Chleansaid Wind Farm 132 kV OHL Connection

Environmental Appraisal (EA) Report

Appendix 10.2: Soil and Peat Management Plan

November 2024

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CONTENTS

LIST OF ABBREVIATIONS

AOD	Above Ordinance Datum
BNG	Biodiversity Net Gain
CEMP	Construction Environmental Management Plan
CIEEM	Chartered Institute of Ecology and Environmental Management
EA	Environmental Appraisal
GEMP	General Environmental Management Plan
GIS	Geographical Information System
GWDTE	Groundwater Dependant Terrestrial Ecosystems
HCA	Habitat Condition Assessment
LoD	Limit of Deviation
MMU	Minimum Mapping Unit
NPF4	National Planning Framework 4
NS	NatureScot
NWSS	Native Woodland Survey of Scotland
NVC	National Vegetation Classification
OHL	Overhead Line
OS	Ordnance Survey
SEPA	Scottish Environment Protection Agency
SSSI	Site of Special Scientific Interest
THC	The Highland Council
UKHab	UK Habitat Classification

EXECUTIVE SUMMARY

This document is a stage 1 Soil and Peat Management Plan (SPMP) for the construction of a new 132 kV overhead line (OHL) connection supported on 132 trident wood poles approximately 10.5 km in length running from the consented Chleansaid Wind Farm Substation to the existing Dalchork Substation (the 'Proposed Development').

Peat Avoidance

The assessment presented in **Section 9** of this Soil and Peat Management Plan (SPMP) identifies that peat and peatlands are present within the Proposed Development, albeit discontinuously.

Site specific surveys undertaken to inform the design have confirmed that the highest proportion (40%) of recorded depths fell within the <0.4 m range with the next highest proportion (28%) within the ≥0.4 - <1.0 m. 70 % of locations surveyed encountered either no peat, organic peat soil, or peat depths <1.0 m in thickness.

Deep peat and very deep peat were encountered comparatively infrequently and represented only a small proportion of the depths recorded (12 %). These areas of deep peat were generally localised to basins adjacent to the Feith Osdail and Loch Dubh. The most notable occurrences of deep peat were at ~135 m AOD southeast of Am Breac-leathaid.

The avoidance of peat has been integral to the design evolution and whilst it has not been possible to avoid peat in every instance, such areas have been minimised as far as possible, and further measures to minimise disturbance through design and management practices have been proposed.

Minimising Disturbance

Direct and indirect impacts on peat and peatland arising from the construction of the Proposed Development would be minimised through a combination of design measures as well as the implementation of good practice. All contractors will be made aware of the sensitivity of peat and wetland habitats, and will be required to work within the narrowest practical construction corridor when working in or near areas of peat.

Floating track, track-way or bog mats will be used for access to minimise excavation volumes.

Where peat and peatland excavation is unavoidable, excavation methods would be in accordance with good practice, including seeking to time excavation so that it can be followed by reinstatement as quickly as possible. Good practice associated with temporary storage, handing and transport also apply. Mitigation will be put in place where there is any risk of disturbance.

Where imported material is required for wood pole foundations in peat and peatland, this material would be inert, in particular not of an alkaline pH, which could impact on acidic peat.

The exploration of further opportunities for minimising disturbance through micro siting would be undertaken following the completion of detailed design post-consent and will be provided by the Principal Contractor in a later revision of this SPMP.

Restoration

A site-specific peat balance assessment has concluded that all excavated peat and peat soil can be re-used as part of the reinstatement of the Proposed Development. A comprehensive programme of soils and peat probing has been completed at the site. This document uses this information and provides indicative volumes for peat extraction and outlines recommendations for the handling, re-use and storage of peat during construction and operation of the Site.

