

Chapter 8: Geology, Soils and Peat

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Executive Summary

This chapter assesses the potential for likely significant effects on Geology, Soils and Peat resulting from potential impacts associated with the Proposed Varied Development. The Proposed Varied Development seeks to increase the turbine tip height from 149.9 m for the Consented Development to up to 200m, a revised location of some wind turbines and changes to associated infrastructure, i.e. access tracks and turbine hardstanding.

This chapter establishes the baseline Geology, Soils and Peat conditions of the Site, using a desk-based assessment and targeted peatland surveys completed for the Consented Development. An additional peatland survey was undertaken for the Proposed Varied Development.

The assessment of Geology, Soils and Peat effects of the Proposed Varied Development has been undertaken using the approach and methodology adopted in the assessment for the Consented Development, **Chapter 11 Geology, Soils and Peat**, 2018 Environmental Impact Assessment ('EIA') Report, as far as possible.

The Proposed Varied Development has been assessed on its own merits, assessing the effects of the changes to the wind farm and the net effect of that change i.e. considering the effects of the whole development, rather than just the change itself.

The findings of this assessment of the Proposed Varied Development have then been appraised in comparison to the residual effects of **Chapter 11** of the 2018 EIA Report, highlighting any changes from the effect assessed for the Consented Development.

Cumulative impacts have also been considered including impacts associated with the OHL grid connection and, based on the information currently available, it is not anticipated that there will be any cumulative effects associated with any other schemes, as per the Consented Development.

The assessment indicates that there are no material changes to the predicted effects on Geology, Soils and Peat as a result of the Proposed Varied Development and the significance of the effects remains consistent with those reported in the 2018 EIA Report.

In conclusion, the effects for the Proposed Varied Development remain largely consistent with those identified in the 2018 EIA Report, where the overall residual effects are predicted to be Minor adverse.

8.1. Introduction

- 8.1.1. This chapter reports on the likely significant effects with respect to Geology, Soils and Peat associated with the construction, operation and decommissioning of the Proposed Varied Development. The chapter also confirms if there are any changes to the findings of the Geology, Soils and Peat assessment provided in the 2018 EIAR submitted in support of the Consented Development.
- 8.1.2. This chapter is supported by the following Figures (**EIAR Volume 3a**) and Technical Appendices (**EIAR Volume 4**) which are summarised in **Table 8.1** and referenced throughout the chapter.

Table 8.1: Figures and Technical Appendices

Document Title	Description	Changes from Consented Development
Figure 8.1: Bedrock Geology	Plan showing the bedrock geology. Solid geology data retrieved from the British Geological Survey (BGS) 50k dataset ¹ .	Figure replaces the 2018 EIA figure due to changes to the Site layout / design. This plan has been recreated to show how the Proposed Varied Development interacts with the bedrock geology.
Figure 8.2: Superficial Geology	Plan showing the superficial geology. Solid geology data retrieved from the BGS 50k dataset ¹	Figure replaces the 2018 EIA figure due to changes to the Site layout / design. This plan has been recreated to show how the Proposed Varied Development interacts with the superficial geology.
Figure 8.3: Macaulay Soils Map and Legend	8.3a: Plan showing the Macaulay Soils Map. 8.3b: Plan showing the Macaulay Soils Map key for the Site design.	Figure 8.3 is a new figure for the purpose of this assessment.

¹ British Geological Survey (2026) BGS Geology 50K Datasets. Available at: <https://www.bgs.ac.uk/datasets/bgs-geology-50k-digmapgb/> (Accessed: 13.03.2026)

Document Title	Description	Changes from Consented Development
	Soils map from Macaulay Soils Map dataset ² .	
Figure 8.4: Site Visit Features	Plan showing key Site features noted while undertaking peatland surveys in 2026.	Figure 8.4 is a new figure for the purpose of this assessment.
Figure 8.5: Peat Probe Survey Results (All Probes)	Plan showing location of all peat probes. Probing data based on a compilation of all peat probing surveys, described in Sections 8.6.12 – 8.6.21 .	Figure replaces the 2018 EIA figure due to changes to the Site layout / design and additional peat probing. This plan has been recreated to show how the Proposed Varied Development interacts with all peat probing undertaken.
Figure 8.6: Peat Depth Interpolation	Plan showing the Peat Depth Interpolation. Peat interpolation plan developed using all peat probes undertaken to date.	Figure replaces the 2018 EIA figure due to changes to the Site layout / design and updates to the Peat Interpolation Plan. This plan has been recreated to show how the Proposed Varied Development interacts with all peat probing undertaken.
Technical Appendix 8.1: Updated Preliminary Peat Management Plan	Appendix assessing the peat balance, management and handling of peat for the Proposed Varied Development.	Appendix replaces the 2018 EIA Technical Appendix 11.3 due to changes to the Site layout / design and additional peat probing.
Technical Appendix 8.2: Updated Carbon Balance Assessment	Appendix assessing the carbon emission savings associated with the Proposed Varied Development.	Appendix replaces the 2018 EIA Appendix 11.3 due to changes to the Site layout / design.

