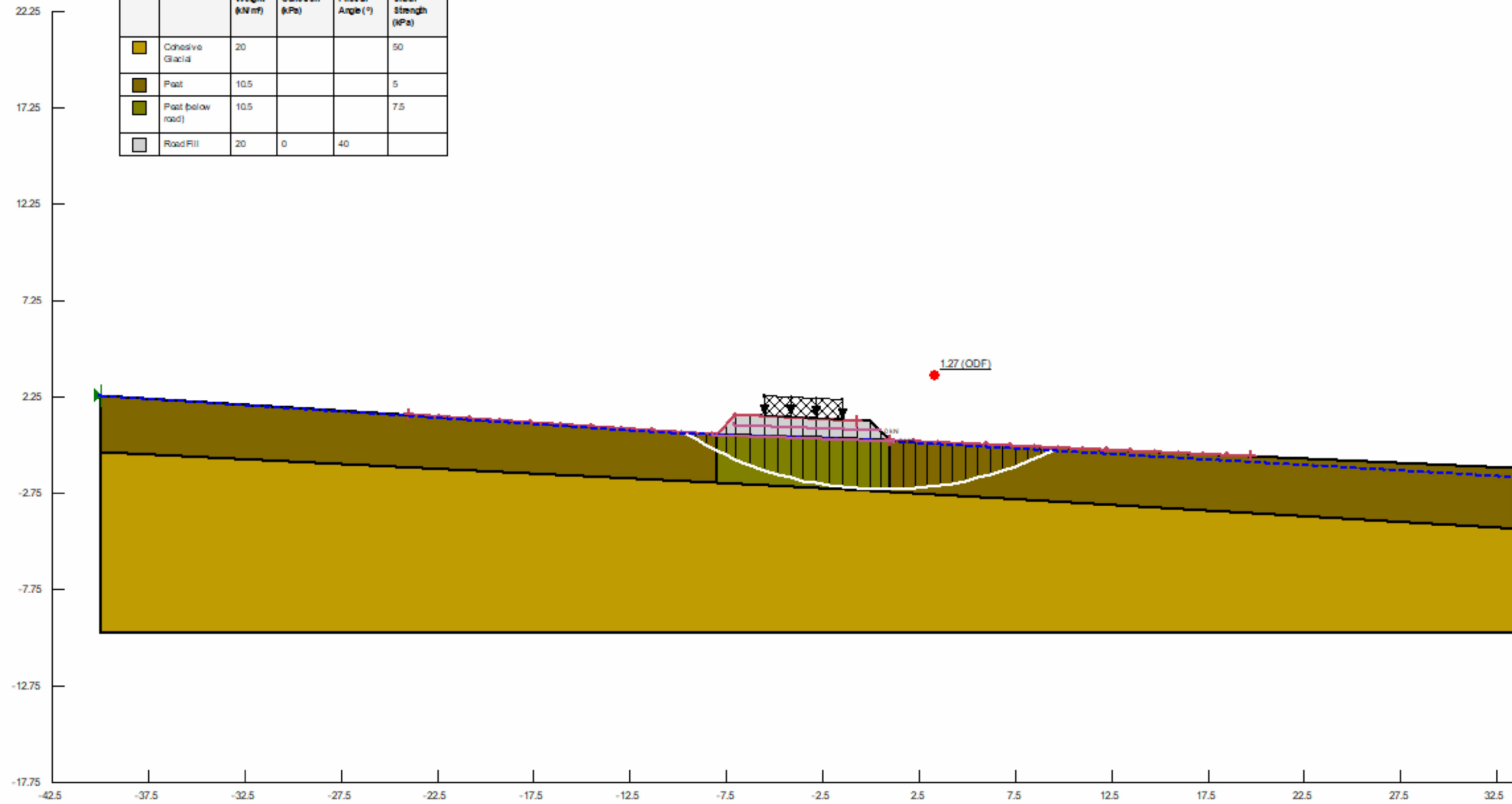
floating road T01 (DR).gsz

16/04/2026

1:300

Color	Name	Unit Weight (kN/m³)	Effective Cohesion (kPa)	Effective Friction Angle (°)	Undrained Shear Strength (kPa)
	Cohesive Glacial	20			50
	Peat	10.5			5
	Peat (below road)	10.5			7.5
	Road Fill	20	0	40	

