Bingally 400 / 132kV Substation and 400kV OHL Tie in

Stage 1 Peat Management Plan

SSEN Transmission

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Quality information

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Revision History

Revision	Revision date	Details	Authorized	Name	Position
00	October 2024	For Client Comment	DR	David Raeside	Associate
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1 Introduction

1.1 Background

AECOM Limited (AECOM) have been appointed by SSEN Transmission (the Applicant) to produce a Stage 1 Peat Management Plan (PMP) with respect to the proposed Bingally 400 / 132 kV Substation (the 'Proposed Development'). The Proposed Development is required to enable connections to meet the Electricity System Operators (ESO) Pathway to 2030 Holistic Network Design (HND). The published HND sets out the blueprint for the onshore and offshore transmission infrastructure that's required to support the forecasted growth in the UK's renewable electricity to create a pathway to Net Zero. The studies undertaken as part of the ESO's Pathway to 2030 HND confirmed the requirement to increase the power transfer capacity of the electricity corridor from Beauly to Denny. This requires a 400 kV connection between these sites to enable the significant capability needed to take power from onshore and large scale offshore renewable generation. The Proposed Development, alongside others along the existing 275 kV Beauly to Denny line, is therefore required to enable increase of the electrical circuit to 400 kV.

This document has been prepared to inform the planning authority The Highland Council (THC) and statutory consultees (Scottish Environment Protection Agency (SEPA) and NatureScot) of the proposed peat management method to be employed during the construction of the Proposed Development. This will involve the formation of the substation platform; installation of drainage systems including SuDS pond; construction of new overhead line tie-ins from the new substation to the existing overhead lines; temporary overhead line diversion to allow construction of new substation and tie-ins; upgrade of existing access tracks and provision of new access tracks; construction of temporary contractors compound areas and laydown/stockpile areas; construction of temporary material processing area; and construction of temporary roads and working areas. **Figures 1a** to **1c** located within **Appendix A** contain a plan showing the proposed works associated with the Proposed Development.

1.2 Site Description

The Proposed Development location in general is as shown on **Figures 1a** to **1c**, in **Appendix A**. The Site is as defined by the Red Line Boundary (RLB) shown on **Figures 1a to 1c**, in **Appendix A**. For the purposes of this document, the Proposed Development can be split into 2 distinct areas: the southern extent where the bulk of the works are proposed and the access track leading from the A831 to the southern extent of the Site. For the purposes of this document when referring to the main works area, this refers to the southern extent of the Site where the bulk of the works and overhead line (OHL) tie-in are proposed. When referring to the access track, this means the proposed access track comprising of both upgrades and new sections which leads from the A831 to the main works area.

The main works area is located approximately 2.5 km south of Tomich at approximate National Grid Reference (NGR) NH 30371 24232. The main works area is located within land used for commercial forest. At present based on recent site visits, the main works area is clear-felled and with surface vegetation in the form of heathland observed with very localised juvenile trees present sporadically throughout the area. Existing drainage channels associated with the forestry land use were noted within the area. The existing forestry access track is present in the west and south of the area with a drainage channel running alongside the track.

The access track extends from the main works area in the south (approximate NGR: NH 30397 24625) to the A831 in the north, approximately 1 km east of the village of Cannich (approximate NGR: NH 35141 31677). The proposed access track is approximately 9.5 km in length and comprises upgrade of approximately 3.6 km of existing forestry track and construction of approximately 5.9 km of new access track. Where present, the existing access track was observed to be orientated northeast – southwest and to be of unbound construction comprising of compacted stone with a drainage channel typically running alongside. Several watercourses are also crossed by the access track at various points along its length, with the track typically crossing these via culverts.

The Proposed Development is located within hilly terrain with the topography varying across the Site, although in general the topography falls from east to west.

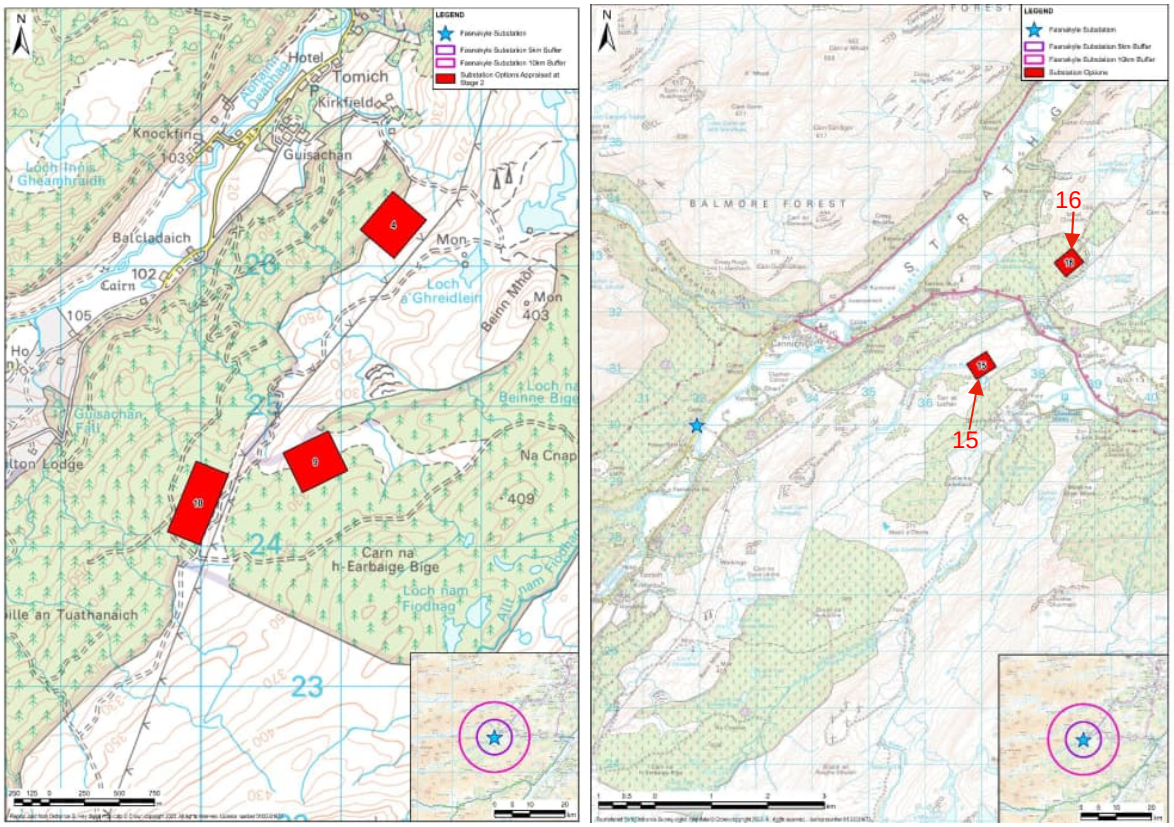
Within the main works area and running alongside much of the proposed access track is the existing north – south trending Beauly – Denny Overhead Electricity Line.

An intrusive ground investigation was completed in January 2024 within the main works area to inform the preferred location of the proposed substation as well as provide information to enable its design. No project specific ground investigation information was available at the time of writing relating to the proposed access track or overhead line diversion. Peat probing data was, however, available covering the vast majority of the Proposed Development (including the main works area and proposed access track).

1.3 Design Development

As part of the development of the project, a site selection process was undertaken by SSEN to identify the preferred site based on technical (engineering), environmental and cost considerations. To facilitate the site selection process, SSEN undertook a two-phase site selection design development; initial and detailed. Both of these design development stages are included within SSEN Transmission's Site Selection Consultation Document[1].

As part of the initial screening process 16 sites were assessed to determine the most suitable for taking forward to detailed site selection assessment. For the initial screening, the sites selected were chosen to be within a 2.5 km search area either side of the existing Beauly - Denny OHL as well as being in the proximity (i.e. within 5 km) of the existing Fasnakyle substation. As part of the engineering assessment, the ground conditions and in particular whether peat was recorded to be present at each site was noted. Of the 16 sites considered, only five sites had no evidence of peat present. The recorded presence of peat within the sites was not the only assessment criteria and as such sites were selected to be taken forward to detailed site selection even though peat was recorded within. Following the initial site selection process four sites were taken forward to detailed site selection (Options 4, 9, 10 & 15), as shown in **Insert 1-1** below. Of these sites only Option 10 recorded no evidence of peat.



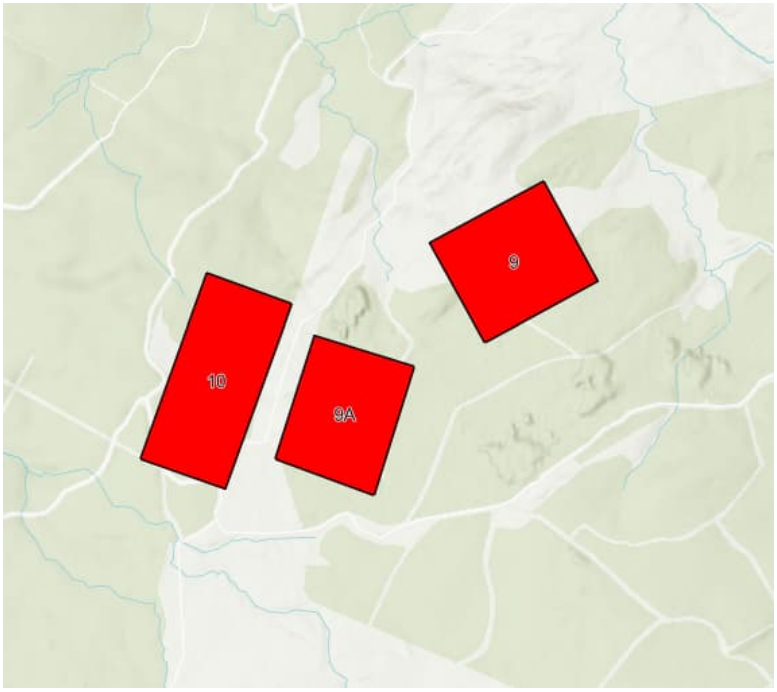
Insert 1-1 – Locations of Sites Assessed during Detailed Site Selection Process[1]

During the detailed site selection process, it was determined that based on a number of different factors, Option 9 was the preferred site location. Details on the site selection process and assessment undertaken, are included within SSEN Transmission's Site Selection Consultation Document[1]. This document was issued to a number of consultees, including statutory and non-statutory, like SEPA. Responses received as part of the consultation

[1] SSEN Transmission (2024) Site Selection Consultation Document – Beauly – Denny 2nd Circuit Upgrade, Proposed Fasnakyle 400kV Substation, January 2024 Update, available: https://www.ssen-transmission.co.uk/projects/project-map/bingally-400kv-substation/

process are included in SSEN Transmission's Report on Consultation[2]. Feedback from consultees was noted in particular relating to the recorded presence of peat at the preferred site. SSEN Transmission acknowledged the presence of recorded peat within the preferred site, with peat probing and targeted ground investigation undertaken to inform peat assessments and the site and design refinement.

The targeted ground investigation undertaken (described further in **Section 3** of this report) included boreholes and trial pits along with various in-situ and laboratory testing. Peat probing was also undertaken as part of the ground investigation. Based on the estimated peat depths from this peat probing survey alone, Option 9 was shown to have areas of deep peat (>1.0 m) with a significant area indicated to have peat depths of >5.0 m. As a result SSEN probed and investigated another area just to the southeast of Option 9, nominally labelled as Option 9a. Option 9a was also estimated to have areas of deep peat present (>1.0 m), however the areas were not as significant, and the maximum depth recorded were up to 4.0 m although these areas were very localised.



Insert 1-2 – Location of Option 9A relative to Option 9 & Option 10

Based on the ground investigation undertaken, SSEN undertook a further high-level comparison of Option 9 and Option 9a considering both the estimated depth and extent of peat, as well as the generalised platform footprint based on 1 in 3 cut and fill slopes. The comparison undertaken estimated approximately 160,000 m^3 of peat would be displaced by Option 9a, whereas approximately 201,000 m^3 would be displaced by Option 9. The difference in excavated peat volumes at each location was directly attributed to the extent of deeper peat under Option 9.