² Scotland's Soils (1981) National Soil Map of Scotland. Scottish Government. Available at: <https://soils.environment.gov.scot/maps/soil-maps/national-soil-map-of-scotland/> (Accessed: 13.03.2026)

8.2. Scope of Assessment

- 8.2.1. A qualitative assessment has been undertaken using a combination of legislation and other statutory policy and guidance, desk-based review, surveys and professional judgement. The assessment involved a review of:
- Solid and superficial geology maps;
 - The James Hutton Institute for soil coverage (Macaulay soil maps);
 - Soil maps; and
 - Peat depth distribution data gathered onsite, described in sections **8.6.12 – 8.6.21**.
- 8.2.2. A review of the previous survey data collected for the Consented Development was undertaken to establish baseline peat conditions across the Site. This included analysis of existing peat probing records to understand the distribution and depth of peat.
- 8.2.3. A total of four peat probing surveys have been completed across the Site, with two undertaken for the Consented Development between 2017 and 2018, followed by two additional surveys undertaken for the Proposed Varied Development in 2024 and 2026 for the HMP and EIAR respectively.
- 8.2.4. These surveys provide coverage of both layouts and record the variability in peat depths across the Site. The additional survey focused on areas of layout change to obtain peat depth data for the Proposed Varied Development.
- 8.2.5. Peat depth data was obtained from onsite surveys, see Appendix 8.1. The appendix also includes details of estimated peat excavation volumes and proposed re-use associated with the Proposed Varied Development.

Consultations

- 8.2.6. **Table 8.2** summarises the consultation undertaken relevant to Geology, Soils and Peat for the Proposed Varied Development.

Table 8.2: Summary of Consultation in Relation to Geology, Soils and Peat

Organisation and Type of Consultation	Key Issues Raised	How The Key Issues have been Considered
NatureScot – Scoping (08/09/2025)	Priority Peatland Habitats	Additional peatland surveys have been undertaken in line with relevant best practice guidance and following consultation with SEPA, detailed below.
	Peatlands	Additional peatland surveys have been undertaken and the design of the Proposed Varied Development has been revised to avoid impacts on peatlands as far as possible.
Scottish Environment Protection Agency (SEPA) – Scoping (08/08/2025)	Peat Management	An Updated Preliminary Peat Management Plan (PMP) has been produced in Appendix 8.1. The Updated Preliminary PMP details how impacts have been mitigated by design and the implementation of the mitigation hierarchy.
SEPA – Pre-application consultation (19/11/2025)	Peatland Surveys	The peatland survey methodology was amended to include additional areas of probing and implementation of dynamic peat probing, to cover the issues raised by SEPA.
SEPA – Pre-application consultation (May 2025)	Mitigation hierarchy	A meeting was held with SEPA to discuss the design evolution and the measures taken to reduce impacts on peatland through the iterative redesign process. Additional mapping and supporting information were also provided to SEPA in advance of the application submission.

8.3. Legislation, Policy and Guidance

- 8.3.1. This assessment has been made with due consideration of national, regional and local policies. This section summarises the guidance and policies in relation to Geology, Soils and Peat. This chapter complies with the most up-to-date legislation, policy and guidance. A series of changes have occurred since the original planning submission in 2018. The changes relevant to Geology, Soils and Peat are limited to increased protection around peatlands and carbon-rich soils. As such, it is assumed that compliance with National Planning Framework 4 ('NPF4') and local planning policy provides a higher degree of assessment and required mitigation when compared to historic policy and legislation. A summary of these changes can be found in **Table 8.3**.

Table 8.3: Summary of Legislation Changes

2018 Legislation	2025 Legislation	Overview of Changes
Scottish Planning Policy (SPP) (2014)	National Planning Framework 4 (2023)	NPF4 places stronger emphasis on the protection of carbon-rich soils and peatlands, setting out requirements to avoid disturbance, minimise carbon loss and ensure restoration. NPF4 gives greater allowance for the development of low-carbon and renewable energy
Argyll and Bute Local Development Plan (2015)	Argyll and Bute Local Development Plan 2 (ABLDP2) (2024)	In line with NPF4, ABLDP2 introduces policies focused more directly on the protection of soil and peat. Ensuring any impacts are outweighed by the benefits of the development.

National Planning Framework 4 (2023)³

- 8.3.2. National Planning Framework 4 ('NPF4') sets out the Scottish Government's "spatial principles, regional priorities, national development and national planning policy". Policy 5 (Soils) of NPF4 is relevant to the Proposed Varied Development and is summarised as follows.

³ Scottish Government (2023) National Planning Framework 4. Edinburgh: Scottish Government. Available at: <https://www.gov.scot/publications/national-planning-framework-4/> (Accessed: 13.03.2026)

8.3.3. In relation to development proposals on peatland carbon-rich soils, and priority peatland habitat, Policy 5 of NPF4 states:

c) Development proposals on peatland, carbon-rich soils and priority peatland habitat will only be supported for:

i) Essential infrastructure and there is a specific locational need and no other suitable site;

ii) The generation of energy from renewable sources that optimises the contribution of the area to greenhouse gas emissions reduction targets;

iii) Small-scale development directly linked to a rural business, farm or croft;

iv) Supporting a fragile community in a rural or island area; or

v) Restoration of peatland habitats.

d) Where development on peatland, carbon-rich soils or priority peatland habitat is proposed, a detailed site specific assessment will be required to identify:

i) the baseline depth, habitat condition, quality and stability of carbon rich soils;

ii) the likely effect of the development on peatland, including on soil disturbance; and

iii) the likely net effect of the development on climate emissions and loss of carbon.