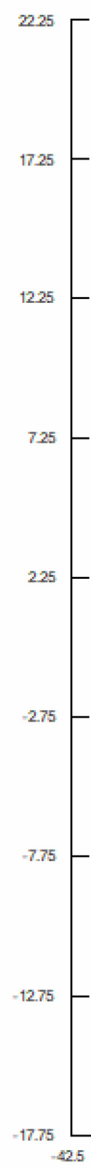
Elevation



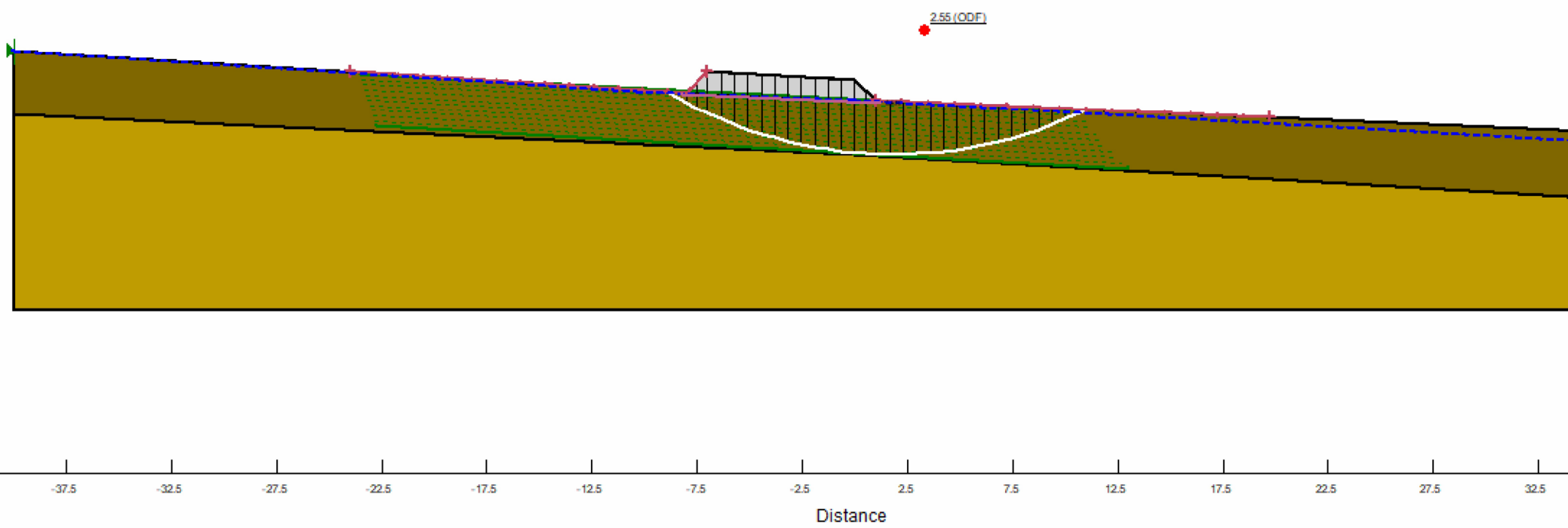
Distance

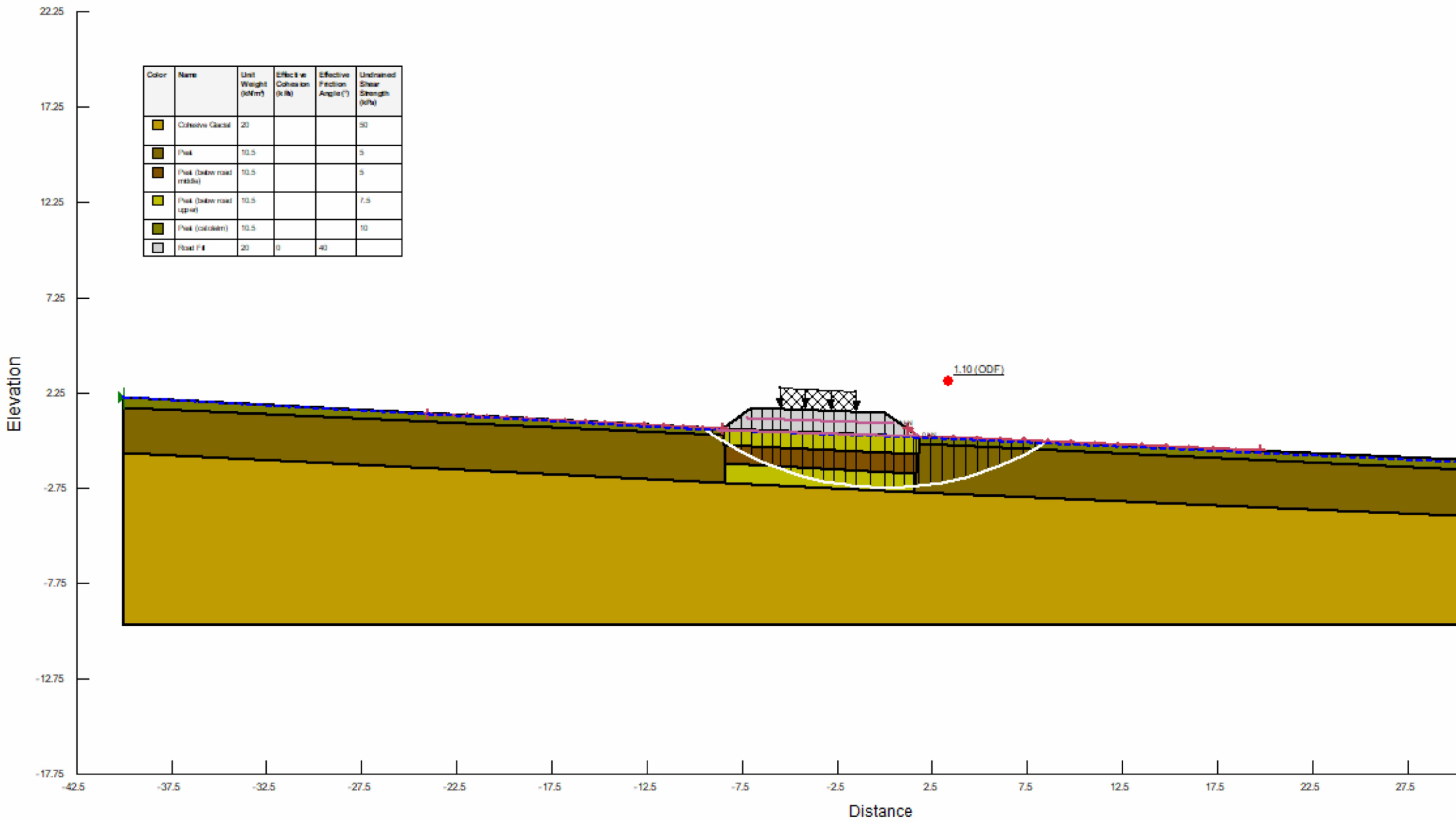
SLOPE/W Analysis (DA1C2)
floating road T02 (ud).gsz
28/04/2026
1:300

Elevation

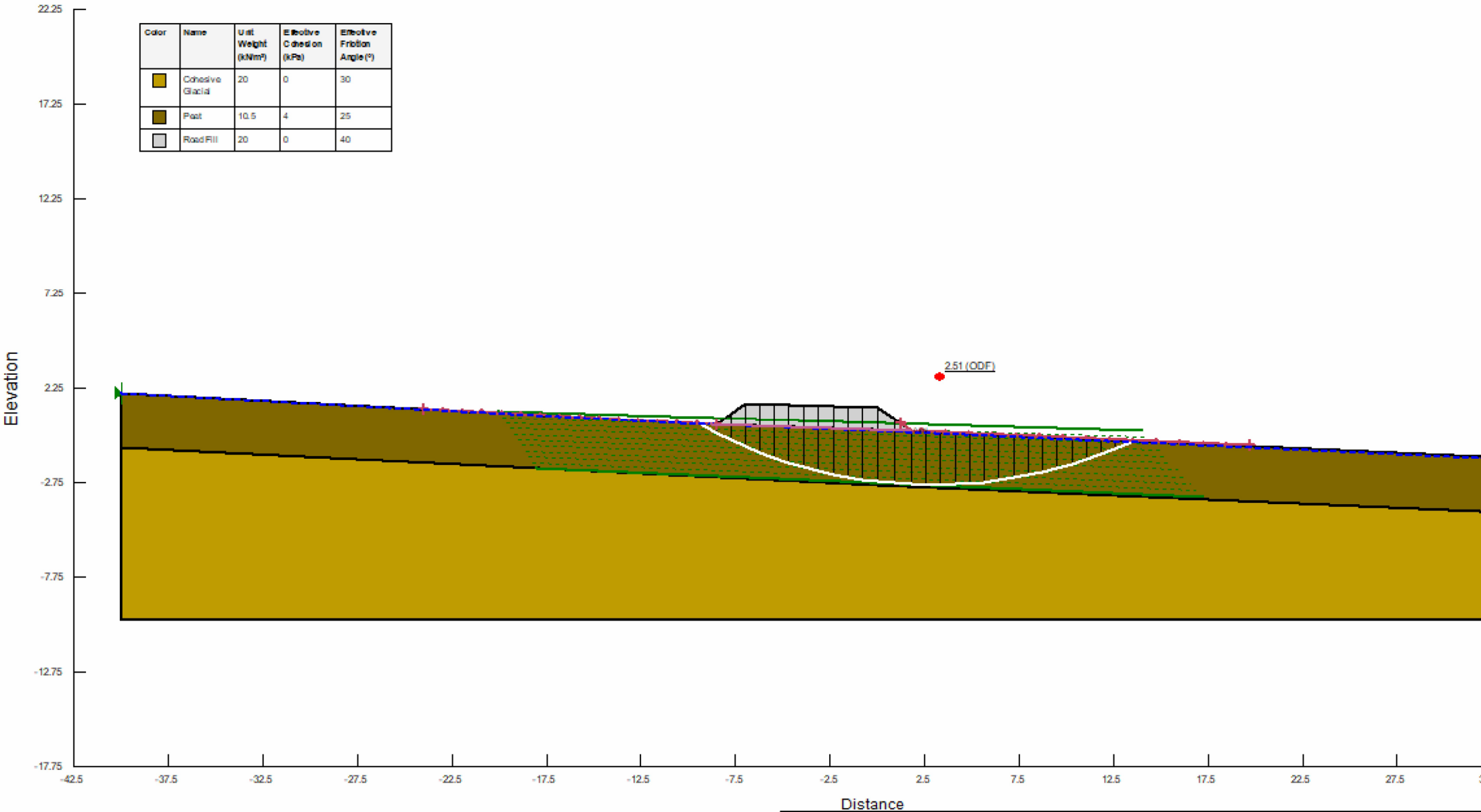


Color	Name	Unit Weight (kN/m³)	Effective Cohesion (kPa)	Effective Friction Angle (°)
	Cohesive Gravel	20	0	30
	Peat	10.5	4	25
	Road Fill	20	0	40