All acrotelmic peat will be re-used in the final surface reinstatement around individual pole locations. Catotelmic peat (amorphous and fibrous) would be prioritised for re-use in the backfill of excavations. Where there is insufficient capacity for catotelmic peat re-use at pole locations, peat will be transported short distances to adjacent poles which may have additional re-use capacity (peat will not be placed where there was no peat before). There are no sections of the Proposed Development where aggregated catotelmic peat volumes have been identified to be too great to reinstate at neighbouring poles. If this occurs then the re-use of peat in depressions and hollows is proposed.

The re-use of peat shall (in accordance with good practice presented in this SPMP) maximise the potential the re-used soils in order to become part of a functioning peatland system.

Offset and Enhance

In order to provide a beneficial effect, targeted peatland restoration can be undertaken to repair peat hags or other active erosion features. This would not involve the re-use of peat excavated from the Proposed Development as importing peat is not necessary for the peatland habitat enhancement. Instead, such works would aim to improve the functionality of adjacent peatland through mechanical intervention. Restoration techniques could include drain blocking, fugitive juvenile tree removal, gully blocking, hag or eroding edge reprofiling and bare peat pan restoration.

1. INTRODUCTION

1.1.1 This stage 1 Soil and Peat Management Plan (SPMP) (hereafter referred to as 'this SPMP') forms an Appendix to **Chapter 10: Hydrology, Hydrogeology, Geology and Soils** of the Environmental Appraisal (EA) Report and should be read with reference to this chapter and associated figures.

1.2 Project Background

1.2.1 The Proposed Development consists of the construction of a new 132 kV overhead line (OHL) connection supported on 132 trident wood poles approximately 10.5 km in length running from the consented Chleansaid Wind Farm Substation to the existing Dalchork Substation. WSP were commissioned in 2023 to undertake a peat stability assessment for the Proposed Development ,in conjunction with the soil and water elements of the EA.

1.2.2 A detailed description of the Proposed Development is set out within **Chapter 3: Description of the Proposed Development** of the EA Report.

1.2.3 The purpose of this SPMP is to consider the potential peat management occurring at the site of the Proposed Development such that suitable controls and appropriate methodologies can be employed during the construction and commissioning of the OHL to safeguard peatland and peat as far as possible. This report presents the findings obtained by peat depth surveys undertaken by WSP between 2022 and 2024.

1.3 Site Description

1.3.1 The Study Area considered by this SPMP is defined in **Chapter 10** of the EA.

1.3.2 The Proposed Development will be located on land approximately 3 km to the north of Lairg, in the Sutherland region of the Highlands and within the Local Authority area of The Highland Council (THC) (hereafter referred to as 'the Site'). The Site located between the National Grid References NC 62091 15677 and NC 58166 09519. The Site is bounded by the consented Chleansaid Wind Farm to the north, the A836 to the west and commercial forestry land to the south-east.

1.3.3 The Site is surrounded by large areas of coniferous woodland, commercial forestry plantations in various stages of management with open habitats present between the stands of plantation. The habitats adjacent to the areas of commercial forestry is predominantly blanket bog, with some areas of upload heathland and lowland heathland.

1.3.4 Land use within and surrounding the Site is dominated by commercial forestry operations, with forestry blocks located to the north and south, and associated access tracks and openings located throughout the Site. Outside of the forestry areas, most of the Site and surrounding area is classified as Class 5-3 agricultural land. The Site lies within an area which is of high recreational interest for walkers, horse riders, hikers, anglers, stalkers and cyclists.

1.4 Objectives of the SPMP

1.4.1 The SPMP outlines the overall approach of minimising disruption to peatland, and it aims to ensure that all further opportunities to minimise peat disturbance and extraction would be taken during detailed design and construction of the Proposed Development.

1.4.2 The SPMP has been developed to demonstrate that peat has been afforded significant consideration during the construction phase of the Proposed Development, should consent be granted.

1.4.3 The purpose of this report is to ensure that there has been a systematic consideration of peat management and a quantitative assessment throughout the development process.