Argyll and Bute Local Development Plan (2024)⁴

8.3.4. The Argyll and Bute Local Development Plan 2 ('ABLDP2') was published in 2024 and is an update to the previous LDP. Relevant local policies to the Proposed Varied Development include:

- ABLDP2 Policy 4 – Sustainable Development
- ABLDP2 Policy 30 - The Sustainable Growth of Renewables
- ABLDP2 Policy 79 – Protection of Soil and Peat Resources

⁴ Argyll and Bute Council (2024) Argyll and Bute Local Development Plan 2. Adopted 28 February 2024. Available at: <https://www.argyll-bute.gov.uk/planning-and-building/planning-policy/local-development-plan-2> (Accessed: 13.03.2026)

Best Practice Guidance

- 8.3.5. In addition to specific legislative and planning requirements, a range of guidance documents have been published to provide information on legal responsibilities and good environmental practices. Specific documents are available for wind farm developments and developments on peatland, as well as general good construction practices.
- 8.3.6. Guidance documents relevant to the Proposed Varied Development and Geology, Soils and Peat environment include, but are not limited to, those shown in **Table 8.4**.

Table 8.4: Best Practice Guidance

SEPA Guidance

SEPA, 2010c Regulatory Position Statement – Developments on Peat (SEPA, 2010c)

SEPA, 2014. Land Use Planning System Guidance Note 4 – Planning Guidance on Onshore Windfarm Developments (SEPA, 2014); and

Construction Industry Research and Information Association (CIRIA) Guidance

CIRIA, 2023. Environmental Good Practice on Site Guide (C811) (CIRIA, 2023); and

CIRIA, 2001. Control of Water Pollution from Construction Sites: Guidance for Consultants and Contractors (C532) (CIRIA, 2001)

The Scottish Government and Statutory Consultee Guidance

HHG001 - Guidance on the Assessment of Peat Volumes, Reuse of Excavated Peat and the Minimisation of Waste, Scottish Renewables and SEPA, January 2012

HHG002 - Carbon calculator for wind farms on Scottish peatlands - factsheet, Scottish Government, 2018

HHG003 - Guidance Developments on Peatland - Site Surveys, SEPA, 2011

HHG007 - Scotland's peatland - definitions and information resources (SNH Commissioned Report No. 701), Bruneau PMC and Johnson SM, 2014

HHG011 - Calculating potential carbon losses & savings from wind farms on Scottish peatlands - technical guidance, Scot Govt, Technical Note V2.10.0

HHG012 - Peat Landslide Hazard & Risk Assessments - Best Practice Guide for Proposed Energy Generation Developments. 2nd Edition, Scot Govt, 2017

HHG013 - IUCN UK Peatland Programme (2023), The Peatland Code, Version 2.0.

HHG017 - Advising on carbon-rich soils deep peat and priority peatland habitat in development management, NatureScot, November 2023

HHG018 - Constructed tracks in the Scottish Uplands, SNH (NatureScot), 2015

HHG019 - Floating-Roads on Peat report, SNH (NatureScot) & Forestry Commission Scotland, 2010

HHG020 - Advising on peatland, carbon-rich soils, and priority peatland habitats in development management, NatureScot, November 2023

GPP Documents

GPP 1 (2020) – Understanding your environmental responsibilities – good environmental practices

Other Relevant Guidance

Forestry Commission (2017). Forests and Water: UK Forestry Standard Guidelines (Forestry Commission, 2017)

Scottish Government (2017). Peat Slide Hazard and Risk Assessments: Best Practice Guide for Proposed Electricity Generation Developments (Scottish Government, 2017)

NatureScot & Forestry Commission Scotland (2010). Floating Roads on Peat (NatureScot and Forestry Commission Scotland, 2010)

NatureScot (2024). Good Practice during Wind Farm Construction) (NatureScot, 2024)

NatureScot, SEPA, Scottish Government & The James Hutton Institute (2017). Developments on Peatland: Peatland Surveys (NatureScot et al., 2017)

Scottish Renewables & SEPA (2012). Developments on Peatland: Guidance on the assessment of peat volumes, reuse of excavated peat and the minimisation of waste (Scottish Renewables et al., 2012)

8.4. Assessment Methodology

Impact Assessment

- 8.4.1. A qualitative assessment has been undertaken using a combination of legislation and other statutory policy and guidance, desk-based review, site walkover and surveys and professional judgement. The assessment involved:
- Analysis of current policy and guidance in relation to wind energy and the likely effects of the Proposed Varied Development on the Geology, Soils, Peat and water environment;
 - Desk based review of available information;
 - Scoping study to establish the existing baseline geological, soils and peat conditions at the Site;
 - Site walkover survey to confirm baseline information;
 - Peat depth probing to inform the Proposed Varied Development design, allow a preliminary assessment of peat landslide hazard potential ('peat stability'), and for peat management; and

- Identification of the potential impacts of the Proposed Varied Development on the geological, soils and peat environment and evaluation of the significance of the effects.

8.4.2. The desk-based research undertaken as part of the EIA included the review of data from the following sources:

- BGS for geology and hydrogeology;
- The James Hutton Institute for Soil coverage;
- The 2016 Carbon and Peatland Map;
- Review of aerial photography; and
- Ordnance Survey ('OS') maps for topography.

8.4.3. An assessment of the likely potential Geology, Soils and Peat effects is considered necessary due to the presence of peat within the Site. This could result in potential effects due to the impact from the excavation of peat.

8.4.4. The assessment has been undertaken based on the collection and interpretation of a wide range of data and published material including publicly available information, consultations with SEPA, NatureScot, and Argyll & Bute Council ('ABC'), as well as field surveys.