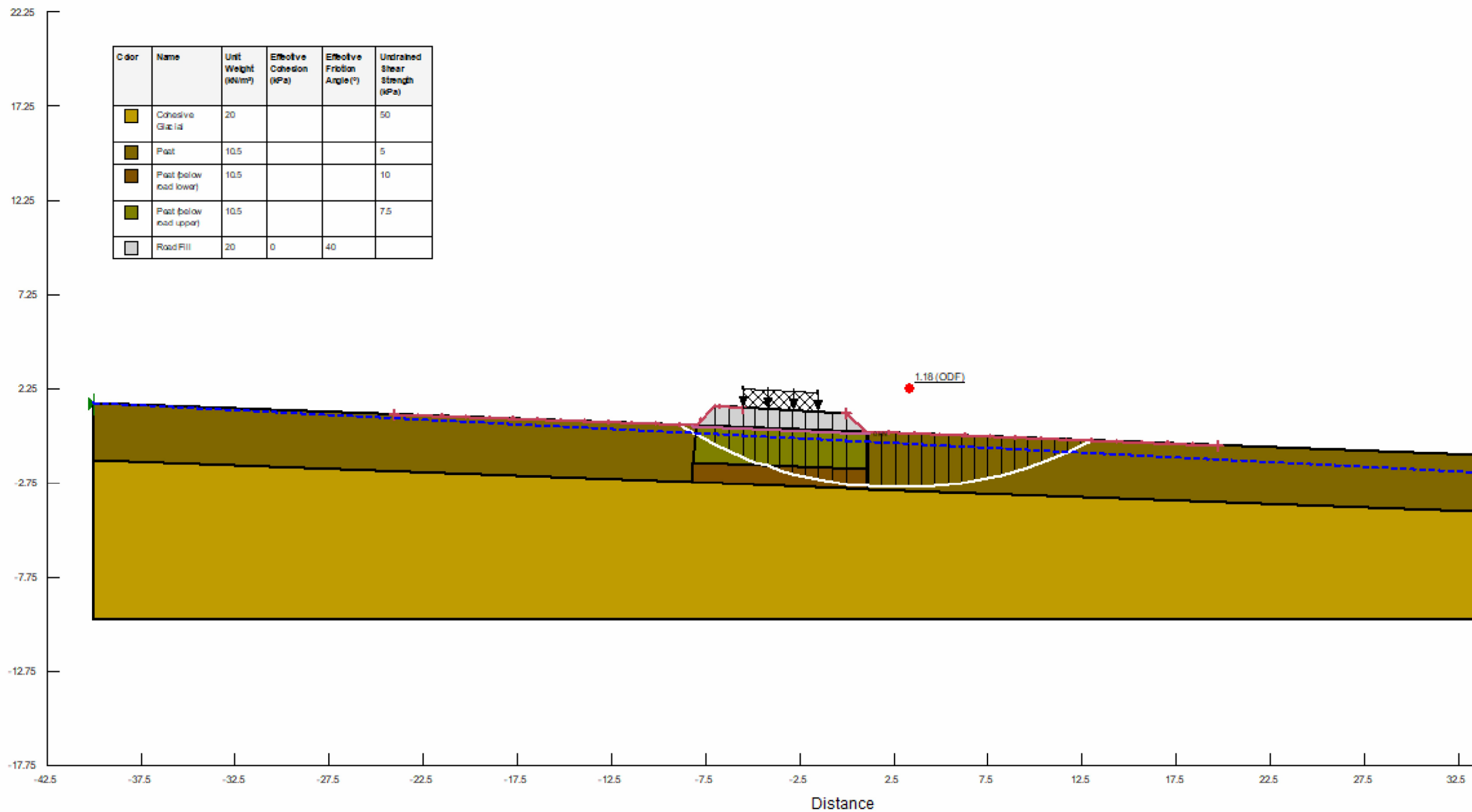


Color	Name	Unit Weight (kN/m³)	Effective Cohesion (kPa)	Effective Friction Angle (°)
	Cohesive Gravel	20	0	30
	Peat	10.5	4	25
	Road Fill	20	0	40



SLOPE/W Analysis (DA1C2)
floating road to T03 (DR).gsz
16/04/2026
1:300

Elevation



SLOPE/W Analysis (DA1C2)

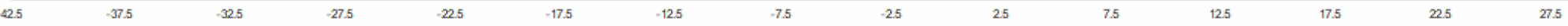
floating road T04 (ud).gsz

28/04/2026

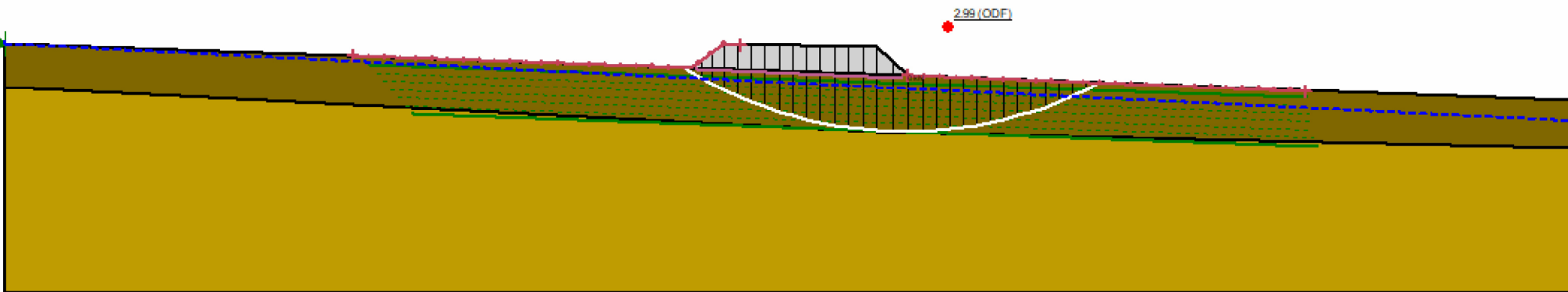
1:300

Color	Name	Unit Weight (kN/m³)	Effective Cohesion (kPa)	Effective Friction Angle (°)
	Cohesive Gravel	20	0	30
	Peat	10.5	4	25
	Road Fill	20	0	40

Elevation



Distance

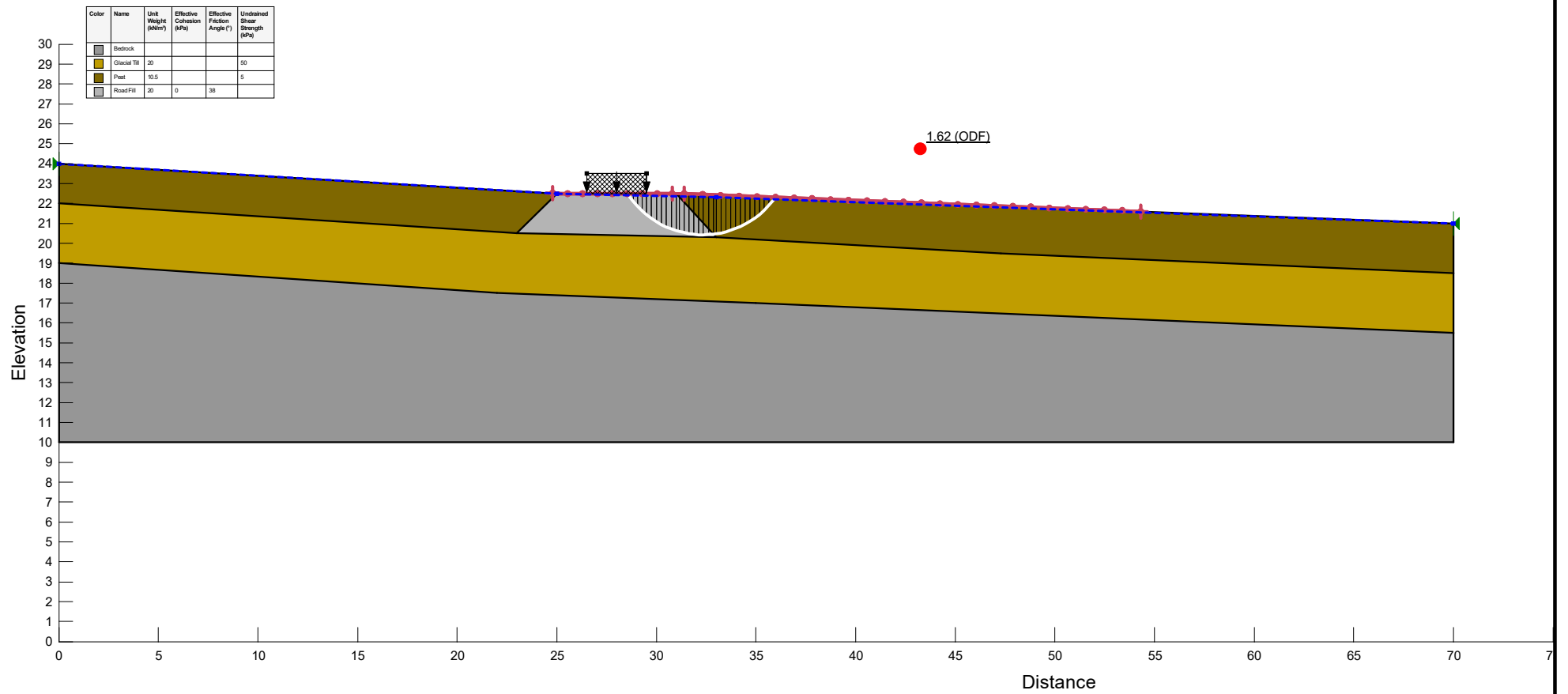


SLOPE/W Analysis (DA1C2)