2. ROLE OF THE SOIL AND PEAT MANAGEMENT PLAN

National Planning Policy Framework

2.1.1 Scotland's National Planning Framework 4 (NPF4) states that under Policy 5 – Soils[1] [a] "*development proposals should only be supported if they are designed and constructed in accordance with the mitigation hierarchy by first avoiding and then minimising the amount of disturbance to soils on undeveloped land and in a manner that protects soils from damage including from compaction and erosion, and that minimises soils sealing*."

2.1.2 Policy 5[c][1] also states that "*Development proposals on peatland, carbon rich soils and priority peatland habitat will only be supported for… (ii,) The generation of energy from renewable sources that optimises the contribution of the area to greenhouse gas emissions reductions targets*".

2.1.3 Policy 5[d] states that "*where development on peatland, carbon-rich soils or priority peatland habitat is proposed, a detailed site specific assessment will be required". Policy 5[d] goes on to state that the site specific assessment "should inform careful project design and ensure, in accordance with relevant guidance and the mitigation hierarchy, that adverse impacts are first avoided and then minimised through best practice. A peat management plan will be required to demonstrate that this approach has been followed, alongside other appropriate plans required for restoring and/ or enhancing the site into a functioning peatland system capable of achieving carbon sequestration*".

2.1.4 This Stage 1 SPMP has accommodated the requirements of Policy 5 in demonstrating how the mitigation hierarchy has been follows and provides a site-specific assessment suitable for demonstrating the safeguarding of peat.

Mitigation Hierarchy

2.1.5 The Scottish Environment Protection Agency (SEPA) and NatureScot (NS) has provided a hierarchy of management approaches through which the effectiveness of the approach to peat management is optimised at development sites, as summarised below:

- **Avoid:** Development should first seek to avoid areas of peatland, carbon-rich soils and priority peatland habitat.
- **Minimise**:
    - **Prevention** – prevent or minimise peat excavation/disturbance through considered design that avoids or minimises wind farm infrastructure within areas of peat. Where avoidance is not possible, minimise excavation of peat using engineering solutions such as floating roads.
    - **Re-Use/Reinstatement** – re-use extracted peat close to its original location in the reinstatement or restoration of temporary infrastructure, road verges and borrow pits. Peat may also be used where appropriate to improve or restore peatland habitats.
    - **Recycle/Recover/Treat** – while the priority should always be to prevent and re-use peat on site there may be situations in which there may still be a surplus of excavated peat. Where demonstrated that it is suitable for use peat, may be blended, dewatered or treated to improve its properties to support re-use on site.
    - **Temporary storage** – store the peat temporarily during construction prior to re-use in on site reinstatement or restoration activities.

1 The Scottish Government (2023) National Planning Framework 4, Scottish Government. Available at: https://www.gov.scot/publications/national-planning-framework-4/pages/3/ [September 2024].

- **Restore:** repairing damaged habitats. Any habitats that are damaged by the proposal (whether direct or indirect impacts) should be restored as far as is possible.
- **Offset:** compensating for residual impact that remains, with preference to on-site over off-site measures. Effective restoration and management of degraded equivalent habitat should compensate for any losses.
- **Enhance:** biodiversity, including by restoring degraded habitats and building and strengthening nature networks This is a requirement to provide significant biodiversity enhancements, these measures are in addition to the restoration and offsetting requirements.

Purpose of this SPMP

2.1.6 This SPMP summarises the investigation that has been undertaken to characterise the Study Area and includes secondary sources of published information as well as primary data collected through fieldwork.

2.1.7 The SPMP is based on pre-construction information and will be superseded post-consent by further Stage 2 and Stage 3 assessments utilising detailed design to be completed by the appointed contractor post consent.

2.1.8 The report also details the methodologies required to assess all potential surplus materials and presents preliminary estimates of the expected volume of excavated materials and required re-use volumes for reinstatement and restoration purposes. In particular, this report considers primarily the excavation and re-use of peat as part of the construction process, which results in the excavation of peat and sub-soils potentially resulting in surplus materials.