Sensitivity of Effects

8.4.5. The assessment of the significance of individual effects on the receiving environment is based on criteria for the sensitivity or importance of the resource and the magnitude of the effect, as defined in Table 8.5. The importance of the resource is classified according to the highest individual defining feature i.e. a resource will be defined as being Very High if it is a Special Area of Conservation ('SAC') regardless of its social / economic use or quality.

Table 8.5: Importance of Potentially Affected Receptors

Receptor Sensitivity	Capacity	Receptor	Description
Very High	The receptor has little or no capacity to absorb change without fundamentally altering its present character, is of very high environmental value, or of international importance.	Geology / Soils	The area occupied by the development is protected by International or EU legislation (World Heritage Sites, Geopark, Site of Special Scientific Interest ('SSSI') etc.)
		Hydrogeology	Features of international importance e.g. SAC Alternatively, where groundwater is critical to designated Sites of nature conservation
High	The receptor has low capacity to absorb change without fundamentally altering its present character, is of high environmental value, or of national importance.	Geology / Soils	Feature of national importance i.e. a SSSI Peat > 1m depth
		Hydrogeology	Sensitive habitats of national importance. Groundwater is a locally valuable resource because of its moderate quality.
Medium	The receptor has moderate capacity to absorb change without significantly altering its present character, has some environmental value, or is of regional importance.	Geology / Soils	Site of local geological importance (Local Geological Site – previously Regionally Important Geological Site).
		Hydrogeology	Groundwater of limited value because its quality does not allow potable or other quality sensitive uses.
Low	The receptor is tolerant of change without detriment to its present character, is low environmental value, or of local importance.	Geology / Soils	Sites with local geology / soils interest.
		Hydrogeology	Unproductive strata – rock layers or drift deposits with low

permeability that have negligible significance for water supply.

Magnitude of Impacts

- 8.4.6. The magnitude of impact considers the scale of the predicted change to baseline conditions, resulting from a given potential impact and takes into account the duration of an effect i.e., temporary, or permanent, and whether it is direct or indirect. The magnitude of impact is independent of the importance / sensitivity of a receptor. Definitions are described in **Table 8.6**.

Table 8.6: Magnitude of Possible Impacts

Magnitude	Geology / Soils	Hydrogeology
High	Permanent or large-scale loss of important geological features. Major alteration of soil structure or stability affecting landform integrity.	Major reduction in aquifer recharge or storage. Long-term significant changes to groundwater levels affecting water supply or dependent habitats. Contamination of aquifer with non-reversible effects.
Medium	Partial loss or alteration of regionally important geological features. Moderate disturbance of peat or superficial deposits.	Moderate changes in groundwater levels or flow paths with potential for partial recovery. Limited but measurable deterioration in groundwater quality.
Low	Minor disturbance to local geological features of low sensitivity. Small-scale disturbance to peat or superficial deposits.	Small, temporary changes in groundwater levels or quality with rapid natural recovery.
Negligible	No measurable change to geological features, soils or peatlands.	No measurable change to groundwater flow, levels, or quality.

Significance of Effects

- 8.4.7. The significance of the effect is determined using the framework presented in **Table 8.7**. The significance of a given effect is based on a combination of the sensitivity or importance of the receptor and the magnitude of a given potential effect. Effects can be beneficial or adverse and their significance Major, Moderate, Minor or Negligible. For the purpose of this assessment, Major and

Moderate effects are deemed significant while Minor and Negligible effects are deemed to be not significant.

Table 8.7: Estimating the Significance of Potential Effects

Magnitude	Sensitivity			
	Very High	High	Medium	Low
High	Major	Major	Moderate	Moderate
Medium	Major	Moderate	Moderate	Minor
Low	Moderate	Moderate	Minor	Negligible
Negligible	Minor	Minor	Negligible	Negligible

Cumulative Impacts

- 8.4.8. All wind farm developments within 45 kilometres (km) (**Figure 5.10: Cumulative Sites Included in the Assessment**) of the Site have been identified and the cumulative effects, as a result of construction, will be identified. However, it is anticipated that there will be no cumulative effect on Geology, Soils and Peat with the Proposed Varied Development.

Grid Connection

- 8.4.9. In addition to nearby wind farm developments, a Section 37 ('S.37') application is to be submitted, seeking approval for a 13.5km 132kV OHL grid connection.
- 8.4.10. In March 2025, Scottish and Southern Electricity Networks Transmission submitted a Scoping Report, which sets out the methodology of effects for the S.37 application.
- 8.4.11. It is assumed that embedded mitigation measures will be incorporated into the design of the OHL grid connection and aim to avoid or reduce adverse effects, including those on geology and ground conditions. We have assumed the following embedded design measures will be applied, as these will be required by SEPA:
- Permanent infrastructure such as the OHL pylon foundations will be located to avoid areas of peat > 1.0m in depth.
 - Alternative construction methodologies such as floating access tracks will be used where peat > 1.0m in depth cannot be avoided.

- Where possible, temporary access tracks will be floated (subject to technical design) to limit the impact on the environment and removed post construction.

- 8.4.12. As the design of the OHL grid connection is preliminary in nature, the exact location of the permanent and temporary infrastructure is unknown at this stage. As such, the embedded mitigation, above, is considered to be the basis of design for the final design of the OHL grid connection.
- 8.4.13. It is anticipated that the OHL grid connection will not have a cumulative effect on Geology, Soils and Peat with the Proposed Varied Development, as it is assumed that best practice will be implemented as part of the S37 submission.