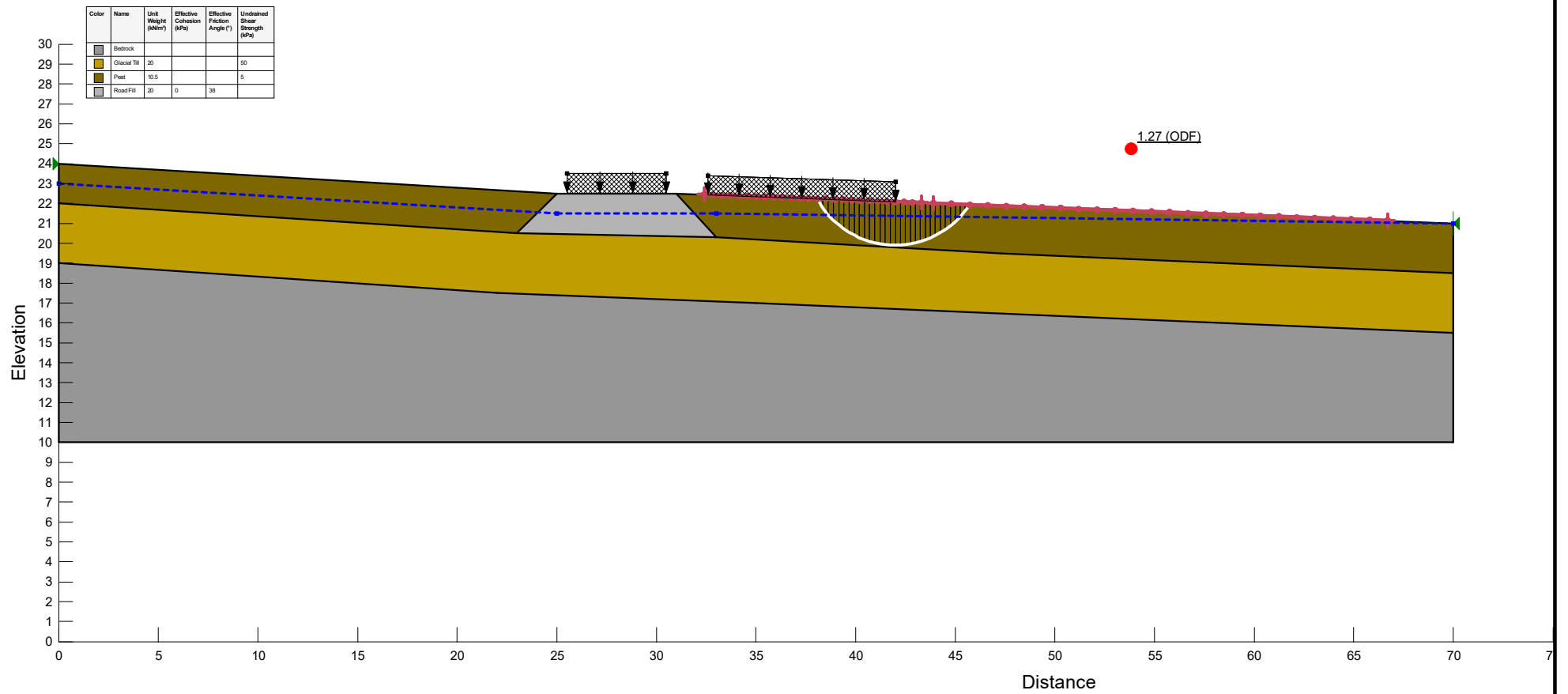
floating road T04 (dr).gsz

16/04/2026

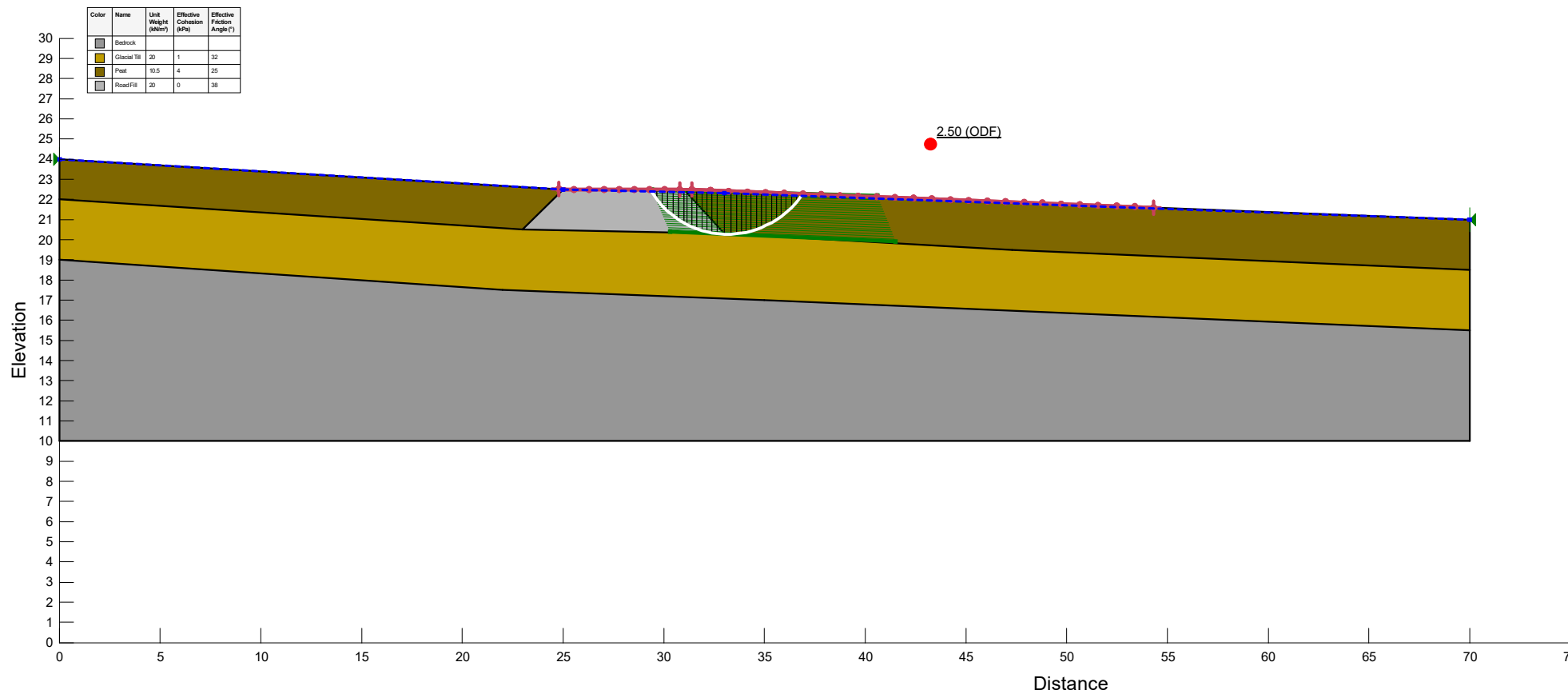
1:300



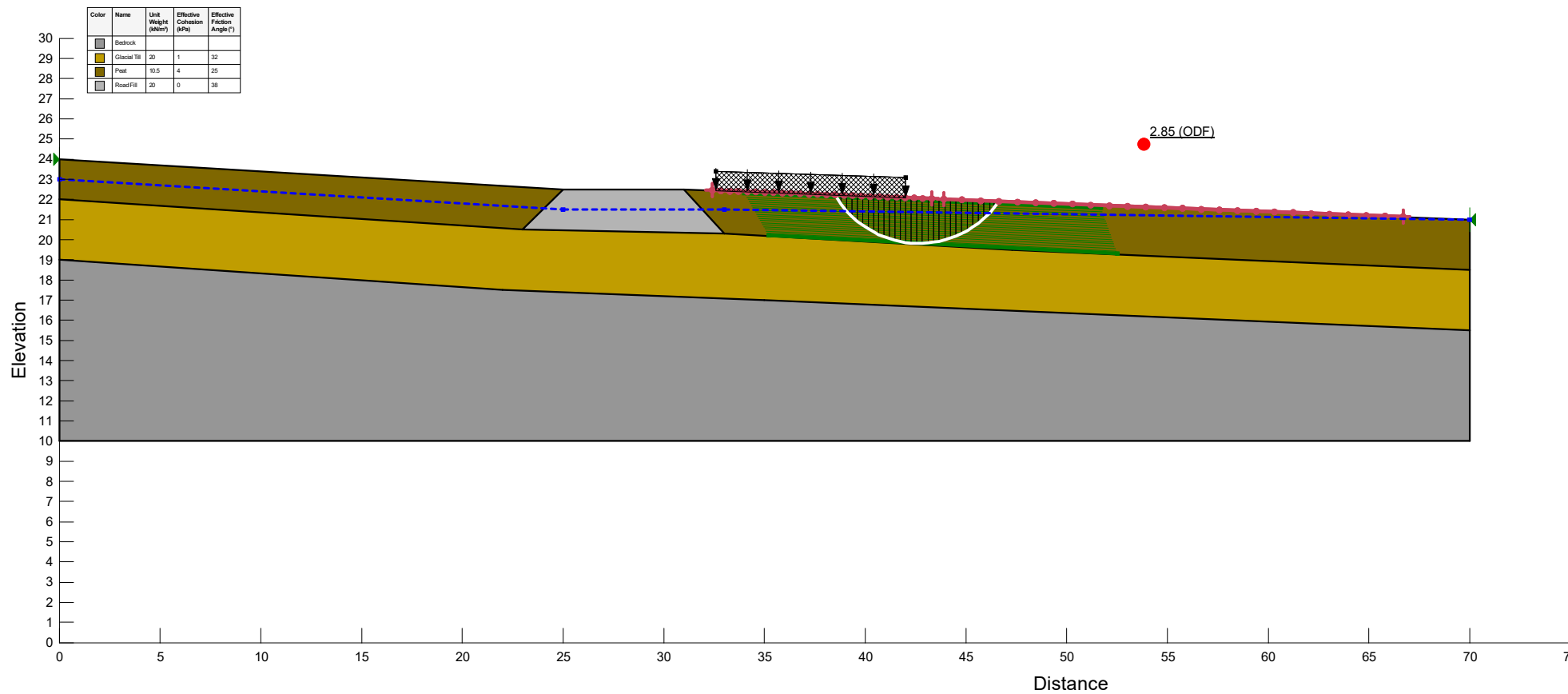
DA1C2 (road)
Meenbog T18 road UD.gsz
08/04/2026
1:300