In addition, there is Class 1 peatland habitat recorded to be present which is more challenging to avoid at the location of Option 9, considering the further permanent works and construction areas that are required. As such, based on the estimated peat disturbance and the presence of the Class 1 peatland habitat, Option 9a was selected as the preferred option to be taken forward for development and design optimisation.

As part of the design and optimisation of the Proposed Development, the Designer highlighted the following in relation to minimising peat disturbance as part of their design:

- Avoid areas of deep peat, where practical;
- Avoid areas of Class 1 and Class 2 peat according to the 2016 Carbon and Peatland Map[3]. This was not possible for the proposed access track in its entirety, due to the proposed alignment following the alignment of the existing access track across various sections;
- Refinement of slope angles in any peat cuttings, where possible, to reduce peat excavation;

[2] SSEN Transmission (2024) Fasnakyle Area 400kV Substation, Report on Consultation, March 2024, available: https://www.ssen-transmission.co.uk/projects/project-map/bingally-400kv-substation/
[3] NatureScot (2024) National Soil Map of Scotland Interactive Map Viewer, Available: https://map.environment.gov.scot/Soil_maps/?layer=1# [accessed March 2024]

- Optimising location of temporary works (e.g. laydown areas) to minimise unnecessary excavation of deep peat; and
- The use of appropriate plant (e.g. low ground bearing pressure plant), if required, to track over peat and avoid unnecessary disturbance.

Taking cognisance of the above, peat will still be disturbed as part of the Proposed Development as peat will require excavation to reduce the risk of settlement and instability.

1.4 Objectives

This Stage 1 PMP relates to the works associated with the construction of the Proposed Development. The Stage 1 PMP has been prepared to satisfy the requirements of the Environmental Impact Assessment (EIA) (detailed in **Section 2** below) and to ensure that there has been systematic consideration of peat management and a quantitative assessment throughout the development process.

The planning application for the Proposed Development is split into two parts, an Environmental Appraisal (EA) covering the OHL (and associated infrastructure) works and an EA covering the works for the proposed Bingally Substation (and associated infrastructure) which includes the access track from the A831. Although, the Proposed Development is covered by two separate planning applications, a single PMP will be produced covering both aspects as the they are to be constructed simultaneously.

The Stage 1 PMP provides background details on the possible peat deposits based on desk based sources, an investigation on the peat extent and depth across the Proposed Development, information on the peat and substrate from a ground investigation undertaken for the works, details on the approximate predicted volumes of peat that would be excavated during the construction activities associated with the works, an estimation on the characteristics of the peat that would be excavated, and the principles of how and where this excavated peat would be stored, reused and managed.

A Stage 2 PMP shall be prepared by the Principal Contractor and / or their Designer considering the management of peat for the works post-consent / pre-construction following further development and finalisation of the Proposed Development and on any further information becoming available (e.g. further ground investigation).

2 Stage 1 Peat Management Plan

This Stage 1 Peat Management Plan considers the excavation of peat and soils resulting from construction of the Proposed Development. It considers the potential for minimising the excavation and disturbance of the peat in order to avoid or reduce the generation of any unnecessary surplus of soil and peat.

2.1 Design Principles

SEPA has provided the following hierarchy of design principles to minimise the impacts associated with excavation of peat:

- **Prevention:** The best management option for waste peat is to prevent or limit its production. This can be done through design, positioning infrastructure in shallower peat or through consideration of alternative construction methods or engineering solutions e.g. floated roads;
- **Reuse** (on site or off site for peatland restoration): Using excavated peat in construction or reinstatement (where suitable) e.g., restoration of temporary hardstanding areas, verge reinstatement, screening bunds, peatland restoration etc. SEPAs preference is for all peat excavated onsite to be reused within the site itself;
- **Recycling / Recovery / Treatment**: Where peat cannot be reused on site or off site for restoration, it may be used for agricultural benefit or treated / blended with other materials to form a soil substitute or used in other relevant works. This use would require a waste management license or registration as an exempt activity and compliance with the legal requirements;
- **Storage:** Temporary storage of peat on site (for example, during short periods in the construction phase) and then reuse. Should the peat become unsuitable for reuse during storage, it would be classed as a waste material; and
- **Disposal (Waste):** Only after all other options have been explored and discounted would this option be considered.

Three main stages within the development process are defined within the guidance and describe what data should be gathered and assessed to inform the site specific PMP:

- **Stage 1:** Environmental Impact Assessment (EIA)**;**
- **Stage 2:** Post-consent / pre-construction; and
- **Stage 3:** Construction**.**

This report has been prepared in accordance with the requirements for Stage 1.

As part of the development process, SEPA were contacted and provided Pre-Application Consultation advice. This advice indicated that the Stage 1 PMP typically corresponds with the Outline PMP as highlighted within the Pre-Application Consultation advice. One noticeable difference between the advice provided above and the Pre-Application Consultation Advice is that disposal of peat has been stated as not being acceptable within the Pre-Application Consultation Advice. This differs from the hierarchy provided by SEPA in their Guidance Document - Developments on Peat and Off-Site Uses of Waste Peat[4] which is still provided on SEPA's website and to which the above hierarchy has been based.

This report details the methodologies required to assess all potential surplus materials and presents estimates from the Designer of the expected volume of excavated materials and reuse volumes for reinstatement and restoration purposes.

[4] SEPA (2017) SEPA Guidance - Developments on Peat and Off-Site Uses of Waste Peat, WST-G-052, Version 1, May 2017

2.2 Policy and Guidance for Peat Management

The significance of peatlands is most evident in their protection by various legislation, policy and local, national or international initiatives including, but not limited to:

- United Kingdom Biodiversity Action Plan (UKBAP)5;
- Scotland's National Peatland Plan (SNH, 2015)6;
- European Council Habitats Directive 92/43/EEC (Council of the European Communities, 1992)[7];
- Scottish Biodiversity List (SBL) (Scottish Government, 2013)[8];
- European Council Water Framework Directive 2000/60/EC (Council of the European Communities, 2000)[9];
- Scottish Government discussion paper on the Management of Carbon-Rich Soils (Scottish Government, 2010)[10];
- Scottish Soil Framework (Scottish Government, 2009)[11]; and
- Climate Change Plan (2017-2032) (Scottish Government, 2017)[12].

SEPA has a statutory and legislative duty to ensure that where peat spoil is generated during construction; that it is stored, reused, treated or disposed of correctly; which may require authorisation or permits.

As such, the following documents were referred to for guidance during the preparation of this PMP:

- Developments on Peatland: Guidance on the Assessment of Peat Volumes, Reuse of Excavated Peat and the Minimisation of Waste[13];
- SEPA Regulatory Guidance – Developments on Peat and Off-site Uses of Waste Peat[14];
- Good Practice During Wind Farm Construction[15];.
- Peatland Survey. Guidance on Developments on Peatland[16];
- Floating Roads on Peat[17];
- Constructed Tracks in the Scottish Uplands[18];
- Restoration Techniques using Peat Spoil from Construction Works[19]; and
- Peatland Action – Technical Compendium[20].

Additionally, the publication of the National Planning Framework (NPF) 4[21] has illustrated the importance of more considered practices within peatlands. 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;*

[5] United Kingdom Biodiversity Action Plan (UKBAP) (1994) Biodiversity The UK Action Plan. Available at: https://data.jncc.gov.uk/data/cb0ef1c9-2325-4d17-9f87-a5c84fe400bd/UKBAP-BiodiversityActionPlan-1994.pdf
[6] Scottish Nature Heritage (2015) Scotland's National Peatland Plan. Available at: https://www.nature.scot/doc/scotlands-national-peatland-plan-working-our-future
[7] Council of the European Communities (1992) European Council Habitats Directive 92/43/EEC. Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A01992L0043-20130701
[8] Scottish Government (2013) Scottish Biodiversity List (SBL). Available at: https://www.nature.scot/doc/scottish-biodiversity-list
[9] Council of the European Communities (2000) European Council Water Framework Directive 2000/60/EC. Available at: https://www.legislation.gov.uk/eudr/2000/60/contents
[10] Scottish Government (2010) Scottish Government discussion paper on the Management of Carbon-Rich Soils. Available at: https://www.iucn-uk-peatlandprogramme.org/news/scottish-government-publishes-discussion-paper-carbon-rich-soils
[11] Scottish Government (2009) Scottish Soil Framework. Available at: https://www.gov.scot/publications/scottish-soil-framework/#:~:text=Published%2021%20May%202009&text=This%20framework%20is%20aimed%20at,key%20stakeholders%20with%20an%20interest.
[12] Scottish Government (2017) Update to the Climate Change Plan (2018-2032). Available at: https://www.gov.scot/publications/securing-green-recovery-path-net-zero-update-climate-change-plan-20182032/
[13] Scottish Renewables, SEPA (2012). Developments on Peatland: Guidance on the Assessment of Peat Volumes, Reuse of Excavated Peat and the Minimisation of Waste, Version 1.
[14] SEPA (May 2017). SEPA Regulatory Guidance – Developments on Peat and Off-site Uses of Waste Peat, SEPA Guidance, WST-G-052. Version 1.
[15] Scottish Renewables, Scottish Natural Heritage, SEPA, Forestry Commission Scotland, Historic Environment Scotland, Marine Scotland Science, AECoW (2019). *Good Practice During Wind Farm Construction*, 4th Edition.
[16] Scottish Government, Scottish Natural Heritage, SEPA (2017). *Peatland Survey. Guidance on Developments on Peatland*
[17] Scottish Natural Heritage, Forestry Commission Scotland (2010). *Floating Roads on Peat,* August 2010.
[18] Scottish Natural Heritage (2015) Constructed Tracks in the Scottish Uplands, 2nd Edition, updated September 2015
[19] EnviroCentre on behalf of SEPA (2011) Restoration Techniques using Peat Spoil from Construction Works, Final Report, July 2011.

[20] NatureScot (2024) Peatland Action – Technical Compendium [online], available: https://www.nature.scot/doc/peatland-action-technical-compendium [last accessed July 2024].
[21] The Scottish Government (2024) National Planning Framework 4, available: https://www.gov.scot/publications/national-planning-framework-4/

ii) The generation of energy from renewable sources that optimises the contribution of the area to greenhouse gas emissions reductions targets; iv) 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; iii) the likely net effect of the development on climate emissions and loss of carbon.

As such, the details provided in NPF4 have been considered in this Stage 1 (Outline) PMP.

3 Ground Conditions

Two Geotechnical and Geo-Environmental Desk Studies have been produced by AECOM covering the Proposed Development. The first relates to the proposed OHL, while the second relates to the proposed substation and access track. These desk studies are provided as Technical Appendices within the OHL EA[22] and substation EIA[23], respectively. The below subsections summarise the relevant information pertaining to this PMP from the desk studies produced and supplements this with further detail where required.

3.1 Topography

An Ordnance Survey 5m DTM file was obtained for the Proposed Development. This file was used to produce the contour data as shown on **Figures 2a** to **2c** within **Appendix A**. A brief summary of the elevation data is also presented below.

The topographic data obtained indicates the Site generally slopes down to the northwest. At the main works area the data indicates a fall from approximately 380 m Above Ordnance Datum (AOD) in the east to approximately 285 m AOD in the west. Across the OHL line the topography is shown to fall from approximately 335 m AOD at the southern extent to approximately 285 m AOD at the northern extent.

The topographic data indicates that the existing access track typically falls from southeast to northwest as well as from south to north. Towards the main works area the access track is at a level of approximately 300 m AOD which falls to approximately 90 m AOD by the A831.