2.1.9 Many of the issues associated with peat on an OHL site can be accommodated by modifying the Proposed Development layout to avoid potentially difficult or sensitive areas. Such areas would include:

- areas of deep peat, requiring potentially large volumes of excavation;
- areas of very wet peat (such as flushes, pool and hummock complexes and gullied peatland);
- areas of moderate to steep slopes (where site construction might increase the chance of peat instability); and
- areas of sensitive habitat.

2.1.10 This report estimates the extent of materials generated during the construction phase and identifies potential areas where peat can be re-used through the following:

- the avoidance of creating surplus materials; and
- re-use of materials on site.

3. LEGISLATION, GUIDANCE AND GOOD PRACTICE

3.1.1 Legislation relevant to the management of peat includes the following:

- The UK Climate Change Act 2008 (c27)[2];
- Environmental Protection Act 1990 (as amended)[3];
- Landfill (Scotland) Regulations 2003 (as amended)[4];
- The Waste Management Licensing (Scotland) Regulations 2011[5];
- Scotland's National Planning Framework 4, 2023[6]; and
- Wildlife Management and Muirburn (Scotland) Bill, 2024[7].

3.1.2 There are a number of guidance documents appropriate to the activities planned on site which have been used to guide this assessment, as follows:

- Guidance on Developments on Peatland (SNH, SEPA 2017)[8];
- Guidance on the assessment of peat volumes, reuse of excavated peat and the minimisation of waste (SR, SEPA, January 2012)[9];
- SEPA Regulatory Position Statement – Developments on Peat (SEPA, 2010)[10];
- Advising on peatland, carbon rich soils and priority peatland habitat in development management. Published April, 2023, revised November 2023 (NatureScot, 2023)[11];
- Good practice during wind farm construction (SR, SNH, SEPA, FCS, HES; 2015)[12];

2 UK Government (2008) Climate change act 2008, available at: Legislation.gov.uk https://www.legislation.gov.uk/ukpga/2008/27/contents [September 2024].
3 UK Government (1990) Environmental protection act 1990, Legislation.gov.uk. Available at: https://www.legislation.gov.uk/ukpga/1990/43/contents [Accessed: September 2024].
4 The Scottish Government (2003) The landfill (Scotland) regulations 2003, Legislation.gov.uk. Available at: https://www.legislation.gov.uk/ssi/2003/235/contents [Accessed: September 2024].
5 The Scottish Government (2011) The Waste Management Licensing (Scotland) regulations 2011, Legislation.gov.uk. Available at: https://www.legislation.gov.uk/ssi/2011/228/contents (Accessed: September 2024).
6 The Scottish Government (2023) National Planning Framework 4, Scottish Government. Available at: https://www.gov.scot/publications/national-planning-framework-4/ [Accessed: September 2024].
7 The Scottish Government (no date) Wildlife Management and Muirburn (Scotland) act 2024, Legislation.gov.uk. Available at: https://www.legislation.gov.uk/asp/2024/4#:~:text=An%20Act%20of%20the%20Scottish,of%20muirburn%3B%20and%20for%20connected [Accessed: September 202]).
8 SNH, SEPA (2017) Guidance on developments on Peatland. Available at: https://www.gov.scot/binaries/content/documents/govscot/publications/advice-and-guidance/2018/12/peatland-survey-guidance/documents/peatland-survey-guidance-2017/peatland-survey-guidance-2017/govscot:document/Guidance+on+developments+on+peatland+-+peatland+survey+-+2017.pdf [Accessed: September 2024].
9 SR, SEPA (2012) Guidance on the assessment of peat volumes, ... Available at: https://www.gov.scot/binaries/content/documents/govscot/publications/advice-and-guidance/2014/07/assessment-of-peat-volumes-reuse-of-excavated-peat-and-minimisation-of-waste-guidance/documents/guidance-on-the-assessment-of-peat-volumes-reuse-of-excavated-peat-and-the-minimisation-of-waste/guidance-on-the-assessment-of-peat-volumes-reuse-of-excavated-peat-and-the-minimisation-of-waste/govscot:document/Guidance+on+the+assessment+of+peat+volumes,+reuse+of+excavated+peat,+and+the+minimisation+of+waste.pdf [Accessed: September 2024].
10 SEPA (2010) Developments on peat - SEPA regulatory position ... Available at: https://www.sepa.org.uk/media/143822/peat_position_statement.pdf [Accessed: 17 September 2024].
11 NatureScot (2023) Advising on peatland, carbon-rich soils and priority peatland habitats in Development Management, NatureScot. Available at: https://www.nature.scot/doc/advising-peatland-carbon-rich-soils-and-priority-peatland-habitats-development-management [Accessed: September 2024].
12 SR, NS, SEPA, FCS, HES (2015) Good practice during Wind Farm Construction, NatureScot. Available at: https://www.nature.scot/doc/guidance-good-practice-during-wind-farm-construction [Accessed: September 2024].