DA1C2 (peat)
Meenbog T18 peat UD.gsz
08/04/2026
1:300

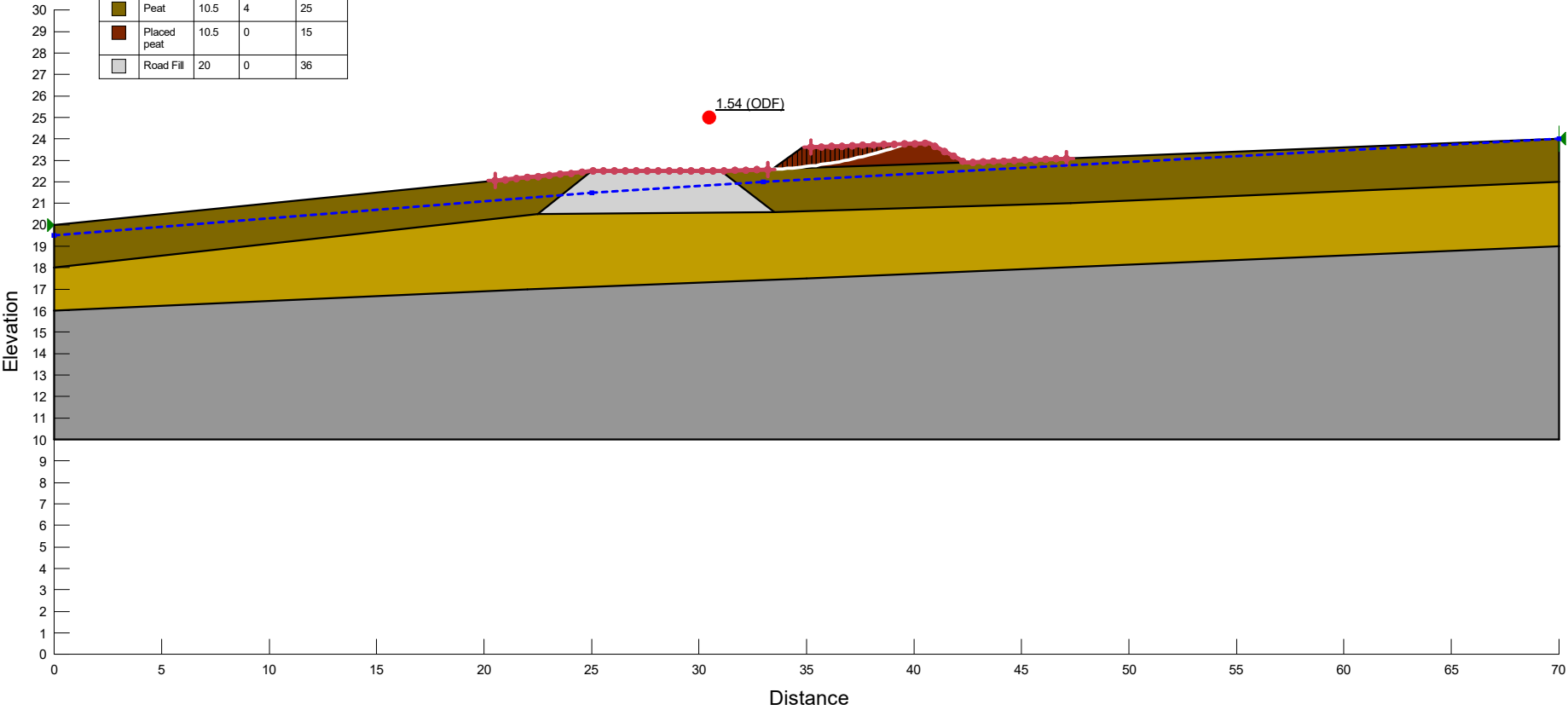


DA1C2 (road)
Meenbog T18 road DR.gsz
20/04/2026
1:300

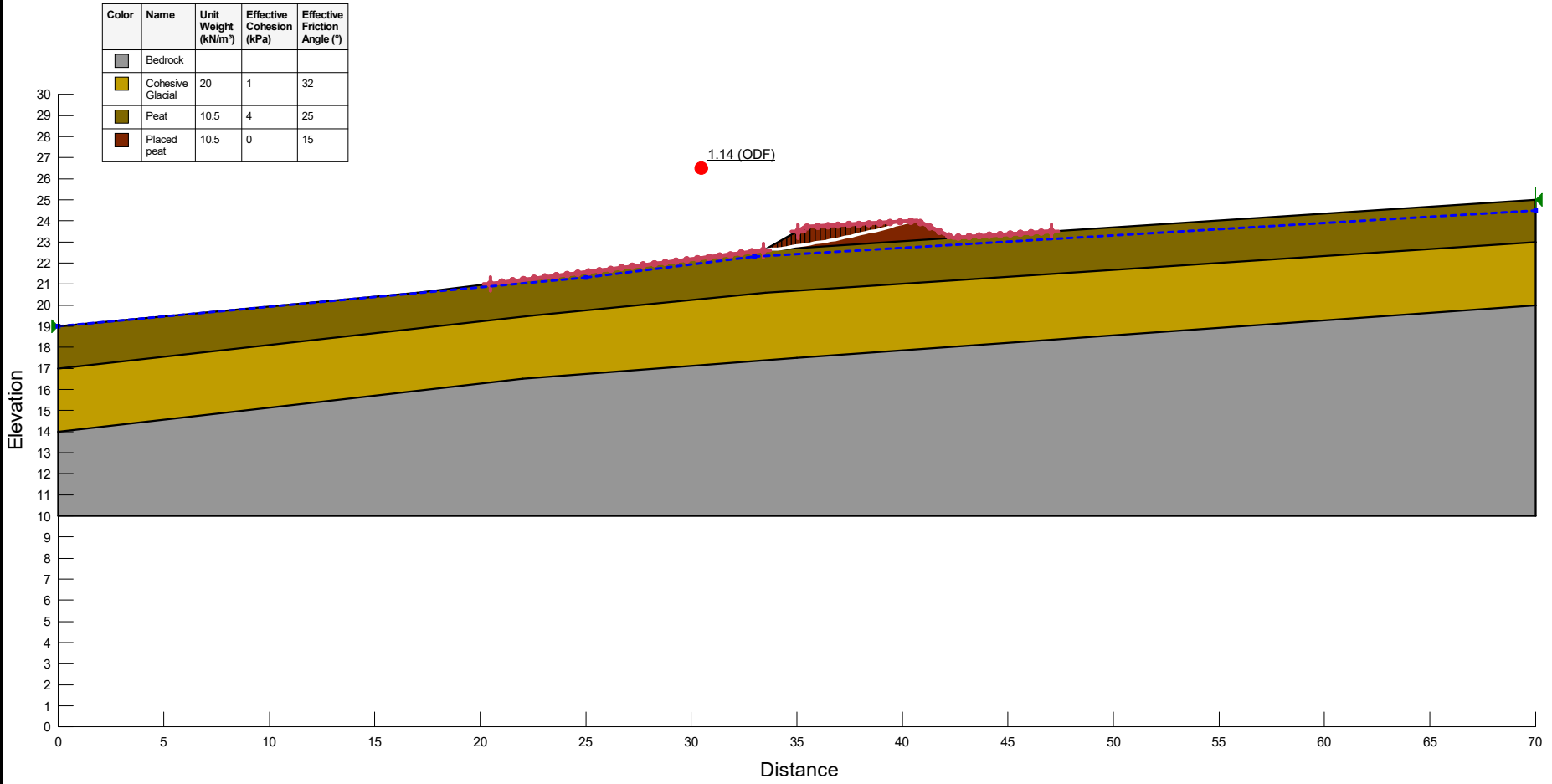


DA1C2 (peat)
Meenbog T18 peat DR.gsz
20/04/2026
1:300

Color	Name	Unit Weight (kN/m³)	Effective Cohesion (kPa)	Effective Friction Angle (°)
	Bedrock			
	Cohesive Glacial	20	1	32
	Peat	10.5	4	25