3.2 Geology and Soil Maps

The BGS GeoIndex[24] indicates the majority of the Proposed Development to be underlain by either glacial till or areas where no superficial deposits are recorded, indicating bedrock is at or near ground level. Overlying both the glacial till and bedrock, pockets of peat are frequently recorded throughout the Proposed Development, typically in the lower lying areas and in northeast – southwest trending channels. Although not recorded by the BGS, alluvial deposits may be present in the immediate vicinity of watercourses within the Proposed Development. These alluvial deposits may contain peat horizons. Figures are provided within the OHL EA and substation EIA showing the BGS recorded superficial deposits across the Proposed Development.

The National Soil Map of Scotland[25] records the main works area to be predominately underlain by peaty gleys with dystrophic semi-confined peat. Locally, to the northwest and southwest of the main works area, humus-iron podzols with peaty gleyed podzols are recorded. The proposed OHL line is also recorded to be underlain by peaty gleys with dystrophic semi-confined peat in the northern half and southern extent of the works area and humus-iron podzols with peaty gleyed podzols in the southern half and northern extent of the works area. In relation to the access track, this is recorded to be predominantly underlain by humus-iron podzols with peaty gleyed podzols throughout. Locally towards the middle of the route, the access track is recorded to be underlain by peaty gleyed podzols. The northern extent of the access track is also locally underlain by mineral alluvial soils with peaty alluvial soils and the southern extent towards the substation underlain by peaty gleys with dystrophic semi-confined peat.

Review of the 2016 Carbon and Peatland Map layer of the National Soil Map of Scotland Interactive Map Viewer[15] indicates that the main works area is predominately underlain by Class 5 carbon and peatland soils. Locally, within the southwestern extent of the main works area Class 0 deposits are recorded and to the north of the main works area two small pockets of Class 1 carbon and peatland soils are recorded.

The 2016 Carbon and Peatland Map layer indicates that the proposed OHL is underlain by Class 5 soils in the northern half and Class 0 soils in the southern half. Locally in the southern extent of the OHL Class 1 soils are recorded, with these also recorded just to the east of the OHL as noted for the main works area above. Class 0 soils are also recorded within the northern extent of the OHL.

[22] SSEN Transmission (2024) Bingally 400kV Overhead Line Tie-In, Environmental Appraisal, April 2025
[23] SSEN Transmission (2024) Bingally 400kV Substation, Environmental Impact Assessment Report, March 2025
[24] BGS (2024) GeoIndex Onshore, Available: https://mapapps2.bgs.ac.uk/geoindex/home.html [accessed March 2024]
[25] NatureScot (2024) National Soil Map of Scotland Interactive Map Viewer, Available: https://map.environment.gov.scot/Soil_maps/?layer=1# [accessed March 2024]

For the access track, the 2016 Carbon and Peatland Map layer indicates this is predominately underlain by Class 0 soils. Locally towards the centre of the access track route, an area of Class 2 Carbon and Peatland soils are recorded. An area of Class 1 soils is also recorded to the east of the access track, within the red line boundary for the Proposed Development but not underlying the proposed access track alignment.

The 2016 Carbon and Peatland map provides further details on the classifications recorded as follows:

- Class 0 – Generally mineral soils where peatland habitats are not typically found;
- Class 1 – Nationally important carbon-rich soils, deep peat and priority peatland habitat. Areas likely to be of high conservation value;
- Class 2 – Nationally important carbon-rich soils, deep peat and priority peatland habitat. Areas of potentially high conservation value and restoration potential;
- Class 4 – Predominately mineral soils where some peat soil may be encountered. The areas are unlikely to be associated with peatland habitats or wet and acidic type soils. The area is also unlikely to contain carbon-rich soils; and
- Class 5 – Recorded as a peat soil, where the soil information takes precedence over the vegetation data. No peatland habitat is recorded within the area; however, the soils are likely to be carbon-rich and contain deep peat. Bare soils may also be present within the area.

Figures are provided within the OHL EA and substation EIA showing the 2016 Carbon and Peatland classification across the Proposed Development.

3.3 Historic OS Mapping and Aerial Photography Review

Historic OS mapping was obtained for the Proposed Development as part of the Groundsure Report obtained for the Desk Studies and is included as Appendix C of the AECOM Geotechnical and Geo-Environmental Desk Studies[26 & 27]. Review of the earliest available map from 1872 identified the Site was generally undeveloped mainly agricultural land with localised areas of forestry. By 1971 further presumably commercial forestry was recorded particularly within the south of the Site. The mapping up to 1971 also identifies the former alignment of the OHL within the southwest of the Site with access tracks presumably for the forestry indicated within the centre and south of the Site. Also recorded within the south of the site were ponds and a disused gravel pit. From the 1971 mapping to present day no significant or extensive changes were noted within the Site. Typically only new access tracks, OHL, slight changes to the forestry extent and localised pits / quarries were recorded.

A review of aerial photographs relating to the Proposed Development was undertaken using the historical aerial imagery time slider of Google Earth[28].

The earliest available aerial photograph from 1985 was of poor resolution, however, it appeared to record the Proposed Development to be predominately heathland with localised areas of forestry. The next map with good quality resolution was from 2006 which indicated the old alignment of the OHL which was present just to the west of the present-day Beauly – Denny OHL within the Proposed Development. The image from 2006 also indicated extensive forestry in what appears to be a conifer plantation in the main works area which extends to the east of the Proposed Development.

The next available photograph which showed any change was from 2016, which showed felling of most of the forestry within the main works area. The OHL that was present had been upgraded to the now present-day Beauly – Denny OHL in its current alignment, with the old OHL appearing to have been demolished. The existing access track within the Proposed Development that runs from the village of Fasnakyle past the proposed substation is now also present. It is assumed the existing access track was constructed for the installation of the present-day Beauly – Denny OHL alignment. Approximately 3.8 km northeast of the proposed Bingally Substation a presumed borrow pit is shown, which is assumed to have been formed for the extraction of aggregate for use in the construction of the existing access track.

[26] AECOM Ltd (AECOM) (2024). LT521 Bingally 400kV Substation and Access Track, Geotechnical and Geo-Environmental Desk Study, Project No. 60701792, September 2024.
[27] AECOM Ltd (AECOM) (2024). LT521 Bingally Overhead Line, Geotechnical and Geo-Environmental Desk Study, Project No. 60701792, September 2024.
[28] Google (2024) Google Earth

No further significant development was noted through the images reviewed up to the most recent from 2024.

3.4 Field Observations

A site walkover was undertaken as part of the desk studies for the Proposed Development in May 2024. The site walkover typically agreed with the information obtained through the desk-based research above. The Proposed Development is located in areas of forestry and unoccupied land comprising of open heathland with juvenile tress present sporadically. Surrounding the main works area out with the Proposed Development forestry comprising mature woodland was noted. The existing access track along the western edge of the Proposed Development from around Fasnakyle to the proposed substation was also observed. This access track was observed to be unbound comprising of aggregate with a drainage channel running alongside. Peat exposures were not observed as part of the site walkover with the surface typically covered by forestry or the remnants of historic felling and growth of heathland. Within the main works area drainage channels were not encountered to allow viewing of any peat deposits within the channel horizons.

3.5 Definitions of Peat

The Scottish Government Peat Landslide Hazard Best Practice Guide (2017) uses the following Joint Nature Conservation Committee (JNCC) report 455 'Towards an Assessment of the State of UK Peatlands' definition for classification of peat deposits:

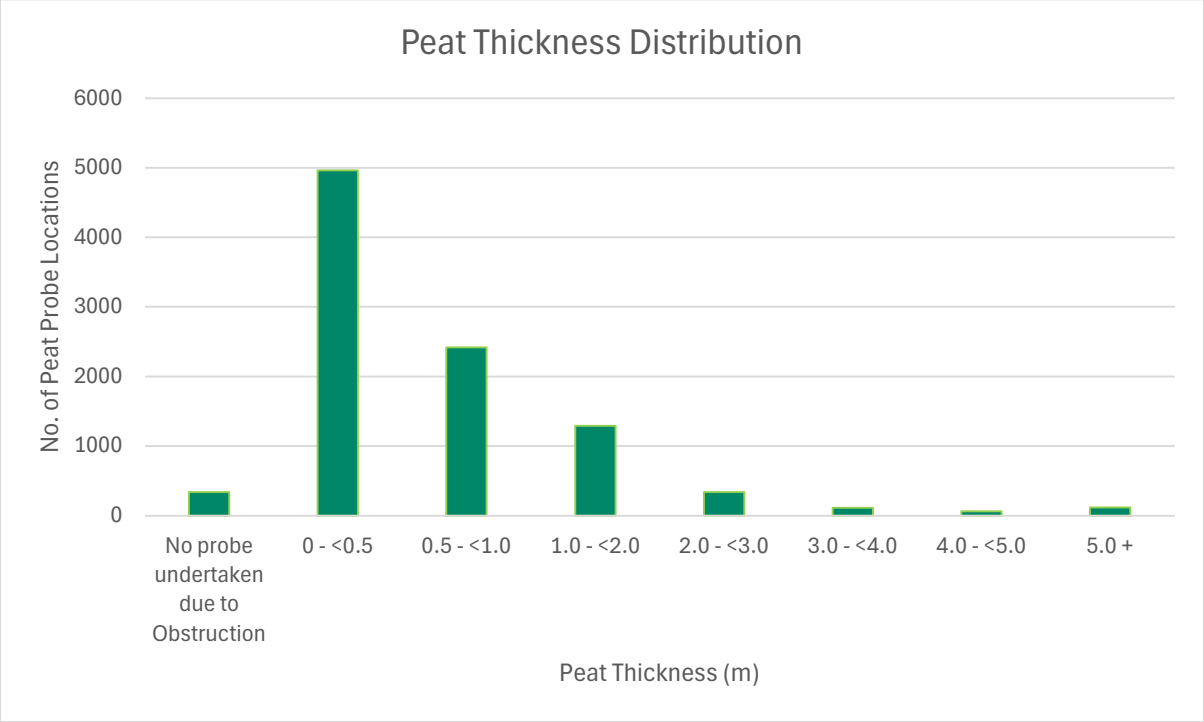
- Peaty (or organo-mineral) soil: a soil with a surface organic layer less than 0.5 m deep;
- Peat: a soil with a surface organic layer greater than 0.5 m deep which has an organic matter content of more than 60%; and
- Deep Peat: a peat soil with a surface organic layer greater than 1.0 m deep.

3.6 Peat Depth Assessment

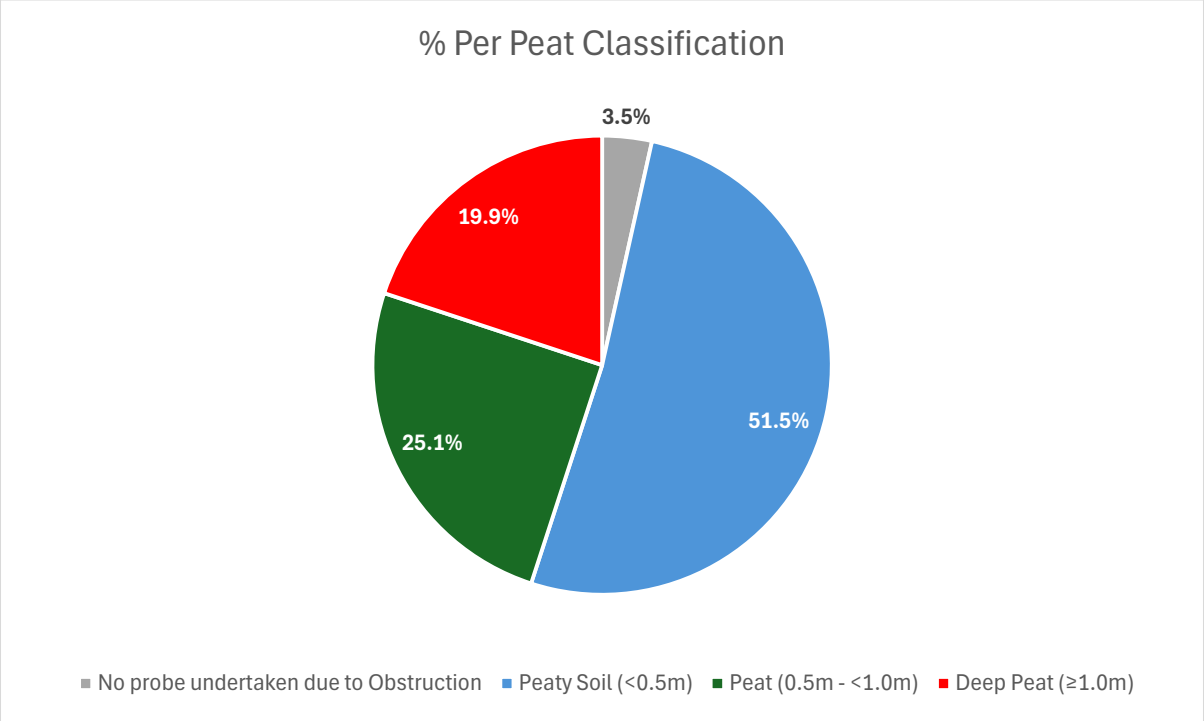
Two phases of ground investigation to determine peat depths have been undertaken for the Proposed Development, as noted below:

- Peat depth probing (6,270 probes) was undertaken by Igne from November 2023 to January 2024 as part of a wider ground investigation. Probing was based on a 10m grid generally and covered Option 9 and Option 9a, as discussed in the **Design Development Section**. The purpose of the peat probing was to determine the depth and extent underlying each of the potential sites, to determine which would be most favourable in relation to that aspect; and
- A further peat investigation survey comprising peat depth probing (3,361 probes) and Russian Coring (60 locations) was undertaken by BAM Ritchies in May to July 2024 to cover the proposed access track, OHL and any infrastructure locations missed at the proposed substation location. The spacing of the probing undertaken varied depending on location with a 20 m grid typically undertaken adjacent to the proposed access track extending to 50 m with distance from the track. For the OHL a 10m grid was typically undertaken at each proposed tower location, working area and access track to the towers. For the proposed borrow pit location a 25 m grid was typically undertaken. The frequency of the Russian Cores undertaken was not set, instead the coring was undertaken to target areas of deep peat.

Figure 3 within **Appendix A** of this PMP shows the location of the probes in relation to the Proposed Development, as well as the probed depths. **Figure 4** within **Appendix A** of this PMP provides a peat depth interpolation plan based on the peat probe results, noting that probes are not available for the full Red Line Boundary, however, the probe coverage covers the Proposed Development. **Plot 1** and **Plot 2** present the distribution of peat probes against the thickness range recorded. Where shallow bedrock or boulders, trees or access tracks were encountered, no probe was undertaken due to this obstruction.



Plot 1 - Peat Thickness Distribution



Plot 2 – Percentage Per Peat Classification

When considering both peat probe investigation surveys, 337 probes (~3.5% of the 9,631 no. total probes) were not undertaken due to the presence of obstructions at surface (e.g. trees, boulders, access track, etc.). Peaty soil <0.5 m thick were recorded in 4.961 no. of the probes (~51.5% of the 9,631 no. total probes) and peat deposits between 0.5 m and <1.0 m thick were recorded in 2415 no. of the probes (~25.1% of the 9,631 no. total probes). Deep peat >1.0 m in thickness was recorded in 1918 no. of the probes (~19.9% of the 9,631 no. total probes).

In relation to the Proposed Development, the peat deposits recorded are typically <1.0 m in thickness. However, it is acknowledged that deep peat deposits (>1.0 m in thickness) are present. These deeper deposits are aligned in a northeast to southwest strip within the proposed Bingally Substation footprint as well as being present more locally underlying each other proposed piece of infrastructure. The deep deposits underlying the Proposed Development are typically up to 3.0 m in depth with very localised areas up to 4.0 m underlying the proposed Bingally Substation footprint, the Temporary Office and Welfare Compound and Temporary Compound 3. Very

isolated areas of peat up to 5.0 m thick are also recorded underlying the southern corner of Temporary Compound 3.

Large extents of deep peat >5.0 m in depth were recorded underlying Option 9 assessed as part of the site selection process (see **Design Development Section** of this PMP), which has since been avoided as part of the Proposed Development in favour of the current substation location at Option 9a. As discussed within the **Design Development Section** of this PMP, deep peat deposits were attempted to be avoided as part of the design process, however, could not be avoided in all cases and the current layout results in a lower level of peat excavation in comparison to other options considered.

3.6.1 Igne Ground Investigation

The ground investigation undertaken by Igne, detailed in their Factual Report dated May 2024[29], included 25 boreholes, 38 trial pits and 6,270 peat probes. Jacobs UK Limited produced a Ground Investigation Report (GIR) for the ground investigation works undertaken[30] which included description of the peat findings and an engineering assessment. The below describes the findings of Igne's ground investigation taking cognisance of the GIR produced by Jacobs as relates to the peat encountered. The peat probe data is described in the above paragraphs along with the further peat probe data collected by BAM Ritchies.

The Igne ground investigation undertaken only covered the main works area of the Proposed Development. Peat was encountered in 13 of the boreholes and all trial pits, except TP16 & TP27, undertaken to a maximum depth of 3.50 mbgl (BH28). Typically, the exploratory holes undertaken as part of Igne's ground investigation agreed with the peat depths and extents recorded as part of the peat probing undertaken.

Where observed in exploratory holes, the peat was generally described as dark brown slightly sandy plastic amorphous locally spongey fibrous peat. The Von Post Humification Scale was used to log the peat whereby the peat is classified in accordance with its degree of humification (decomposition) between H1 and H10, with H1 being completely undecomposed and H10 being completely decomposed. The peat was also classified in accordance with its moisture content using a scale of B1 to B5, with B1 as dry peat up to B5 which is very high moisture content. In general, the peat encountered as part of the ground investigation was recorded in the range of H4 (slight decomposition) to H5 (moderate decomposition) / B1 (dry) to B2 (low moisture content), although humification of up to H8 (very strong decomposition) was locally recorded as well as moisture contents of up to B3 (moderate moisture content). Geotechnical laboratory testing was undertaken within the peat. 18 no. water content tests were undertaken indicating a minimum value of 19%, a maximum value of 1353% and an average value of 545%. 14 no. organic matter content tests were undertaken indicating a minimum value of 12.6%, a maximum value of 24.4% and an average value of 18.8%. Included within Appendix A of Jacobs GIR are geological longitudinal sections at three locations across the main works area, with the predicted platform level shown.

3.6.2 BAM Ritchies Peat Investigation

The peat investigation undertaken by BAM Ritchies, detailed in Fairhurst's GI Summary Note dated August 2024[31], included 3,361 peat probes and 60 Russian Cores. The BAM peat investigation covered the access track leading into the main works area and areas of the Proposed Development previously missed by the Igne Ground Investigation. At the time of writing no further ground investigation information was available for the proposed access track or OHL. The peat probe data recovered as part of this investigation is described at the start of Section 3.6 along with the peat probe data collected by Igne. The locations of the cores undertaken are as shown on Drawings within Fairhurst's Summary Note, with five present within and in close proximity to the proposed borrow pit area and the rest spread across the length of the proposed access track. Of the 60 Russian Cores taken, all but 11 encountered peat. The majority of cores where no peat was encountered were located towards the northern extent of the proposed access track, although further cores where no peat was encountered are also located locally throughout the proposed access track alignment. Where peat was encountered the depths encountered through the Russian Coring typically agreed with the peat depths as estimated through the peat probing undertaken.

Where peat was encountered within the Russian Core positions, typically two distinct layers were encountered; an upper more fibrous layer and a lower more amorphous layer. The upper layer is likely to represent the

[29] Igne Ltd (2024). *Proposed LT521 Fasnakyle 400 kV Substation near Tomich Scottish Highland, Report on Ground Investigation*, Report Issue Final, May 2024
[30] Jacobs UK Limited (2024) *ASTI Substation Site – LT521 Fasnakyle Ground Investigation Report*, Document no: B2468300-JAC-ZZ-XX-RP-GE-0001, Version 00, April 2024
[31] Fairhurst (2024) LT521 – Bingally 400kV Substation, Access Track Peat Probing and Coring GI Summary Note, Report Ref. BING4-LT521-SEBAM-EWKS-ZZ-RPT-G-0003, August 2024

acrotelmic layer of the peat, with this typically recorded from ground level to between 0.10 m and 1.25 m bgl. The upper layer is generally described as spongy to firm brown to dark brown fibrous PEAT with many fine roots. In relation to the Von Post Humification Scale the upper layer was typically recorded in the range H2 (insignificant decomposition) to H4 (slight decomposition), locally H1 (no noticeable decomposition) or H5 (moderate decomposition), with a moisture content of B1 (dry) to B2 (low), locally B3 (moderate). The lower more amorphous layer of peat is likely to represent the catotelmic layer of the peat, with this generally recorded underlying the actotelm to the base of the core location, at the interface with the substrate. The lower peat layer is typically described as spongy to firm, locally plastic, dark brown becoming black clayey pseudo-fibrous PEAT with a deeper deposit also frequently recorded underlying the pseudo-fibrous peat, typically comprising firm to plastic dark brown to black amorphous PEAT. In relation to the Von Post Humification Scale, the lower peat layer was typically recorded to range from H5 (moderate decomposition) to H7 (strong decomposition) becoming H8 (very strong decomposition) or H9 (nearly complete decomposition) with depth, with a moisture content of B2 (low) to B3 (moderate), locally B4 (high) or B5 (very high). No testing was carried out on the peat recovered from the BAM Ritchies peat investigation.

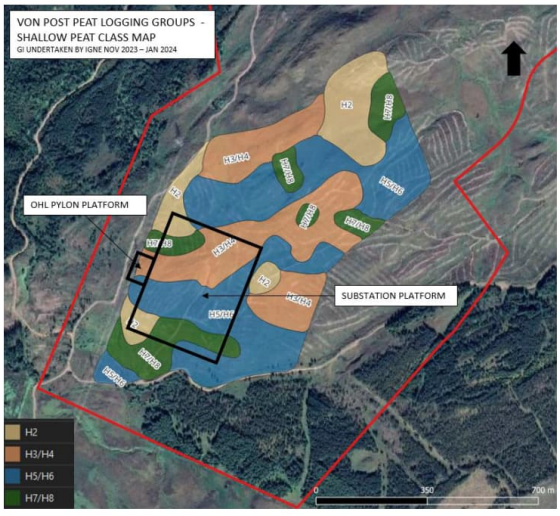
3.7 Peat Conditions at Site

3.7.1 Field Observations

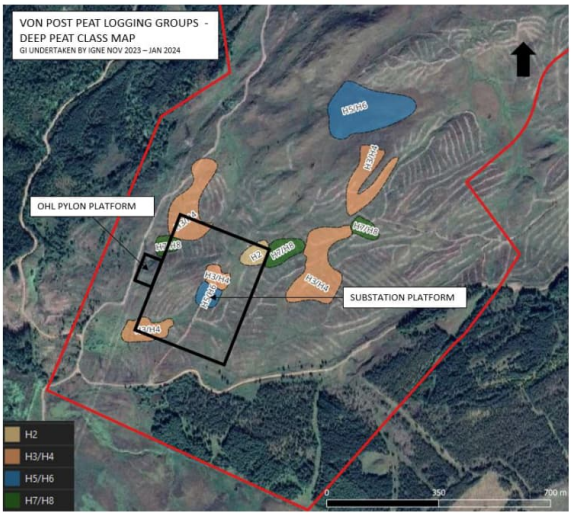
Peat deposits can be broadly subdivided into two layers: acrotelmic (upper layer) and catotelmic (lower layer); the boundary between the two layers is generally defined by the lowest level of the water table. Acrotelm represents the upper fibrous vegetation mat where accretion of material is occurring, with the decomposing vegetation below this comprising catotelm. Catotelmic peat is variable in characteristics, with the decomposition of fibres generally increasing with depth, ranging from semi-fibrous in nature through to amorphous where the original structure of the plant is completely decomposed. Water content can be highly variable and as fibre content affects structural strength of the material.