- Floating roads on peat (SNH, FCS; August 2010)[13];
- Constructed tracks in the Scottish Uplands (NS, 2015)[14]; and
- Restoration techniques using peat spoil from construction works (SEPA 2011).

13 FCS, SNH (2010) Floating roads on Peat. Available at: http://www.roadex.org/wp-content/uploads/2014/01/FCE-SNH-Floating-Roads-on-Peat-report.pdf [Accessed: September 2024].
14 NS (2015) Constructed tracks in the Scottish Uplands, NatureScot. Available at: https://www.nature.scot/doc/archive/constructed-tracks-scottish-uplands [Accessed: 17 September 2024].

4. DEFINITIONS OF PEAT

Peat Depth

4.1.1 Peat is defined in the Wildlife Management and Muirburn (Scotland) Bill (2024)[7] as a soil which has an organic content of more than 60%. Peatland is defined as land where the soil layer of peat has a thickness of greater than 40 cm.

4.1.2 Peat consists of the partially decomposed remains of plant material and organic matter preserved over a period of time in a waterlogged environment resulting in anaerobic conditions and is considered to be of depths greater than 0.4 m.

4.1.3 Peat can be classed as two principal types, the acrotelm layer, and the catotelm layer. The acrotelm layer is found in the upper layer of peat where conditions are relatively dry and comprises living vegetation and partially decomposed plant material. Hydraulic conductivity in this layer tends to be higher in relation to distance from the water table.

4.1.4 The thickness of the acrotelm layer varies depending on topography such as steepness of slope, peat hags, and hummocks. In particular, the acrotelm layer can be affected during periods of drought or as a consequence of drainage. Fibrous in texture, the acrotelm layer has some tensile strength and is generally considered to be stable for storage and re-use.

4.1.5 The catotelm layer is found under the acrotelm layer and comprises decayed plant material and organisms and is denser and with a very low hydraulic conductivity. The catotelm layer sits below the water table resulting in permanent anaerobic conditions. The catotelm layer is fibrous in its upper horizon but usually becomes amorphous with depth. Amorphous peat has very low tensile strength making it less suitable for storage and re-use.

Priority Peatland

4.1.6 According to NS (2023)[11], priority peatland corresponds with certain National Vegetation Classification (NVC) habitat communities that shows evidence of being undisturbed and actively forming peat, and are defined below;

- M1 *Sphagnum denticulatum*, M2 *Sphagnum fallax/S. cuspidatum* and M3 *Eriophorum angustifolium* bog pools occupy waterlogged depressions, shallow pools and erosion channels on bogs;
- M17 *Trichophorum-Eriophorum* and M18 Erica-Sphagnum are communities of wetter peat and have species such as *Molinia caerulea, Trichophorum cespitosum*, *Myrica gale* and *Erica tetralix*; and
- M19 *Calluna-Eriophorum*.

4.1.7 Certain vegetation communities occurring in blanket bog above 600 m (known as montane bogs) are also identified priority peatland habitat particularly sensitive and can be difficult to restore.