Extent of the Study Area

- 8.4.14. The Study Area for the Proposed Varied Development aligns with the Site Boundary.

8.5. Baseline Conditions

- 8.5.1. The baseline conditions for the Proposed Varied Development remain largely consistent with the 2018 EIAR. However, since the 2018 EIAR was prepared Forestry and Land Scotland ('FLS') commercial forest has been felled and widespread peatland restoration has been conducted in and round Turbines T10, T11, T15, T16 and the Substation.
- 8.5.2. Where additional information is available, this reflects updated peatland survey data and further consultation with ABC and SEPA, as detailed in **Table 8.2**, providing an improved understanding of peat depth and distribution.
- 8.5.3. The only change to the Baseline Conditions has been identified as the change in land use in certain areas of commercial forest to peatland restoration, which is covered further in the Ecology and Nature Conservation Chapter of the EIAR (**Volume 2, Chapter 7**).

Topography

- 8.5.4. The Site rises from around 155 m Above Ordnance Datum ('AOD') in the south to around 195m AOD in the centre of the Site, around Cnocan Gean. The topography comprises a series of broad slope bands, with elevation increasing gradually towards the higher central/northern parts of the Site with no abrupt changes in level.

Geology and Soils

Bedrock Geology

- 8.5.5. A review of the BGS online GeoIndex Onshore Viewer 1:50,000 Bedrock Geology layer (BGS, 2026) indicates that the Site is generally underlain by Stonefield Schist Formation to the west and Glen Sluan Schist Formation to the east, resulting in the majority of the Site being underlain by metamorphic rock.
- 8.5.6. Traversing the central part of the Site on a north-west to south alignment are narrow corridors of Loch Tay Limestone Formation (sedimentary rock) and Neoproterozoic Basic Minor Intrusion Suite (igneous rock).
- 8.5.7. A review of the 1:50,000 Linear Features and 1:625,000 Faults layers on the GeoIndex indicate that there are no faults or linear features that interact with the Site. It should be noted, however, that an inferred thrust fault is identified to the east of the Site running north-east to south-west.
- 8.5.8. **Figure 8.1: Solid Geology** shows the BGS digital geological mapping for the bedrock geology across the Site.

Superficial Geology

- 8.5.9. A review of the BGS Onshore GeoIndex 1:50,000 Superficial Deposits layer shows that the Site is generally overlain by Glacial Till, with a large, isolated area of Peat identified to the centre-west of the Site. Additionally, isolated areas of unmapped superficial geology are present across the north and south of the Site. These areas are therefore considered to have bedrock at or near the surface.
- 8.5.10. An additional review of the National Soil Map of Scotland (Scotland's Environment, 2024) shows the presence of Peaty Gleys across the centre of the Site, Dystrophic Blanket Peat across the north of the Site and Noncalcareous Gleys across the south of the Site.
- 8.5.11. The Carbon and Peatland 2016 Map shows that the peat superficial geology across the Site is largely classified as Class 5 Peatland, with areas of Class 3, Class 4 and Class 1 noted. The area of Class 1 Peatland, described as "Nationally important carbon-rich soils, deep peat and priority peatland habitat. Areas likely to be of high conservation value" is present in a linear strip across the south of the Site, running west to east.

- 8.5.12. **Figure 8.2: Superficial Geology** shows the BGS digital geological mapping for the superficial geology across the Site.

Peat Probing Surveys

- 8.5.13. Peat is present across the Site. In accordance with current best practice guidance, including NPF4, a series of peatland and ground condition surveys have been undertaken across the Site to inform the design and assessment process. These surveys have been carried out at different stages of the project to refine infrastructure layout and improve understanding of peat depth distribution. Details of the peatland surveys are detailed in the following sections. Four surveys were undertaken between September 2013 and March 2026, with a total of 2,555 peat probes taken for the Consented Development and an additional 449 peat probes recorded for the Proposed Varied Development. In total, 3,004 peat probes have been taken for the Proposed Varied Development, described further below.

Initial Surveys

- 8.5.14. A combined peat survey and ground condition survey was undertaken between September 2013 and June 2014, in accordance with 2007 guidance. This work included:
- An initial peat depth survey across the Proposed Varied Development area on a 100m grid to establish baseline peat distribution (September 2013);
 - A detailed peat survey undertaken in November 2013 to inform early design iterations; and
 - Completion of final phases of probing and survey work in June 2014.

Phase I Peat Probing

- 8.5.15. An initial Phase I Peat Probing Survey of the Site was undertaken in 2017. A total of 54 probes was recorded, with a range of peat depths between 0 – 5m. The average depth was 1.4m with a maximum depth of 4.7m.

Phase II Peat Probing

- 8.5.16. A Phase II Peat Survey of the Site was undertaken in March 2018, in accordance with current guidance. This survey included additional probing to refine the location of infrastructure, including the temporary construction compound and access to turbine T8 and turbine T10. A total of 1,878 probes

were taken, with a range of peat depths between 0 – 5m. The average depth was 0.6m with a maximum depth of 5m.

Habitat Management Plan ('HMP') Peat Probing

- 8.5.17. Additional peat probing was undertaken in 2024 to inform the HMP. A total of 623 probes were recorded, with a range of peat depths between 0 – 4m. The average depth was 1.1m with a maximum depth of 3.7m. The survey targeted areas relevant to habitat management and restoration.