The exploratory records undertaken as part of the Igne ground investigation typically describe the peat deposits as one unit, and typically do not differentiate the potential peat type with depth, making it difficult to determine the split of the acrotelm from the catotelm. The Von Post Humification Scale was used to describe the peat as part of the investigation, with the below inserts showing the split between the shallow peat layer (interpreted as the acrotelm) and the deeper peat layer (interpreted as the catotelm). Although the Von Post scale was used, the boundary between the interpreted acrotelm and catotelm was still difficult to determine based on description alone. However, in this instance the boundary between the acrotelm and the catotelm was more clearly defined by the presence and level of the groundwater encountered within the exploratory holes undertaken at the main works area. The groundwater level, where recorded within or at the base of the peat, was between 0.10m and 3.20 m bgl with an average depth of 0.82 m bgl and a median depth of 0.50 m bgl. The acrotelm was therefore estimated to be between 0.30 m and 0.80 m in thickness.

Appendix 1.5 – Shallow Peat Class Map (created on QGIS using peat probing data supplied by Igne).



Appendix 1.6 – Deep Peat Class Map (created on QGIS using peat probing data supplied by Igne).



Insert 3-1 – Shallow and Deep Peat Classification Maps [Extract taken from Fairhurst's detailed PMP for the Proposed Substation[32]]

As can be seen from the above inserts, the interpreted acrotelm was encountered within the majority of the exploratory holes, with the underlying interpreted catotelm only locally recorded in zones.

In relation to the interpretation of the acrotelm and catotelm relating to the BAM Ritchies peat investigation for the proposed access track, the definition of the boundary was much more defined. Section 3.6.2 of this PMP describes this boundary, with the acrotelm interpreted to depths of between 0.1m and 1.25 m bgl.

For the purposes of estimated peat volumes for this Outline PMP, an estimated average thickness of 0.50 m for the acrotelm layer has been applied throughout.

Although in places the catotelm peat appears to have some structure, given the trial pits excavated generally remained stable without collapse, for the purposes of the Outline PMP the catotelm is not considered suitable for verge restoration with only the acrotelm proposed for this purpose.

[32] Fairhurst (2024) LT521 – Bingally 400kV Substation, Peat Management Plan, Rev P01, August 2024

3.7.2 Peatland Condition Assessment

As part of the EA Process AECOM undertook a UK Habitat (UKHab) survey across the Proposed Development with the results of this covered by **Chapter 8** of the Bingally Substation EA, **Volume 1**. The survey indicated the main works area is predominantly covered by commercial plantation, formerly dominated by Sitka spruce and currently clear-felled. Habitats within this area are largely a form of degraded bog, that resembles wet heath. **Figure 8-3** of **Volume 2** of the Bingally Substation EA shows areas of blanket bog and degraded blanket bog within the main works area underlying the proposed borrow pit, temporary peat storage areas, one of the laydown / stockpile areas and locally in a small area towards its centre the proposed Bingally Substation. Outwith the peat bogs the main habitat classification was recorded as wet heathland with cross-leaved heath with this the predominant habitat underlying the proposed substation footprint.

Along the proposed access track the habitat was recorded as being largely a near-natural mosaic of woodlands, heaths and bogs in good condition. It was recorded that much of open ground and woodlands in the first 4 km of the track (from the A831) were burnt in a fire in May / June 2023, although it is anticipated these areas will make a full recovery in the long term. The alignment of the proposed access track includes large tracts of pristine blanket bog and wet heath, along with occasional patches of species-poor purple moor-grass dominated mires, dry upland acid grassland and bracken-dominated habitat in a mosaic with heathland. **Figure 8-3** of **Volume 2** of the Bingally Substation EA shows localised areas of blanket bog and degraded blanket bog along the proposed access track.

The Bingally Substation EA highlights that blanket bog is an Annex I H7130 habitat under the Habitats Directive[33].

Potential high and moderate Groundwater Dependent Terrestrial Ecosystems (GWDTE) have been recorded within the Proposed Development as identified by **Figure 8-4** of **Volume 2** of the Bingally Substation EA. Typically, throughout the Proposed Development the GWDTE identified are recorded to be potentially moderate, with the potentially high recorded in a small area in the southwest of the proposed substation and locally along the proposed access track.

[33] European Environment Agency (2019) The Habitats Directive, Annex I: natural habitat types of community interest whose conservation requires the designation of special areas of conservation, available: https://eunis.eea.europa.eu/references/2324/habitats

4 Sources of Peat During Construction

The following activities are likely to generate excavation of peat during the construction process:

- Construction of the platform and associated earthworks;
- Realigned forestry access tracks;
- Drainage, including the provision of SuDS comprising 2 basins, filter drains, watercourse diversions and swales;
- Proposed approximately 9.5 km long access track (comprising 5.9 km of new track and 3.6 km of upgraded track) from the A831 to the proposed platform;
- Construction of OHL tie-in from the existing OHL to the proposed substation;
- Temporary access roads to allow construction of Proposed Development;
- Temporary OHL diversion to allow construction of tie-ins;
- Temporary compound area; and
- Borrow pit.

Due to the size and nature of the Proposed Development and due to its location, a significant volume of peat will require disturbance and excavation and will require relocation both in the temporary and permanent case.

All efforts to minimise impact on peat and requirement for excavation of peat – while taking account of other constraints – have been made in the design process, informed by desk study, walkover observations, peat depth surveys and peatland condition assessment.

A figure has been produced by the Designer of the proposed Bingally substation, which indicates the main peat generating activities of the Proposed Development, refer to **Appendix B**. Note that this figure does not include the proposed 9.5 km long access track into the proposed Bingally substation or details of the proposed OHL works. General details of these are included in **Appendix A**.

4.1 Substation Platform

The size of the substation platform is approximately 375 m x 270 m with a small area immediately adjacent to the west side of the platform approximately 70 m x 50 m for the OHL tie-in. The total area of the platform is therefore approximately 105,250 m^2. The proposed platform location within the Proposed Development was selected to avoid, as best as possible, deep peat deposits using the data available. Typically, the peat deposits recorded across the proposed platform are recorded to be <1.0 m deep, however, localised channels of deep peat >1.0 m are present which cannot be avoided.

Considering the undulation and topography around the platform, earthworks are required to produce a level platform. The finished platform will be required to be competent and capable of supporting the proposed electrical infrastructure of the substation (e.g. buildings, heavy electrical equipment, etc.). Peat is not considered a suitable strata for forming the proposed platform and as such will require removal across the footprint, with the excavation to continue until formation level or competent strata is encountered. Peat, along with other superficial deposits and rock will therefore be excavated as part of the Proposed Development. This requires both cut and fill, with peat required to be removed from the fill (embankments) sections also to allow a stable construction. The design of the earthworks considers slopes of 1:3, although the final earthworks slopes are subject to review during the detailed design stage. Cut slopes in peat are considered to be no steeper than 1:4. Considering this, the overall footprint of the platform including the earthworks is approximately 164,414 m^2.

Based on the estimated overall footprint of the platform, including the associated earthworks and the peat depth investigations undertaken (converted into a 3D peat surface model), a total peat volume of 160,602 m^3 is estimated to be excavated as part of the platform construction.

4.2 Realigned Forestry Access Tracks

As part of the Proposed Development, two existing forestry access tracks require to be realigned around the proposed substation platform. The first to the west of the proposed substation and the second to the south of the proposed Bingally Substation. Earthworks are required as part of the realignment of these access tracks with these typically in the form of embankments. Peat will require to be removed from under the embankments as these deposits do not generally have the necessary geotechnical properties to allow stable construction. The footprint of the realigned forestry access tracks is yet to have any investigation works undertaken. For the purposes of this Outline PMP an estimated peat depth of 0.80 m has been used. This will be confirmed as part of the Stage 2 PMP, post-consent and following further investigation works.

Considering the footprint of the proposed forestry access track realignments and the estimated peat depths, a total peat volume of 14,408 m^3 is estimated to be excavated as part of the construction works of this element. Note that the investigation undertaken at a later date may indicate more or less peat is present and so will affect the peat volume estimated to be excavated.

4.3 Drainage

As part of the drainage network for the Proposed Development, two SuDS basins are proposed to be constructed. The first basin is located to the north of the proposed substation platform and the second is located to the south. Both proposed SuDS basins are typically underlain by peat deposits <1.0 m in thicknesses, although the northern basin has been recorded within localised deep peat (>1.0 m) towards its southwestern corner.

Considering the footprint of the SuDS basins and the peat depth investigations, a total estimated peat volume of 7,311 m^3 is be excavated as part of the northern basin and 10,321 m^3 is to be excavated as part of the southern basin.

Note that for the southern basin, the location of this coincides with the proposed temporary material processing area. Therefore, the peat volume excavated as part of the temporary material processing area includes the volume which is required to be excavated for the southern basin. The temporary material processing areas will be restored on completion of the works, to pre-construction levels except where the proposed southern basin is to be located.

4.4 Access Track

To allow access to the proposed Bingally substation, an access track is required from the A831. The proposed Bingally access track is approximately 9.5 km in length. An existing access track is present along some of the proposed alignment of the proposed access track; however, this will require upgrading and new sections as well as divergences from the existing alignment will be required as part of the Proposed Development. As part of the proposed access track, earthworks are required, due to topographic variations, which encompasses both cut and fill.

The peat probing undertaken along the alignment of the proposed access track indicates peats depths typically <1.0 m in thickness, although deep peat deposits up to 3.5 m thickness are locally recorded.

The current design considers excavation of all the peat underlying the footprint of the proposed access track with an estimated peat excavation volume of 77,614 m^3 calculated.

4.5 OHL Tie-In

As part of the OHL tie-in for the Proposed Development, existing towers require removal and where left in place foundations upgraded and new towers constructed. Due to the nature of the towers and the requirement to ensure suitable stable foundation soil, peat will require total removal from underlying the tower foundations. Peat probing across these permanent towers indicated peat depths of up to 2.0 m. The estimated peat excavation required to enable the construction of the towers has been determined as 544 m^3. Note that the new gantries and tower to tie-in to the proposed Bingally Substation are covered by the platform construction for the substation.

Two new permanent access roads are also required to allow access to towers. These are located at Tower T77 and Tower T79/79R. Peat probing along these access roads typically indicate peat depths <1.0 m thick although localised areas of deep peat were also identified. At present complete removal of the peat underlying the access track footprint are proposed. In total the estimated peat excavation required to allow construction of the access roads has been calculated as 990 m^3.

4.6 Temporary OHL Diversion

To allow the construction of the tie-in to the substation, a temporary diversion to the existing OHL is required. This will require new temporary towers, temporary access roads and working areas around towers. Peat probing across the areas indicate estimated peat depths typically <1.0 m in thickness although deep peat up to 2.0 m was locally recorded.

Complete removal of the peat is required for the foundations underlying the temporary tower foundations, with the current design also anticipating complete removal of the peat under the footprint of the temporary access tracks and working areas. Based on the proposed works and the estimated peat depths an estimated peat volume to be excavated of 1,024 m^3 has been calculated for the temporary towers, 394 m^3 has been calculated for the temporary access roads and 15,800 m^3 has been calculated for the temporary working areas. Note that the temporary working areas includes all towers where works are proposed so includes both temporary and permanent tower locations.

4.7 Temporary Compounds & Borrow Pit

As part of the Proposed Development, six temporary compounds are proposed as shown on **Figure 1a - c** within **Appendix A**.