	Placed peat	10.5	0	15
	Road Fill	20	0	36

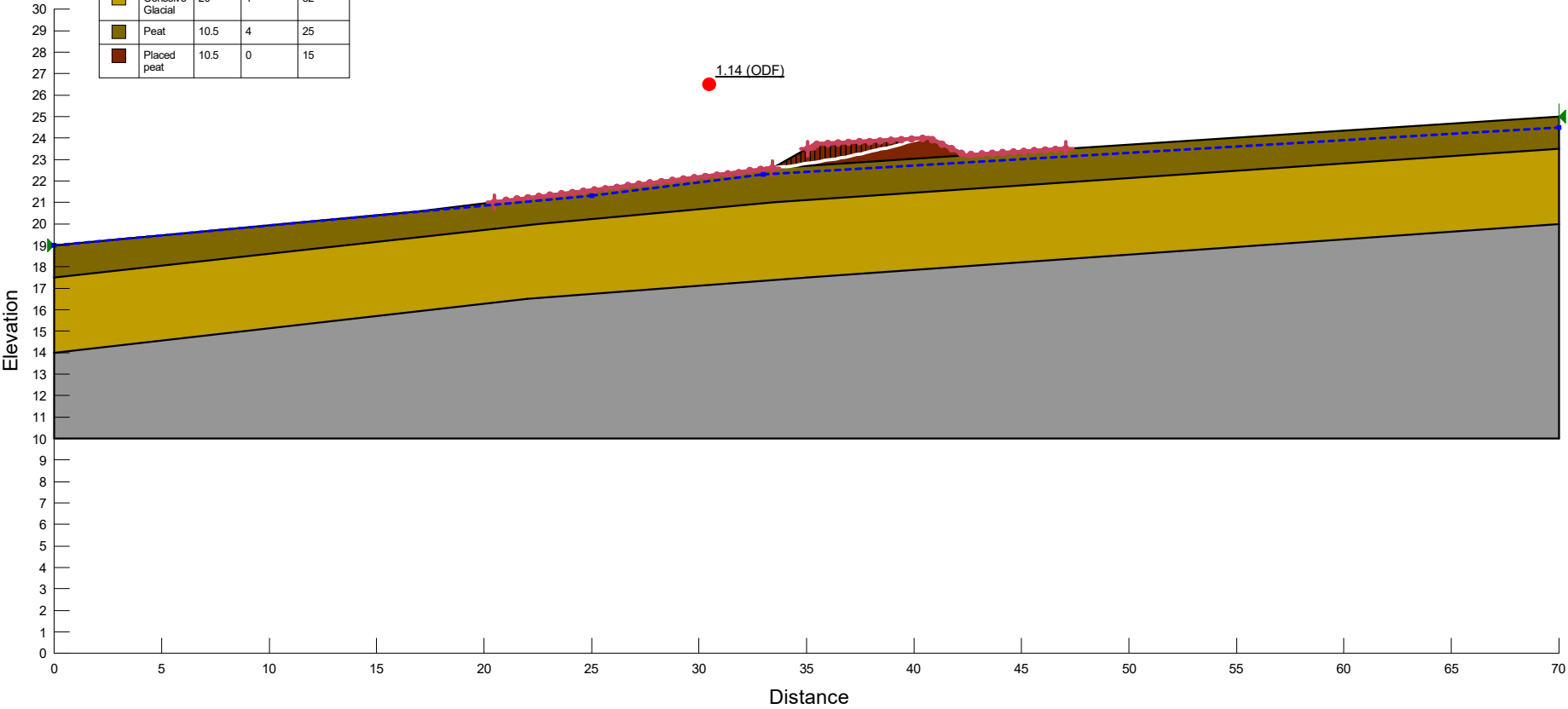


DA1C2 (peat)
sidecasting main spine road (DR).gsz
30/03/2026
1:300



DA1C2 (peat)
sidecasting T06 (DR).gsz
30/03/2026
1:300

Color	Name	Unit Weight (kN/m³)	Effective Cohesion (kPa)	Effective Friction Angle (°)
	Bedrock			
	Cohesive Glacial	20	1	32
	Peat	10.5	4	25
	Placed peat	10.5	0	15



DA1C2 (peat)