Additional Peat Probing

- 8.5.18. Further peat probing was undertaken in March 2026 to support the Proposed Varied Development. Through consultation with SEPA, the following probing regime was developed:
- 50m centres with 10m offsets along proposed access tracks that were altered for the Proposed Varied Development i.e. proposed tracks with no previous peat probing coverage.
 - 50 x 50m grid on proposed borrow pits, substations, construction compounds, laydown areas, operation building locations and turbine Cranepads that were altered for the Proposed Varied Development, i.e. proposed areas of new infrastructure with no previous peat probing coverage.
- 8.5.19. Additional peat probes were undertaken in areas where proposed infrastructure / works had insufficient previous peat probe survey points, despite depths < 0.5m. Where peat was recorded at < 0.5m in high-density based on the previous surveys, additional probing was not conducted.
- 8.5.20. It should be noted, that Turbines T1 – T4 were not surveyed further during the 2026 peatland surveys, due to the proximity to existing infrastructure. However, to ensure that the environment around T1 – T4 was considered, the areas were further assessed using desk-based studies and on-site observations, as follows:
- Presence of existing infrastructure: the proposed new infrastructure for Turbines 1-4 partially overlap with existing areas of development, therefore the potential for disturbance of peat is considered to be low.
 - Historic peat probing: Previous peat probes around the infrastructure showed peaty soil (< 0.5m) or rock at surface level.
 - Aerial Imagery: A review of 2026 arial imagery shows that the areas surrounding T1 – T4 consisted of areas of exposed rock and dry topsoil / peat.

- Temporary infrastructure: The turbines consist of temporary and permanent infrastructure whereby the temporary infrastructure will be reinstated post- construction. Should peat be encountered during construction, it will be reinstated accordingly.

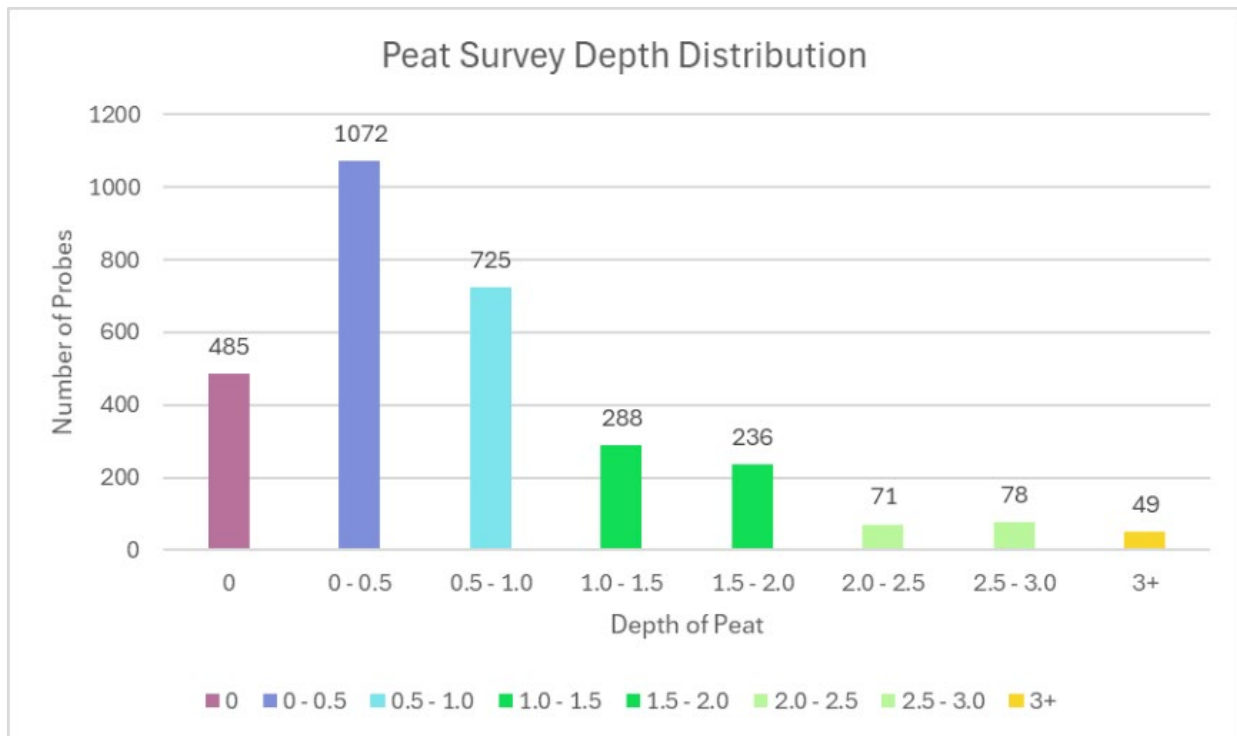
8.5.21. Considering the desk-based assessment conducted and the previous peat probing undertaken around the Operational Development, the potential for disturbance of peat is considered to be low.

8.5.22. 449 probes were taken during the 2026 Peat Probing Survey, with an average depth of 0.8m and maximum depth of 3.4m recorded. A number of site observations were made which provide context to the development. These observations are available in **Figure 8.4**.

8.5.23. In total, 3,004 peat probes have been taken for the Proposed Varied Development, as summarised in **Table 8.8** and shown in **Insert 8.1**. A location plan of the peat surveys can be seen in **Figure 8.5**, and a peat depth interpolation map can be seen in **Figure 8.6**.