4.1.8 Peat and peatlands can be degraded over time through both natural erosion as well as a result of anthropogenic factors such as dewatering from land drainage and erosion from livestock. A further factor is the influence of climate change, resulting in weather extremes that can exacerbate these natural and anthropogenic causes through warmer temperatures and more abrasive rainfall patterns. Vegetation and habitat communities will be reflective of degradation, and are thus unlikely to be reflective of priority peatland. These include;

- M20 *Eriophorum vaginatum* is a degraded form of M19 where the heather and most of the Sphagna have been eliminated by heavy grazing, repeated burning and/or atmospheric pollution; and

- M15 *Trichophorum-Erica*, M16 *Erica-Sphagnum* and M25 *Molinia-Potentilla* are classed as blanket bog when they are on deep peat, as they are almost always a replacement for the original bog vegetation following unfavourable management such as burning on too short a rotation followed by heavy grazing.

4.1.9 In accordance with the mitigation hierarchy presented in **Section 8** of this SPMP, priority peatland communities should be avoided by development or impacts minimised through design and mitigation. Areas of degraded peatland present opportunities for restoration of enhancement.

5. Occurrence Of Peat

Field Surveys

5.1.1 Peat depth surveys were undertaken to inform this SPMP as well as **Appendix 10.1 Peat Landslide Hazard Risk Assessment (PLHRA).**

5.1.2 Phase 1 peat depth surveys were undertaken by WSP in August 2023, a further concentrated peat depth survey was conducted by a Third-Party Subcontractor (ERM) in January 2024. Finally, a supplementary peat depth and condition survey was conducted by WSP in April 2024.

5.1.3 Peat surveys have generally been conducted with reference to the Scottish Government guidance for peat surveys. As noted in section 1.1 of that guidance, its application has 'a particular focus on wind farm developments' and when peat surveys commenced in August 2023, good practice did not necessitate site wide 100 m x 100 m grid peat surveys for wood pole OHL developments and initial alignment selection. Notwithstanding, subsequent surveys along the entire route identified some areas of potentially deep peat that were then subject to more comprehensive surveys. These include:

- collection of peat probes;
- upslope and downslope offset survey points in along the majority of the alignment; and
- increased density of survey points in areas of consistently deep peat >1.5 m.

5.1.4 The purpose of these surveys was to accommodate for evolving good practice and regulatory expectations. Whilst a sequential approach to surveys starting with a 100 m x 100 m and progressing to a 10 m x 10 m grid across the entire Proposed Development would be preferred. It is considered that the subsequent supplementary surveys specifically the more concentrated probing clearly demonstrates how the mitigation hierarchy of avoidance and siting referred to in NPF4 Policy 5 has been applied across the majority of the alignment.

5.1.5 Peat depth survey methods followed good practice. Depths were recorded using hand advanced utility probes through the soil until refusal. Notations on morphology, condition and a judgement of the likely substrate were also recorded.

5.1.6 Peat cores were taken using a Russian auger allowing field tests and observations of the peat column and substrate (where possible). The following information was recorded during peat core sampling;

- depth of acrotelm;
- degree of humification using Von Post classification;
- water content; and
- substrate underlying the peat (where possible).

5.1.7 The distribution of survey points is shown in **Figure 10.2.1: SPMP Peat Depth.**

6. PEAT CONDITIONS

Peat Depth & Distribution

6.1.1 Peat surveys were undertaken to address the presence of organic peaty soils and / or peat along the Proposed Development. The peat was found to vary across the site in terms of thickness and coverage.

6.1.2 Where the probing recorded peat less than 0.4 m thick, this has been considered to be an organic peaty soil rather than peat. Under half of the survey locations (approximately 40%) across all phases of peat probing identified organic peaty soils or soft mineral soils that were <0.4 m deep.