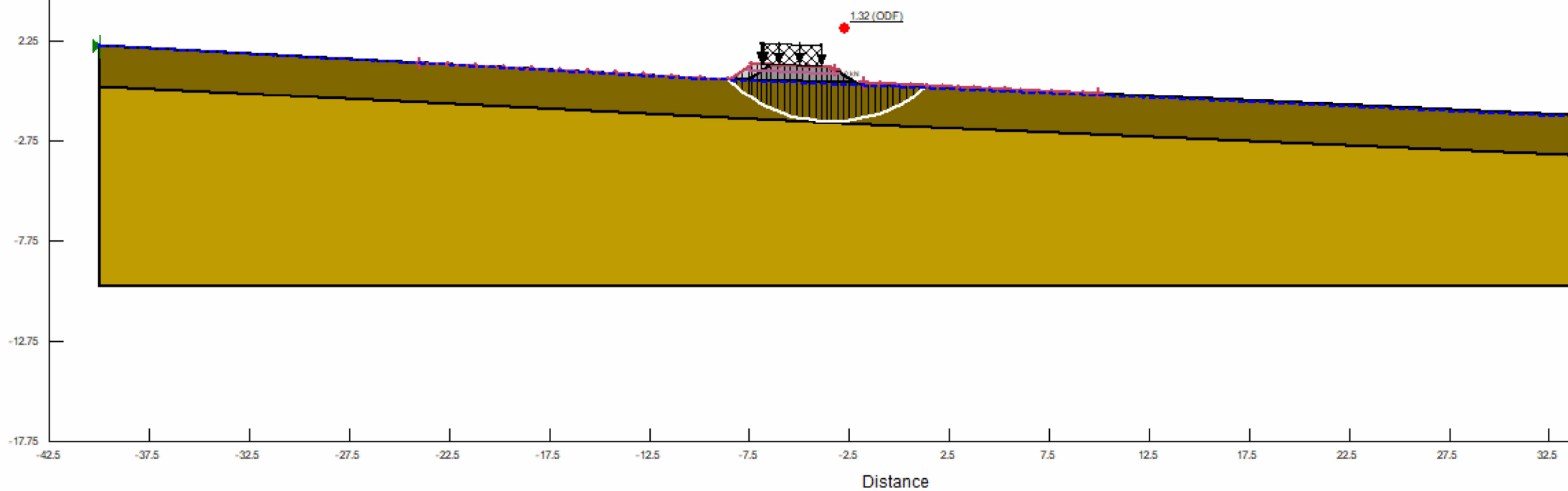
sidecasting T17 (DR).gsz

30/03/2026

1:300

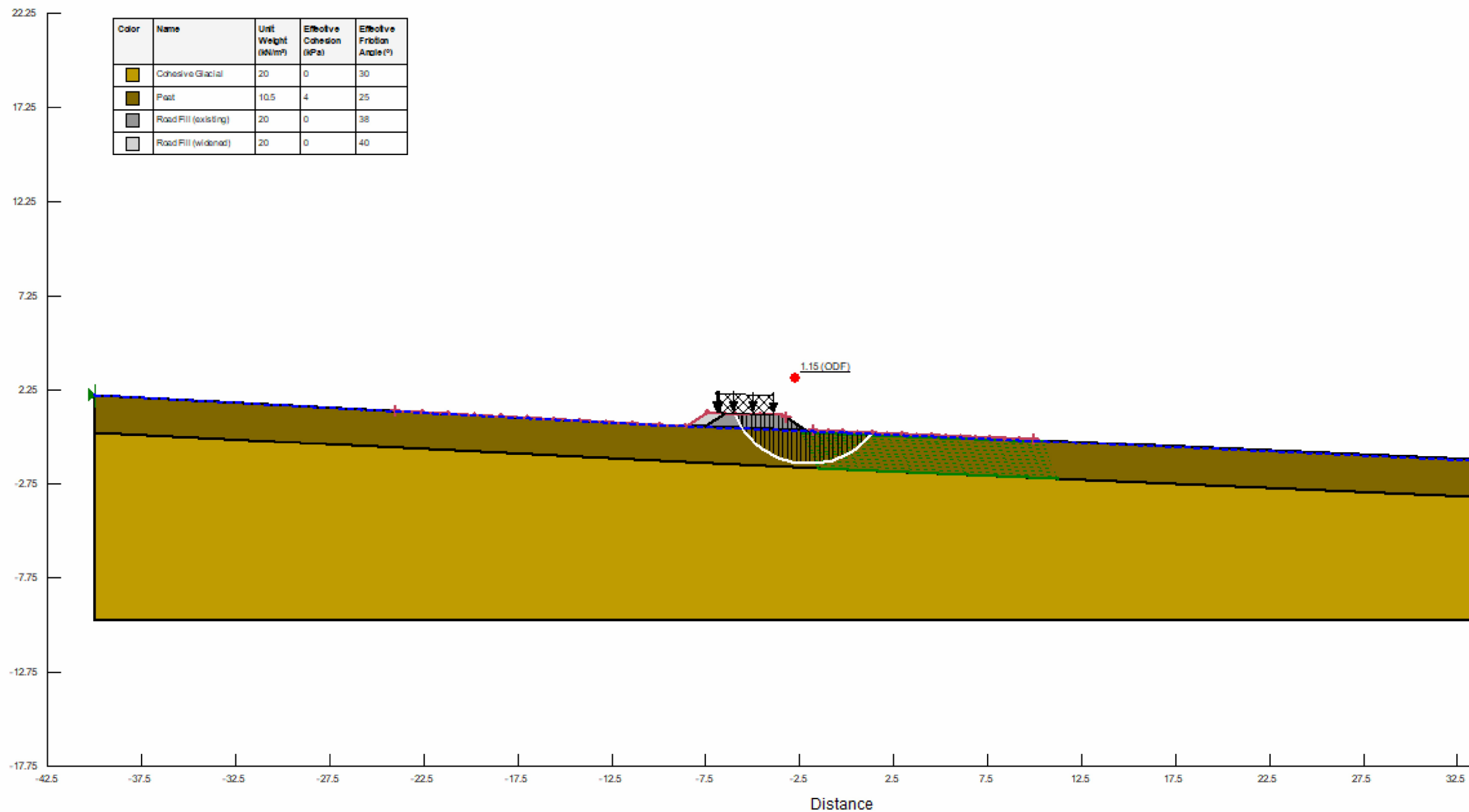
Elevation

Color	Name	Unit Weight (kN/m³)	Effective Cohesion (kPa)	Effective Friction Angle (°)	Undrained Shear Strength (kPa)
	Cohesive Glacial	20			50
	Peat	10.5			8
	Road Fill (existing)	20	0	38	
	Road Fill (widened)	20	0	40	