Table 8.8: Peat Probing Summary

Peat Probing Exercise	Number of Probes	Maximum Depth Recorded (m)	Average Mean Depth (m)
2017	54	4.7	1.4
2018	1,878	5.0	0.6
2024	623	3.7	1.1
2026	449	3.4	0.8
Total	3,004		



Insert 8.1: Peat Survey Distribution by Depth

Hydrogeology

- 8.5.24. A review of the BGS Onshore GeoIndex 1:625,000 Hydrogeology identifies the Study Area is underlain by the Argyll Group and Southern Highland Group rock units.
- 8.5.25. The Argyll Group is described as being a “*low productivity aquifer*” where “*flow is virtually all through fractures and other discontinuities*”. The notes on the map indicate that there are “*small amounts of groundwater in near surface weather zone and fractures.*”
- 8.5.26. Likewise, the Southern Highland Group is described similarly to the Argyll Group, however, the notes indicate that there are “small amounts of groundwater in near surface weather zone and secondary fractures.”
- 8.5.27. **Figure 8.7: Hydrogeology** shows the hydrogeology for the Proposed Varied Development. Additionally, refer to **Chapter 7: Ecology and Nature Conservation** for a consideration of Groundwater Dependent Terrestrial Ecosystems (‘GWDTE’) and **Chapter 9: Surface Water**.

Groundwater Vulnerability

- 8.5.28. A review of SEPA's Groundwater Classification Map (accessed via Scotland's Environment Online Viewer) identifies the underlying bedrock strata as being 'Moderately – Low Permeable'. Moderately permeable strata are described as 'fractured or potentially fractured rocks that do not have a high primary permeability, or other formations of variable permeability'. Although, these formations will seldom produce large quantities of groundwater for abstraction, they are important for local supplies and supplying baseflow to rivers.
- 8.5.29. The Groundwater Vulnerability Map indicates that the moderately permeable strata in the vicinity of the Study Area are partially covered by a substantial thickness of low permeability drift deposits.

Designated Sites

- 8.5.30. There are no designated Sites within the Study Area, however, several designated Sites are located in the surrounding areas, as follows:
- Tangy Loch SSSI [National Grid Reference ('NGR') NR 69435 28023] is located adjacent to the east of the Study Area. The SSSI is designated for its nationally important aquatic plant life.
 - Bellochantuy and Tangy Gorges SSSI [NGR NR659278] is located approximately 900 m west of the southern tip of the Study Area. The SSSI is designated for its distinctive geology.
 - Kintyre Goose Lochs SSSI [NGR NR 71018 29069] covers the area of Lussa Lochs, approximately 800m to the east of the Study Area. The SSSI is designated for its importance as a wintering Site for Greenland white-fronted geese.
 - Kintyre Goose Roosts SPA covers the areas of Lussa Lochs [NGR NR 71018 29069], approximately 800m to the east of the Study Area, and Tangy Loch [NGR NR 69435 28023], approximately 300m to the east of the Study Area. The SAC is designated for its importance as a wintering Site for Greenland white-fronted geese.

8.6. Revised Assessment of Effects for the Proposed Varied Development

Potentially Sensitive Receptors

- 8.6.1. The importance of potential receptors is based on the definition provided in **Table 8.2**. Important or sensitive receptors that may be directly or indirectly

affected by the Proposed Varied Development and the value of each receptor are summarised in **Table 8.9**.

Table 8.9: Potentially Sensitive Receptors

Receptor	Distance from Site	Value	Reason
Peat	On Site	High	High sensitivity as considered nationally important with low capacity to absorb change.
Hydrogeology (Oban and Kintyre Groundwater)	On Site	High	Groundwater of good quality; local valuable resource.

Assessment of Effects

- 8.6.2. This section considers the likely significant effects of the Proposed Varied Development on Geology, Soils and Peat in comparison with the Consented Development.
- 8.6.3. Embedded mitigation measures are incorporated into the design of the Proposed Varied Development and aim to avoid or reduce adverse effects, including those on geology and ground conditions. Embedded mitigation can be considered at the impact assessment stage, whereas specific mitigation measures which are not part of the design and are developed after the initial impact assessment, are assessed at a later stage when considering the residual effects.
- 8.6.4. Therefore, the Proposed Varied Development has sought to avoid impacts on receptors as far as possible through the implementation of several design principles or embedded mitigation, as set out below:
- The design of the wind farm has aimed to avoid areas of peat depth > 0.5m. Where this was not possible, alternative construction methods such as floating roads are considered to reduce the impacts on peatlands;
 - Existing infrastructure from the Tangy I and Tangy II wind farms are proposed to be re-used as far as possible to limit the construction of new infrastructure as far as possible; and,
 - 50m micrositing has been included in this EIAR to allow for post-consent refinement, following ground investigation ('GI').

Construction Phase

- 8.6.5. The sensitivity of the two receptors identified for the Proposed Varied Development have been classified as High, as highlighted in **Table 8.8**.

Peat

- 8.6.6. Peat is present across the Study Area and, depending on the peat depth encountered, will be excavated and permanently displaced in areas required for the infrastructure associated with the Proposed Varied Development. The design of the Proposed Varied Development has sought to avoid areas of peat depth > 0.5m wherever practicable. Where this was not possible, alternative construction methods such as floating access tracks have been proposed to minimise disturbance on peatlands.
- 8.6.7. Accordingly, the sensitivity of the receptor is **High**, and the magnitude of impact is **Low**, resulting in an overall **Minor Adverse** effect (Not Significant in EIA terms).
- 8.6.8. The design of the Proposed Varied Development has been developed to minimise infrastructure in areas of peat > 0.5m in depth, as outlined in the HMP (2024). The carbon losses associated with the peat disturbance during construction will be offset by the generation of low-carbon electricity over the operational life of the Proposed Varied Development, resulting in a net reduction in greenhouse gas emissions, as detailed in **Technical Appendix 8.2**. Additionally, there may be opportunity to reinstate the Operational Development with disturbed peat originating from the Proposed Varied Development, however, this would need to be confirmed in line with the decommissioning strategy with the Operational Development.