At the three temporary compounds proposed to the east of the proposed Bingally substation (Temporary Compounds 1 – 3) all peat will be excavated along with a proportion of the underlying granular material and rockhead to create a gently sloping platform. At one of the compound areas (Temporary Compound 3), the largest and eastern most, the compound area is proposed to be combined with a borrow pit. At this location peat will be removed along with granular material and rockhead to a depth of 8.0 m bgl to replace the deficit of material required for the construction of the platform. It is anticipated that the peat along this compound / borrow pit area will be stripped in phases, which will be determined by the Principal Contractor. Peat within the compound / borrow pit area is estimated to be typically <1.0 m in thickness, although localised areas of deep peat up to 3.0 m are locally encountered with deeper peat up to 5.0 m very locally encountered in the southwestern corner of the compound / borrow pit area. Earthworks in the form of cuttings will be required for Temporary Compounds 1 – 3 and the borrow pit to allow their formation. Based on the proposed footprint and estimated peat depths for Temporary Compounds 1 – 3, an estimated peat excavation volume of 25,618 m^3 has been calculated for the northern most area (Temporary Compound 1), 6,481 m^3 has been calculated for the western most area (Temporary Compound 2) and 82,311 m^3 has been calculated for Temporary Compound 3 / borrow pit area .

As part of the construction of the proposed Bingally substation, a Temporary Office and Welfare Compound is proposed to be constructed. This is located immediately to the north of the northeastern corner of the proposed substation platform. Peat probing across the compound area indicates a combination of peat and deep peat across the proposed area with estimated peat depths of up to 3.0 m recorded. The compound area is proposed to be stripped of all peat and a proportion of the underlying granular superficials and rock to create a gently sloping platform. The total estimated peat to be excavated from this area has been calculated as 10,817 m^3.A temporary material processing area is also proposed as part of the Proposed Development, located just to the south of the proposed substation platform and defined by Temporary Compound 4 on **Figure 1a** within **Appendix A**. The formation of Temporary Compound 4 will require both cut and fill to create a relatively level area to undertake the material processing. Peat probing in the area indicates peat depths predominately <1.0 m in

thickness although around the perimeter of the footprint of the compound deeper peat deposits up to 2.0 m have been recorded. Note that peat probing results are not available for the southwestern corner of the compound area. It is proposed the peat within the compound area will be completely stripped for the works area. The total estimated peat to be excavated from this area has been calculated as 26,281 m^3. Note that this peat volume includes the volume for the excavation of the southern SuDS basin, with partial reinstatement of the peat undertaken to form this basin.

As part of the construction of the Proposed Development, an additional temporary compound (Temporary Compound 5) has been proposed to be constructed in the northern extent of the Proposed Development towards the A831. Given the topography of the area, both cut and fill operations will be required to create a level surface for the compound. Peat probing in the proposed compound area indicated peat depths predominately of 0.5 m or less, although very locally peat depths up to 1.0 m have also been recorded. It is proposed the peat within the compound area will be completely stripped and temporarily stored adjacent. The total estimated peat to be excavated from this area has been calculated as 4,850 m^3.

5 Proposed Mitigation During Construction

There are four main types of impact on peat which can occur during construction. These are:

- Loss of structural integrity and peat strength, due to stripping off or damaging the surface vegetation turf, excavation, handling and transporting peat (particularly wet, subsurface peat);
- Erosion and gullying, caused by exposure and desiccation of bare peat surfaces primarily caused by water erosion, due to surface runoff after rainfall;
- Contamination, caused by leaks, spillages or inappropriate laydown of materials; and
- Peat slide, caused by laying wet peat on top of wet peat, laying other heavy materials (including excavated mineral soils or other construction materials) on top of wet peat or by inappropriate stockpiling, such as attempting to create stockpiles of peat that are too high, without bunding, engineering or geotechnical support.

A range of methods and control measures can be adopted to minimise the impact on peat which are described below and are designed to prevent these impacts from occurring. This best practice guidance should be adhered to throughout the construction phase.

5.1 Access Track

The investigative works undertaken along the access track have typically indicated peat depths <1.0 m with more localised areas of deep peat (>1.0 m) present. The current design upon which the Stage 1 PMP is based considers the peat underlying the footprint of the access tracks will be removed in their entirety and as such provides the worst case. This will be reviewed during the detailed design and any changes to access track construction incorporated into the Stage 2 PMP post consent.

With the underlying peat proposed to be completely removed from the footprint of the access track, it has the potential to disrupt natural hydrological drainage pathways. Therefore, appropriate drainage will be designed to mitigate this. Further details of the drainage will be developed as the detailed design of the Proposed Development is progressed and will be contained in the Stage 2 PMP post consent as well as being contained within the Construction Environmental Management Plan (CEMP).

The current design assumes excavated tracks will require complete excavation of peat to a competent substrate, with the excavated peat requiring storage ahead of being reused or removed from the Site. Good practice guidance in association with excavated tracks is as follows:

- Trackside ditches should capture surface water (within the acrotelm) before it reaches the track;
- Any additional interceptor drains associated with the track construction should be shallow and flat bottomed (and preferably entirely within the acrotelm to limit drawdown of the water table); and
- Any stripped peat turves should be placed back in the invert and sides of the ditch to stabilise the banks and assist regeneration.

Any excavation within peat creates the potential for minor slippages to occur from the cut face of the peat mass. Accordingly;

- Free faces should be inspected for evidence of instability (cracking, bulging, excessive discharge of water or sudden cessation in discharge); and
- Where peat is to be stored adjacent to an excavation, stability analysis should be conducted to determine Factor of Safety (FoS) and an acceptable FoS adopted for loaded areas.

Due to the topography and undulations in the ground, the access tracks will be formed on sidelong ground in places, with cuttings formed within superficial deposits and supported on embankments. The gradient of the side slopes should allow the placement of peaty soil (fibrous) onto cut slopes. However, where rock has been exposed in cut slopes, there will be no opportunity for the re-use of excavated peat.

Monitoring should be scheduled post construction to ensure that hydrological pathways and track integrity have been suitably maintained.

5.2 Temporary Compounds 1 – 3

Temporary Compounds 1 – 3 are proposed in part to be laydown areas, with the investigative works undertaken within the areas typically indicating peat deposits <1.0 m thick with localised areas of deep peat (>1.0 m) indicated. As noted in **Section 4** of this PMP, the current design considers all the peat within Temporary Compounds 1 – 3 will be stripped and stored for re-use for when the areas are restored after construction. Consideration of floating Temporary Compounds 1 - 3 was given during the design optimisation, however, due to the peat depths generally being <1.0 m (on average across the areas peat was recorded to be 0.8m thick), these are not generally deep enough to merit the floating construction approach.

The excavation of the peat across the temporary compound areas can have the same effect on the hydrological regime as the access track even though the compounds are temporary. As such, the mitigation proposed above for the proposed access track should be considered for the temporary compound areas also and implemented were practical.

5.3 Peat Excavation, Storage & Transport

As described previously there are two distinct layers of peat; the acrotelm (including the vegetated turves) and the catotelm. These distinct layers should be recognised during peat excavation and reuse activities.

If peat is to be reused or reinstated with the intention that its supported habitat continues to be viable, the following good practice applies:

- Peat should be excavated as turves (approximately 0.3 m to 0.5 m thick). Where the peat is in excess of 0.5 m thick, the acrotelm and catotelm should be separated;
- Turves should be as large as possible to minimise desiccation during storage;
- Mineral soils should be transported and stored separately to reduce the risk of contamination of excavated peat; and
- The timing of excavation of peat should avoid periods of very wet weather and multiple handling of peat should be avoided to reduce the risk of peat losing its structural integrity.

5.3.1 Temporary Storage

Due to the programming of the works, peat storage will be required as part of the Proposed Development where reinstatement / reuse is not immediately possible. All stored peat will be reinstated / reused within the Proposed Development by the end of the construction phase. Proposed temporary storage areas are typically immediately adjacent to the area of excavation. **Appendix B** indicatively shows the locations of the temporary peat storage areas for the proposed substation and associated infrastructure. These areas have been identified based on their shallow slope angle suitable to store peat in a stable configuration as well as having the capacity to store all the peat estimated to be generated from the temporary areas. Note that temporary peat storage areas have not yet been identified for the proposed access track and OHL, however, these are likely to be as close to the area of excavation where possible, if not immediately taken to any identified peat reuse / restoration area. To ensure the proposed temporary storage areas are suitable in terms of environment, construction practicality and safety, the areas will be assessed at a site level by the ECoW, geotechnical engineer and Contractor's temporary works engineer using the guiding principles below:

- Where possible peat shall be excavated, stored and reused as turves. The turves will be stored green side up to avoid drying out of the peat and encourage regrowth;
- Peat turves should be stored in wet conditions or irrigated to prevent desiccation (once dry, peat will not rewet);

- Stockpiling of peat should be in large volumes to minimise exposure to wind and sun but with due consideration for slope stability;
- Excavation and handling of peat can cause the internal structure of the peat to deteriorate. The peat can therefore be a greater hazard when temporarily stored with this loss of structure and strength requiring to be considered and monitored during temporary storage;
- Where minimal peat underlies the ground surface, the peat will be stripped back to the underlying superficial deposits or rock to allow stockpiling to be undertaken to a maximum of 1.0 m thick (unless otherwise agreed by the Geotechnical Engineer). Where peat is approved to be stored higher than 1.0 m this should not be stored greater than 2.0 m, as this can lead to stability issues and could damage the peat itself, and all peat material underlying the proposed storage area will require removal prior to the stockpile being formed to ensure sliding risk is controlled;
- Stores of non-turf (catotelm) peat should be bladed off to reduce the surface area and desiccation of the stored peat;
- Cut off ditches and suitable treatment systems should be considered and installed at temporary storage areas, to ensure any leachate or sediment from stored peat does not reach any watercourse; and
- Monitor areas of peat / storage during period of wet weather, or during snow melt, to identify early signs of peat instability.

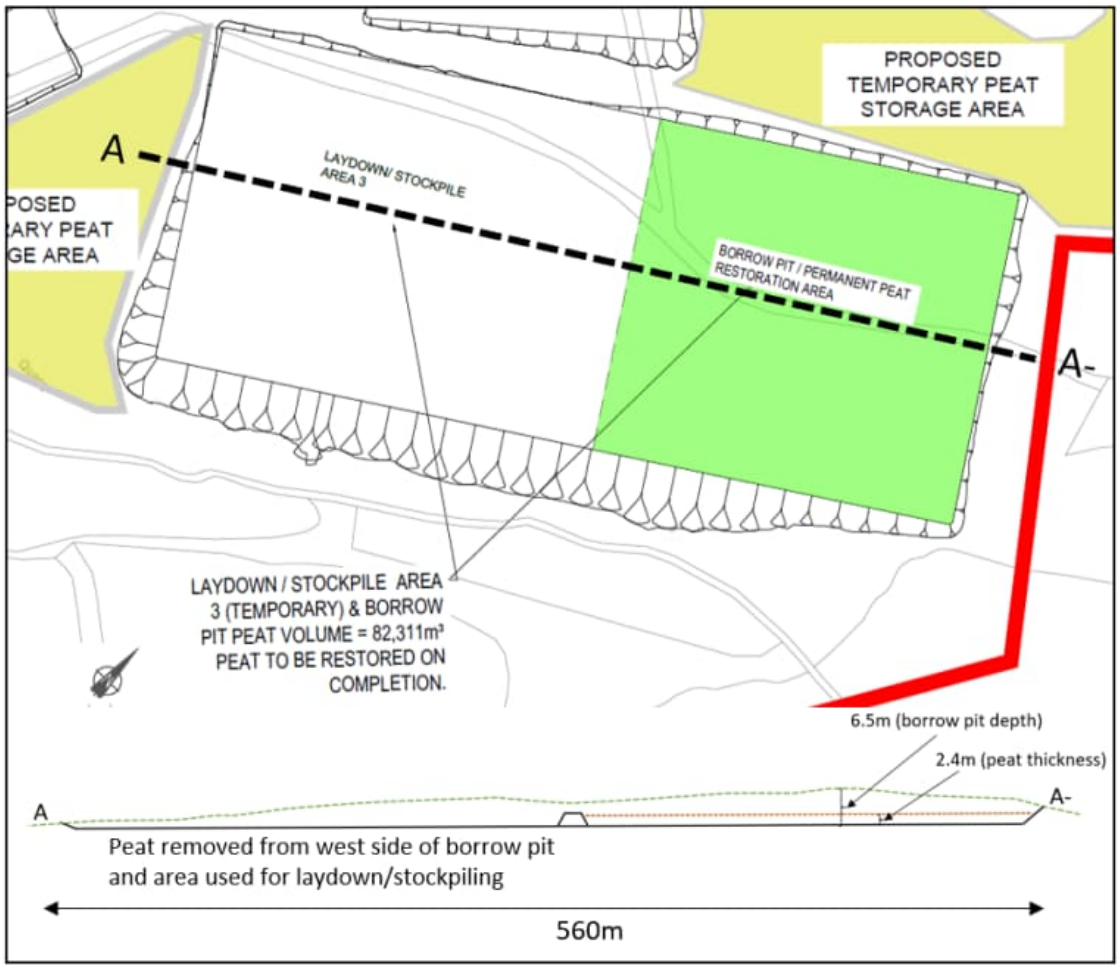
Where peat cannot be transferred immediately to an appropriate restoration area, short term storage (<2 months) will be required. The following good practice applies:

- Peat should be stored around the perimeter at sufficient distance from the cut face to prevent overburden induced failure;
- Local gullies, drainage lines, wet ground and steep slopes should be avoided;
- Stored upper turves (incorporating vegetation) should be organised and identified for reinstatement adjacent to like communities in the intact surrounding peat blanket; and
- Drying of stored peat should be avoided by irrigation (although this is unlikely to be significant for peat materials stored less than 2 months).