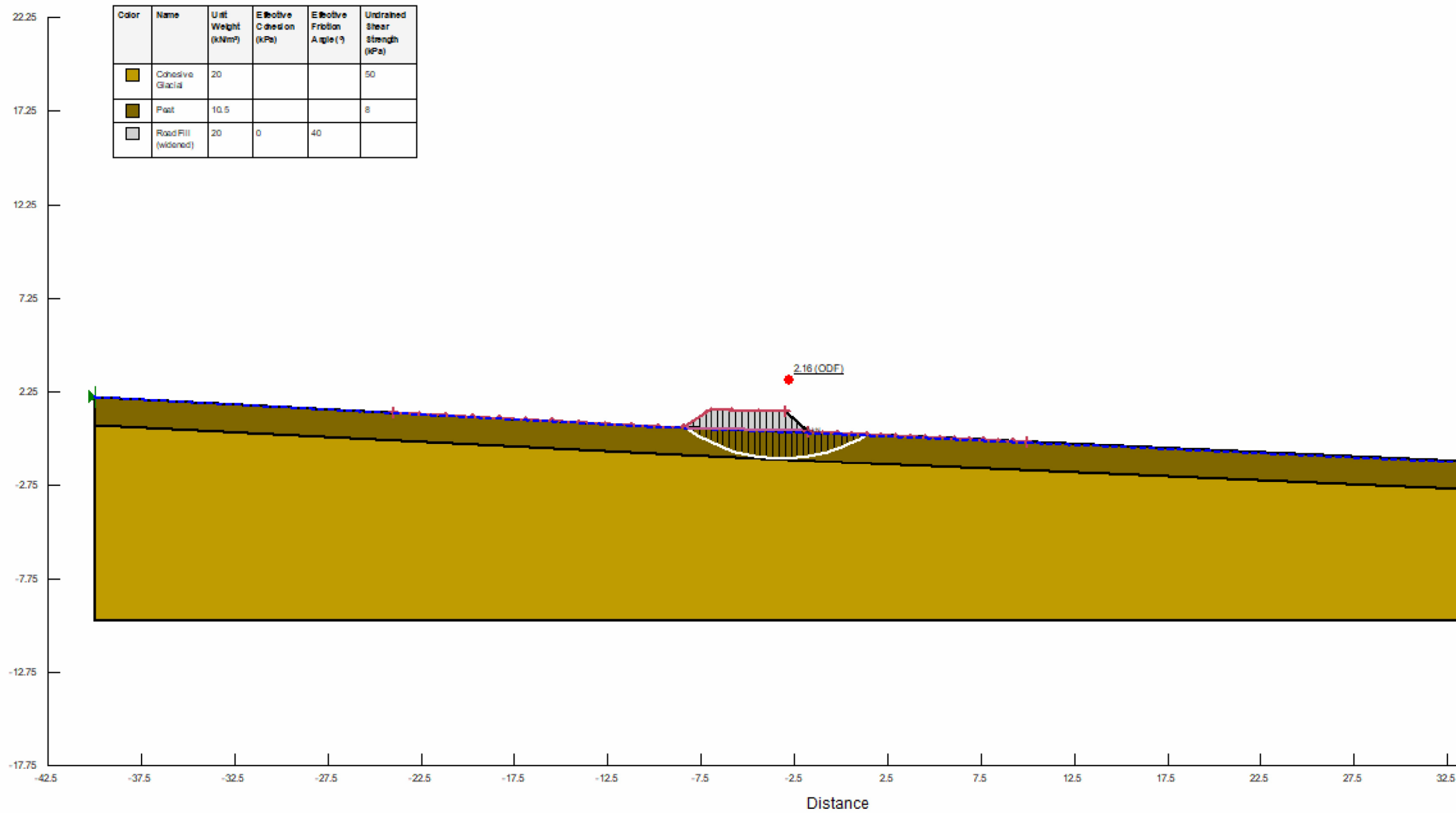


SLOPE/W Analysis (DA1C2)	
BES upgrade floating track (UD).gsz	
19/05/2026	1:300

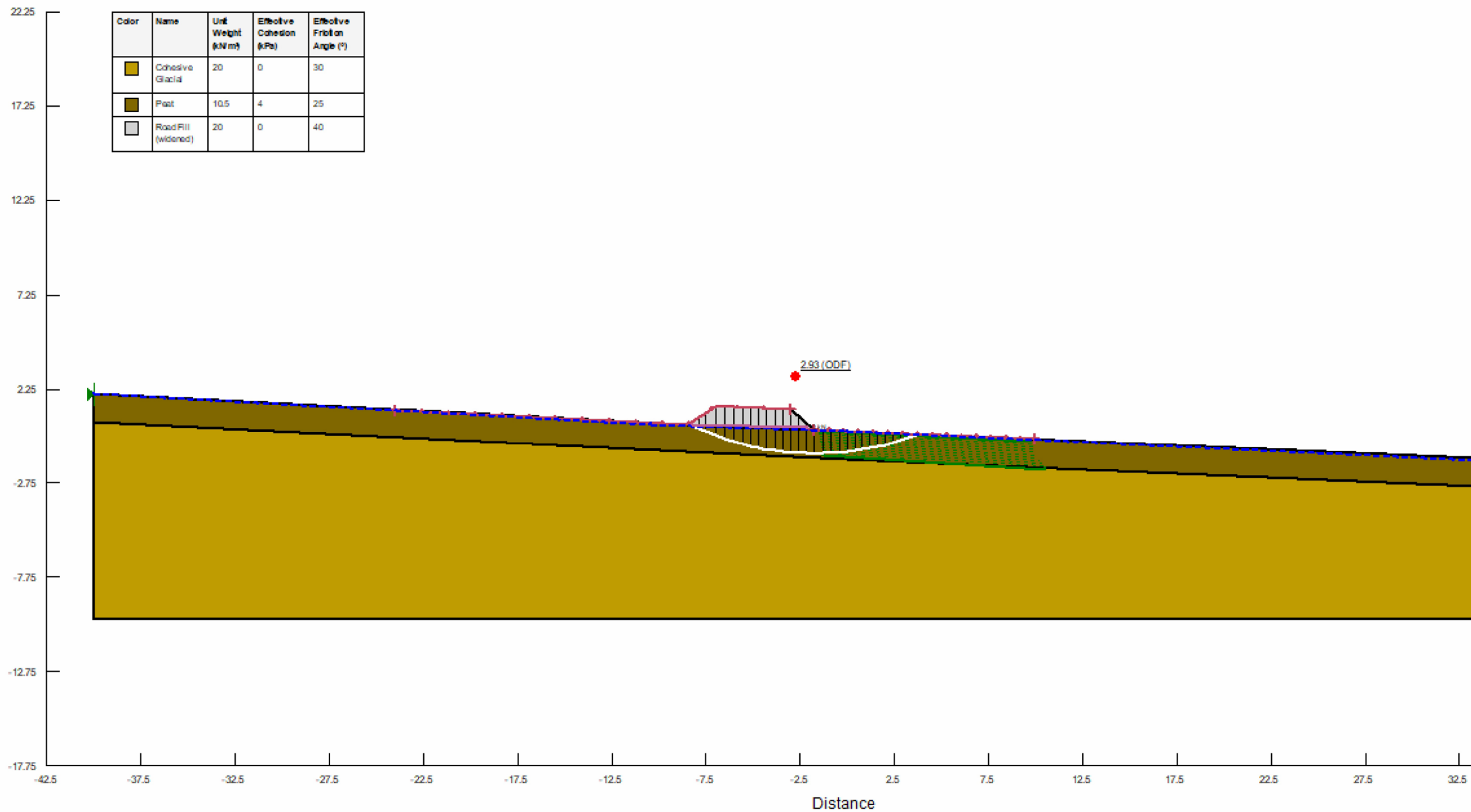
Elevation



SLOPE/W Analysis (DA1C2)	
BES upgrade floating track (DR).gsz	
19/05/2026	1:300



Elevation



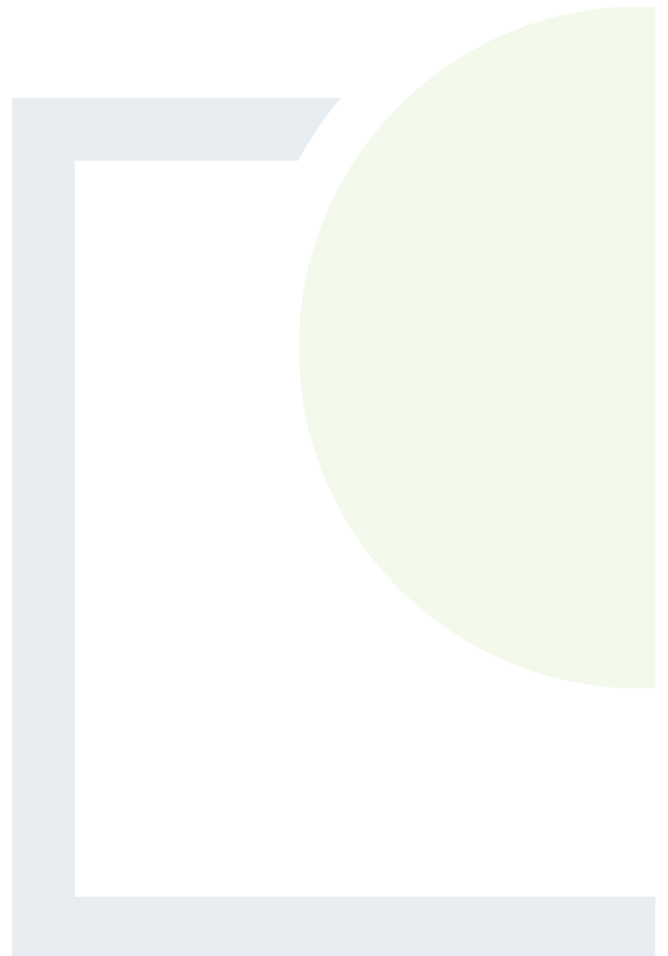
SLOPE/W Analysis (DA1C2)	
BES new floating track (DR).gsz	
19/05/2026	1:300



DESIGNING AND DELIVERING
A SUSTAINABLE FUTURE

APPENDIX F

Site Photos





View North along Main Spine Road



View West along founded access road between T11 and T12



Looking south at section of floating road at Junction to T01 and T04



Section of Floating Road to T04



Founded Road between T05 and T06



View North along access road to T10



View of hardstand at T11



Turbine base and hardstand, T14



View of berm at Peat Cell at Substation



Berm and Peat Cell at Borrow Pit 1



Borrow Pit 1, looking west



Borrow Pit 2



Peat Cell at T15, with berm on RHS



Peat Cell and Berm at T17



View of head of peat failure along access road to T7 and stabilising berm



**DESIGNING AND DELIVERING
A SUSTAINABLE FUTURE**

www.fehilytimoney.ie

CORK OFFICE
Core House
Pouladuff Road,
Cork, T12 D773,
Ireland
+353 21 496 4133

Dublin Office
J5 Plaza,
North Park Business Park,
North Road, Dublin 11, D11 PXT0,
Ireland
+353 1 658 3500

Carlow Office
Unit 6
Bagenalstown Industrial Park,
Bagenalstown, Co. Carlow,
R21 XW81, Ireland
+353 59 972 3800