Hydrogeology

- 8.6.9. Construction of turbine foundations could lead to temporary minor dewatering of the ground, or leakage of concrete residues into groundwater. However, due to the groundwater dependency identified in the Baseline, and the expected low permeability of the bedrock and superficial deposits, it is unlikely that the construction of the Proposed Varied Development will impact groundwater resources such as Private Water Supplies. Further detail on the assessment of impacts to Private Water Supplies, including mitigation, is provided in **Chapter 9**.

- 8.6.10. Accordingly, the sensitivity of the receptor is **High**, and the magnitude of impact is **Low**, resulting in an overall **Minor Adverse** effect (Not Significant in EIA Terms)

Operational Phase

Peat

- 8.6.11. Peat excavated during the construction phase will be permanently displaced from the areas required during the construction of the Proposed Varied Development. Therefore, as the impact has occurred already in the construction phase, there are no operational impacts on peat.

Hydrogeology

- 8.6.12. Likewise, impacts on hydrogeology are considered only relevant during the construction phase. Therefore, there are no operational or decommissioning impacts on hydrogeology.

8.7. Revised Mitigation Measures for the Proposed Varied Development

Additional Mitigation Measures

- 8.7.1. Due to the embedded mitigation in the design of the Proposed Varied Development and proposed mitigation measures proposed for the Consented Development (2018 EIA), no additional mitigation measures are required for Geology, Soils and Peat. Nonetheless, mitigation, as part of the construction process will be considered, as set out in Volume 4 Technical Appendix 3.8b Construction Environmental Management Plan ('CEMP').
- 8.7.2. The CEMP sets out the management measures, method statements and referenced good practice guidance and legislation which will form the basis of the detailed design.
- 8.7.3. A Construction Method Statement ('CMS') will be developed and adhered to ahead of the construction of the Proposed Varied Development, as standard construction practice. In line with Construction (Design and Management) Regulations 2015 (CDM 2015), the CMS will describe how the contractor will safely and effectively carry out the construction works. Implementation of the CMS will ensure that construction activities are carried out in a manner that minimises environmental impact and mitigates potential risks.

Residual Effects

- 8.7.4. In accordance with the methodology described above, the potential effects have been assessed considering the inclusion of embedded mitigation, and prior to any additional mitigation, with the residual effects detailed in **Table 8.10**.

Table 8.10: Potentially Sensitive Receptors

Receptor	Description of Effect	Effect	Additional Mitigation	Residual Effects	Significance
Peat	Excavation for Proposed Varied Development resulting in loss of peatlands.	Minor Adverse	Not Required. Construction subject to CMS and CEMP.	Minor Adverse	Not Significant
Hydrogeology	Construction of turbine bases leading to dewatering of groundwater.	Minor Adverse	Not Required, Construction subject to CMS and CEMP.	Minor Adverse	Not Significant

- 8.7.5. As set out in **Paragraphs 8.7.12 - 8.7.13**, there are expected to be no operational effects on peat or hydrogeology.

Comparative Assessment

- 8.7.6. No changes have resulted from the Proposed Varied Development in terms of impacts on Geology, Soils and Peat.
- 8.7.7. Therefore, **Table 8.11** summarises the comparative assessment and any changes from the Consented Development to the Proposed Varied Development, considering peat and hydrogeology as receptors.

Table 8.11: Comparative Assessment

Receptor	Description of Effect	Effect	Additional Mitigation	Residual Effects	Significance	Change from 2018 EIA
Peat	Excavation for Proposed Varied Development resulting in loss of peatlands.	Minor Adverse	Not Required. Construction subject to CMS and CEMP.	Minor Adverse	Not Significant	None

Hydrogeology	Construction of turbine bases leading to dewatering of groundwater.	Minor Adverse	Not Required, Construction subject to CMS and CEMP.	Minor Adverse	Not Significant	None
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8.8. Conclusion

- 8.8.1. This chapter describes the baseline conditions of the Proposed Varied Development and highlights the potential effects and their significance on Geology, Soils and Peat.
- 8.8.2. The Site is predominantly underlain by metamorphic rock, with localised sedimentary limestone units and igneous basic intrusions crossing the central area.
- 8.8.3. The superficial deposits are generally classed as Glacial Till, with a large, isolated area of peatland mapped in the centre of the Study Area. This area was quantified through peat probing across the Consented Development and the Proposed Varied Development.
- 8.8.4. The Study Area is located within the Oban and Kintyre groundwater unit and is classified by SEPA as having good groundwater quality.
- 8.8.5. Through the adoption of good working practices, the development of an appropriately designed Site and reinstatement, potential effects on Geology, Soils and Peat will be mitigated. Effects on Geology, Soils and Peat predicted to be **Minor Adverse** and therefore Not Significant.
- 8.8.6. The findings of this assessment are in line with those presented for the Consented Development (2018 EIA) and maintain a conclusion that the Proposed Varied Development will have no significant effects on Geology, Soils and Peat.

8.9. References

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