Where longer term storage is required (>2 months) the following good practice applies:

- Peat generated should be transported directly to its allocated restoration area to minimise the volume being stockpiled, with the possibility of drying out, where possible;
- Drying of stored peat should be avoided by irrigation, particular in hotter and drier months. Care shall be taken to use a fine spray to irrigate the peat to avoid run-off and / or oversaturation;
- Stores of catotelmic peat should be bladed off to reduce surface area and minimise desiccation; and
- Monitoring of large areas after wet weather or snow melt.

As part of the Proposed Development, the design currently considers the use of Temporary Compound 3 as an area for temporary storage of peat. Currently the eastern half of the area, following excavation of the required material for use as fill, is proposed as this storage area. It is proposed that a temporary earthworks bund is installed within the Temporary Compound 3 to divide the area in two and retain the peat; the western half remaining a compound area and the eastern half becoming the temporary peat storage area. The exact dimensions of the bund are to be determined during the detailed design; however, it is proposed to allow approximately 2.4 m of peat to be stored behind it in the temporary case. The bund is likely to comprise rock or earth fill and be made impermeable to ensure the area remains wet during the construction period. Groundwater level across the area has been recorded very shallow, with the ground investigation undertaken indicating levels from ground surface to 2.90 m bgl. Post fieldworks monitoring of the ground investigation locations indicates the groundwater remained relatively shallow between around ground surface to 1.0 m bgl. As the borrow pit is proposed to be excavated downslope, the worked face should retain the high groundwater levels indicated within the temporary situation and therefore allow for the stored peat to be sustained. An indicative schematic of the proposed temporary arrangement for the storage area at Temporary Compound 3 is provided in **Insert 5-1**, below.



Insert 5-1 – Temporary Peat Arrangement in the Eastern Half of the Temporary Compound/Borrow Pit Area [Extract taken from Fairhurst's detailed PMP for the Proposed Substation[34]]. Note the Laydown / Stockpile Area 3 shown in the insert is referred to as Temporary Compound 3 in this PMP.

5.3.2 Handling

A detailed storage and handling plan will be prepared by the Principal Contractor as part of the construction phase PMP, including:

- Best estimate excavation volume at each infrastructure location (including peat volume split into acrotelm or 'turf' and catotelm);
- Volume to be stored locally and volume to be transferred directly on excavation to restoration areas elsewhere to minimise handling;
- Location and size of storage area relative to natural peat morphology and drainage features; and
- Irrigation requirements and methods to minimise desiccation of excavated peat during short term storage.

These parameters will be determined by the contractor prior to construction.

5.3.3 Transport

Movement of turves should be kept to a minimum once excavated, and therefore it is preferable to transport peat planned for translocation and reinstatement to its destination at time of excavation.

If HGVs are used for transporting non-peat material and excavated peat, measures should be taken to minimise the risk of cross-contamination.

Care shall be taken when transporting the peat to avoid causing unnecessary structural damage.

[34] Fairhurst (2024) LT521 – Bingally 400kV Substation, Peat Management Plan, Rev P01, August 2024

5.3.4 Reinstatement & Restoration of Disturbed Areas

As part of the Proposed Development, the current design considers all peat excavated as part of the works will be reused within the Proposed Development. All temporary works areas (e.g. access roads, compound areas, working areas, etc.) will be fully reinstated to pre-construction levels once no longer needed with the peat excavated restored to its previous level. For the peat excavated as part of the permanent works, it is proposed parts of the acrotelm will be reused for verge and slope dressing as part of the works. Elsewhere peat excavated from the permanent works will also be reused in peat restoration areas as indicated on the Figure within **Appendix B**. Where the peat is not reused within the verge or peat restoration areas, it has been proposed that the peat will be used within Temporary Compound 1, 2 and 3. Further detail on the peat reuse / restoration areas proposed as part of the design, including estimated volumes, is provided in **Section 6** of this PMP.

Note that at the time of writing the exact reuse of the peat excavated from the OHL and access track has not been defined. The peat is proposed to be reused within the Proposed Development itself, with part likely to be reused in verge restoration and slope dressing, however, this is not considered enough for the estimated excavated volume and any catotelm excavated is unlikely to be suitable for this purpose. Exact details of the peat reuse from the proposed access track and OHL shall therefore be provided as part of the Stage 2 (Detailed) PMP, post-consent, following ground investigation for these aspects and the detailed design.

As part of the Landscape Management proposed within the Bingally Substation EA (refer to the Landscape Habitat Management Plan (LHMP) within **Volume 3, Appendix F** of the Bingally Substation EA) for the Proposed Development, larger areas of peatland restoration are shown. The figure included within **Appendix C** shows the proposed location of these restoration areas, with these noted to be situated in the south of the Proposed Development in the vicinity of the proposed Bingally Substation. Much of these areas are already proposed to be restored as a result of being temporary works areas or permanent peat restoration areas. However, there are further areas which are proposed for restoration which fall outwith those, which could allow for the reuse of further peat. Considering these additional areas are small they are unlikely to provide enough volume by themselves to cover the volumes estimated to be excavated as part of the access track and OHL, however, this will be considered and detailed further as part of the Stage 2 (Detailed) PMP post-consent. All peatland restoration areas are proposed to be restored following Peatland Action techniques and best practice[35] and may not necessarily require the reuse of peat excavated from the Proposed Development.

The following shall be considered when considering reinstatement and restoration of disturbed areas of peat:

- Undertake reinstatement / relocation and revegetation works as soon as possible;
- Where required, consider exclusion of livestock and deer from areas of site undergoing restoration;
- As far as is reasonably practicable, restoration should be carried out concurrently with construction rather than at its conclusion; and
- To ensure safe reuse, all peatland restoration works should be subject to assessment by a geotechnical specialist, ensuring that emplacement of peat will not increase the likelihood of peat instability.

The areas proposed for reuse and restoration are typically considered to be degraded blanket bog, due to the forestry activities, and as such present an opportunity for restoration through peat reuse. The hydrological regime within each reuse area will require to be maintained to ensure the groundwater level is sufficient to sustain the peat.

Final details on the proposed reuse / restoration areas will be provided within the Stage 2 (Detailed) PMP post-consent, following further ground investigation data becoming available and the completion of the detailed design.

[35] NatureScot (2024) Peatland Action, Technical Compendium, available: https://www.nature.scot/doc/peatland-action-technical-compendium

6 Site Based Excavation & Management Assessment

6.1 Estimated Peat Excavation

Based on the details of the Proposed Development, the total volume of peat to be excavated has been calculated and is summarised in **Table 6-1**.

The estimate also includes a breakdown of the acrotelmic and catotelmic peat quantities based on the assessed proportion of each material as discussed earlier in the **Peat Conditions at Site – Field Observations Section**.

Note that the excavated volumes relating to the Proposed Development have been provided by the Designer for the works and not calculated by AECOM. The volumes provided are noted to be approximate and will require refinement on further data becoming available. This further refinement will be taken into consideration within the Stage 2 (Detailed) PMP post consent / pre-construction.

Table 6-1 Excavation Materials Management Plan

Description	Total Estimated Peat Volume (m^3)	Estimated Acrotelmic Peat Volume (m^3)	Estimated Catotelmic Peat Volume (m^3)
Permanent			
Substation Platform	160,602	82,207	78,395
Realigned Forestry Access Tracks (North)	7,304	4,565	2,739
Realigned Forestry Access Tracks (South)	7,104	4,440	2,664
SuDS Basin (North)	7,311	4,386	2,925
SuDS Basin (South)	N/A removed as part of Temporary Material Processing Area	-	-
Main Proposed Access Track	77,614	59,186	18,428
OHL Tie-In – Towers	544	144	400
OHL Tie-In – Access Tracks	990	990	0
Temporary			
OHL Diversion – Temporary Towers	1,024	256	768
OHL Diversion – Access Road	394	394	0
OHL Diversion – Working Areas	15,800	15,800	0
Temporary Compound 1	25,618	14,029	11,589
Temporary Compound 2	6,481	4,906	1,575
Temporary Compound 3 & Borrow Pit	82,311	57,941	24,370
Temporary Compound 4	26,281	14,976	11,305
Temporary Compound 5	4,850	-	-
Contractors Compound (Offices & Welfare)	10,817	5,725	5,092
Total	435,045[#]	269,945	160,250

* No bulking factors have been applied to the volumes

[#] Total volumes of acrotelm and catotelm do not account for Temporary Compound 5 as this is still in development.

6.2 Peat Restoration & Reuse

6.2.1 Peat Restoration

Permanent peat restoration areas are proposed as part of the Proposed Development as shown within **Appendix B**. The restoration areas are proposed to utilise an area of felled forest and degraded blanket bog, which is downslope of the Class 1 Carbon and Peatland Habitat on gently sloping ground. It is considered that these proposed areas are suitable to place peat and allow it to restore. The peat proposed to be reused would be acrotelmic peat excavated from the substation platform, which would be placed and shaped to retain water. The total estimated volume of peat which could be used in the permanent restoration areas indicated in **Appendix B** is 58,500 m^3.

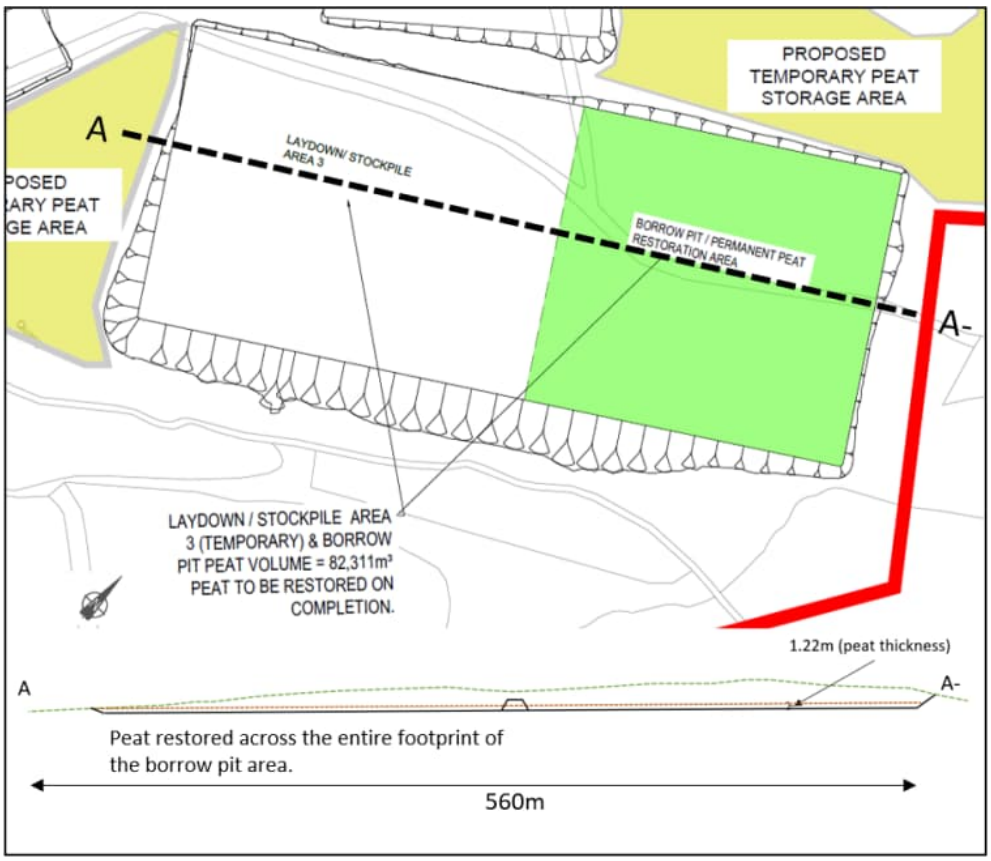
6.2.2 Peat Reuse

Acrotelmic peat excavated as part of the Proposed Development could also be reused to dress swales, SuDS and slopes of up to 1:3 steepness. It is estimated that approximately 19,894 m^3 of acrotelmic peat could be placed at a thickness of 0.45 m across the proposed substation platform fill slopes and SuDS basin slopes. This peat volume can be deducted from the permanent peat volume requiring relocation. At present the main proposed access track is still in the design development stage; however, it is considered acrotelmic peat can be reused to dress the verges and slopes of this also although an estimate has not been made at this stage.

As part of the construction of Temporary Compounds 1 and 2 and the Temporary Office and Welfare Compound, a proportion of the granular superficials and rock underlying the peat will be removed to create a gently sloping platform with the material reused elsewhere within the Proposed Development. It is therefore proposed that a portion of the peat requiring permanent relocation is placed at the base of these areas prior to reinstatement of the peat that was originally located there. An approximate additional 0.5 m thick layer of the catotelmic peat is therefore proposed to be used at each of these temporary areas prior to the reinstatement of the original peat. This would account for around 40,128 m^3 of peat. At Temporary Compound 5, once this compound is no longer required for the construction of the Proposed Development, all peat that was excavated would be fully reinstated. The volume of peat to be reused in reinstatement of the temporary compound is therefore estimated to be 4,850 m^3.

Post earthworks, when the borrow pit is no longer required and Temporary Compound 3 is no longer in use, the peat within this area will be restored. As granular superficial deposits and rock will have been excavated from the area and reused elsewhere within the Proposed Development, it is proposed to reuse further peat from the substation area, realigned forestry access track and SuDS basins within the borrow pit area so a maximum peat thickness of 1.22 m is permanently restored. This would allow an estimated peat reuse volume of 131,703 m^3 to be restored in the area. Given the estimated peat volume excavated from Temporary Compound 3 was estimated as 82,311 m^3 this would mean an additional volume of 49,392 m^3 of peat that requires permanent relocation can be reused here. Given the additional reused peat will be underlying the original peat from the area, it is proposed the catotelmic peat is reused in this area.

The bund formed in the temporary case in Temporary Compound 3 to divide the area into two sections (discussed in Section 5 – Temporary Storage of this PMP) would be removed as part of the works. Given the very shallow groundwater recorded as part of the ground investigation works undertaken and as the borrow pit is proposed to be excavated downslope, the worked face should retain the high groundwater levels indicated in the long term restored. An indicative schematic of the proposed temporary arrangement for the permanent peatland restoration of Temporary Compound 3 is provided in **Insert 6-1**, below.



Insert 6-1 – Permanent Peatland Restoration Arrangement of Temporary Compound 3/Borrow Pit Area [Extract taken from Fairhurst's detailed PMP for the Proposed Substation[19]]. Note the Laydown/Stockpile Area 3 shown in the insert is referred to as Temporary Compound 3 in this PMP.

Note that during the restoration, catotelmic peat will be placed at the base followed by acrotelm with peat turves placed at surface to promote revegetation. The exception to this is for verge and slope dressing, where only the acrotelm will be used. Where the peat turves require reseeding when reused, a suitable seed mix as agreed with NatureScot and the local planning authority will be used.

Table 6-2 on the following page presents the estimated peat restoration and reuse volumes relating to the Proposed Development.

Table 6-2 - Peat Re-Use Volumes

Description	Total Estimated Peat Volume (m^3)	Estimated Acrotelmic Peat Volume (m^3)	Estimated Catotelmic Peat Volume (m^3)
Permanent Peat Restoration Areas	58,500	58,500	0
Dressing of swales, SuDS and slopes (excluding proposed main access track & OHL)	19,894	19,894	0
Reinstatement of OHL Diversion – Temporary Towers	1,024	256	768
Reinstatement of OHL Diversion – Access Road	394	394	0
Reinstatement of OHL Diversion – Working Areas	15,800	15,800	0
Reinstatement of Temporary Compound 1	25,618	14,029	11,589
Reinstatement of Temporary Compound2	6,481	4,906	1,575
Reinstatement of Temporary Compound 3 & Borrow Pit	82,311	57,941	24,370
Partial Reinstatement of Temporary Compound 4	15,960	10,640	5,320
Reinstatement of Temporary Compound 5	4,850	-	-
Reinstatement of Temporary Offices & Welfare Compound	10,817	5,725	5,092
Additional 0.5m thickness of catotelmic peat underlying reinstated peat at Temporary Compound 1 & 2 and the Temporary Office and Welfare Compound	40,128	0	40,128
Additional thickness of catotelmic peat underlying the original excavated peat at Temporary Compound 3 / borrow pit to take total thickness to 1.22m across the area	49,392	0	49,392
Total	331,169[#]	188,085	138,234

[#] Total volumes of acrotelm and catotelm do not account for Temporary Compound 5 as this is still in development.

6.3 Peat Balance

The Stage 1 (Outline) PMP estimates 435,045m^3 of peat will be generated by the construction activities.

All peat excavated from temporary areas are anticipated to be completely replaced on completion of the works within the areas. This equates to a total volume of peat reuse in the temporary areas of 173,576 m^3. This volume of peat will require temporary storage for a period of time until the temporary areas are no longer in use and can be restored. Although this reduces to 163,255 m^3 to account for only partial reinstatement of Temporary Compound 4 to allow formation of the Southern SuDS Basin.

In relation to the peat requiring permanent relocation, this volume is estimated as 271,790 m^3 of which 162,799 m^3 is estimated to be acrotelm and 108,991 m^3 is estimated to be catotelm.

Table 6-3 below shows the peat balance for the Proposed Development based on the estimated excavated peat volumes and the currently identified peat reuse/restoration areas.

Table 6-3 - Peat Balance Summary

	Total Volume (m^3)	Acrotelm Volume (m^3)	Catotelm Volume (m^3)
Excavated	435,045	269,945	160,250
Identified Reuse	331,169	188,085	138,234
Required to be Reused	103,876	81,860	22,016

Note the excavated and reuse acrotelm and catotelm peat volumes above do not take into account the volumes of peat at Temporary Compound 5, however, the peat balance as a result of this is known to be neutral.

As can be seen from the above table there is still a deficit of peat excavated as a result of the Proposed Development which requires to be reused. The majority of the defect is from the peat excavated as part of the access track with this aspect of the Proposed Development still being designed. The Applicant is committed to reusing the peat within the Proposed Development with no peat currently being currently being considered for offsite reuse. Further peat reuse in the dressing of verges and slopes along the access track will be adopted. However, an estimate of the volume of peat able to be reused has not been determined at this stage. Further peat reuse within the Proposed Development and specifically the access track is still to be confirmed and will be detailed within the Stage 2 (Detailed) PMP, post-consent.

7 Monitoring & Inspection

The construction phase of the Proposed Development would be supported by a geotechnical engineer and ECoW. There would be frequent, routine and regular inspections of peat in all stockpiles and temporary storage areas as part of the PMP audit process. Inspections would assess in situ peat physical conditions, integrity of containment and temporary drainage conditions, and they would seek to confirm that stockpile design and management was adequate to prevent erosion and peat slide. These inspections would take place weekly (at a minimum) during stockpile creation and storage.

Should any problems be observed during regular visual inspections of peat stockpiles, this would invoke implementation of an appropriate corrective action which would be recorded and monitored for effectiveness. Types of corrective actions would include, but would not necessarily be limited to:

- Modification of temporary drainage;
- Additional or modified bunding;
- Incorporating of sediment fencing if required; and
- Light re-grading to correct any areas of surface erosion, etc.

Regular, frequent inspections of peat conditions during construction and restoration phases of work would be carried out by the Geotechnical Engineer and ECoW as follows:

- Peat surface, peat profile and peat consistency conditions would be carried out as part of ground investigations prior to the start of construction. This information would provide detailed information on the baseline conditions for each part of the infrastructure footprint;
- Restored peat conditions would be inspected immediately after restoration to ensure that the methods detailed in the PMP had been correctly implemented and to inform any corrective actions should they be required;
- The physical condition of peat would be retained as carefully as possible both at the peat storage and the peat restoration stages. This is particularly important for vegetation establishment;
- Within 3 months of completion of works in any area, the ECoW inspects the reinstatement efforts to determine satisfactory placement of sub-soil, topsoil and turves;
- The ECoW (or other qualified person) undertakes a final inspection of all reinstated areas at the end of the first growing season following completion of reinstatement; and
- The ECoW should complete a daily diary of onsite activities which would be compiled within a monthly ECoW report which will include information relating to peat reinstatement, these reports will be available at the request of the Planning Authority.

8 Conclusions

This Stage 1 (Outline) PMP follows the guiding principles and has been created in adherence with best practice guidance.

The PMP addresses the following peat related issues:

- The depth and condition of peat deposits across the Proposed Development;
- The volumes of peat that are predicted to be excavated and its suitability for reuse;
- The capacity to reuse the peat on-site for reinstatement, landscaping and peatland restoration;
- Peat handling and temporary storage; and
- Restoration and monitoring of peatland habitat.

The estimate of total peat volumes is based on a series of assumptions for the Proposed Development including measurement of the current design compared to existing ground level and using ground models developed through the ground investigation data available. Such parameters can still vary over small scale and therefore topographic changes in the substrate and bedrock profile, historical ground disturbance, etc. may impact the total accuracy of the volume calculations. The peat volumes provided will be refined as part of the detailed design, taking account of any further information obtained (e.g. further ground investigation data, etc.) and as the geotechnical design develops to the fully mature construction design. The Applicant has committed to, as far as practicable, reusing the surplus peat generated from the construction of the Proposed Development within peat reuse and peatland restoration areas within the Site. This PMP has identified peat reuse and restoration areas within the Proposed Development where the majority of the peat excavated will be reused / restored. A deficit of peat requiring reuse is presently acknowledged, however, this does not account for the peat able to be re-used along the access track potentially in further restoration areas, details of which are to be developed.

It is expected that a Stage 2 PMP will be generated post consent to update this Stage 1 PMP with any new information obtained and based on a more refined design. The Stage 2 PMP will also provide further details on the peat restoration / reuse areas available. Following this a Construction Phase PMP will be developed by the Contractor which will be an update of the Stage 1 and 2 PMPs and which will be constantly updated and maintained throughout the site works.

The implementation of a construction phase PMP would ensure a commitment from the Contractor to excavating, handling, storing, transporting and reinstating peat that follows good practice and ensures protection of peat throughout the construction and post construction phases. A series of good practice standards detailed within this PMP relating to excavation, handling and storage of peat will be utilised to maintain the structural integrity of excavated peat and its suitability for reuse.

Appendix A – Figures

Appendix B – Designers Peat Reuse/Restoration Areas and Temporary Storage Locations

Appendix C – Landscape Habitat Management Plan Figure

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