6.1.3 A total of 2,018 probes were undertaken, with the results summarised in **Table 6-1** Peat Probing Summary below.

Table 6-1: Peat Depth Survey Summary

Peat Thickness (m)`	Survey Points	Percentage (of total survey peat probes)
Exactly 0 (no peat)	46	2
>0 to <0.4 m (peaty soil)	814	40
≥0.4 to <1.0 (shallow peat)	573	28
≥1.0 to <1.5 (peat)	216	11
≥1.5 to <2.0 (peat)	124	6
≥2.0 to <2.5 (deep peat)	77	4
≥2.5 to <4.0 (deep peat)	103	5
≥4.0 (very deep peat)	65	3

6.1.4 **Table 6-1** shows that the highest proportion (40%) of recorded depths fell within the <0.4 m range with the next highest proportion (28%) within the ≥0.4 - <1.0 m. 70 % of locations surveyed encountered no peat, organic peat soil, or peat depths <1.0 m in thickness.

6.1.5 Deep peat and very deep peat were encountered comparatively infrequently and represented only a small proportion of the depths recorded (12%). These areas of deep peat were generally localised to basins adjacent to the Feith Osdail and Loch Dubh. The most notable occurrences of deep peat were at ~135 m above ordnance datum (AOD) southeast of Am Breac-leathaid.

Peat Habitats and Priority Peatland

6.1.6 The Study Area lies within a hilly landscape which is mostly covered in commercial forestry of varying levels of maturity, including recently felled. Outside of these areas, various plant communities associated with blanket bog and mire are present. The majority of the bog vegetation is highly modified by livestock grazing, trampling, and artificial drainage, although in more elevated locations the cover of peat-forming sphagnum mosses remains relatively high. These habitats were most closely aligned to the NVC community M15 *Trichophorum-Erica* and M25 *Molinia-Potentilla*.

6.1.7 The findings of the NVC survey are outlined in more detail within **Appendix 7.1 Habitats Appendix.** The survey identified seven mire communities (M4, M6c, M17, M18a, M19, M20 and M25), one wet heath community (M15) and one dry heath community (H9) within 250 m of the Proposed Development. Nine areas were assessed as Good, using the criteria within the NS Priority Peatlands template.

6.1.8 One area was assessed as being of potential national interest using the criteria within the NS Priority Peatlands template. This was an area of M18a *Erica tetralix-Sphagnum papillosum* raised and blanket mire-*Sphagnum*

medium/divinum-Andromeda polifolia sub-community. It was assessed as potential national interest due to *Sphagnum austinii* being recorded during NVC survey. The Proposed Development has been designed to avoid areas of peatland that have been assessed as being of Potential Nation Interest as the area of M18a is located approximately 50 m north of the Proposed Development, with a road separating it from the location of the poles. Due to the road being raised above and forming a barrier from the works area it is assumed that this area of M18a will not be directly affected.

6.1.9 The only area within the footprint of the Proposed Development that is classified by NS as priority peatland with potential national interest is an area of M17 *Trichophorum germanicum-Eriophorum vaginatum* blanket mire. It was assessed as Good (**but not Potential National Interest**) due to having vegetation capable of forming peat but was not identified as being an area of Potential National Interest. This area underlays the Proposed Development for a distance of approximately 250 m, towards the north of the Proposed Development and intersects with three poles (ID 127, 128, & 129) as shown in **Figure 7.1.4**.

Peat Characteristics & Condition

6.1.10 During the April 2024 peat survey peat condition information in accordance with the Peatland Condition Assessment categories was collected. Where peat was identified, it was most commonly characterised as modified or drained. Peat was not identified as actively eroding and indicative macro features such as hags, erosion gullys and bare peat pans were not noted.

6.1.11 The peat survey also obtained four peat cores to support **Appendix 10.1 PLHRA**. Peat cores which were logged according to the von Post scale of humification. Amorphous catotelmic peat has been confirmed by all cores collected, exhibiting a Von Post value of H8&9 humification degrees, very strongly decomposed peat.

6.1.12 A threshold depth between fibrous catotelmic and amorphous catotelmic peat is suggested to be ~1 m, with further details provided in **Appendix 10.1 PLHRA**.

Substrate

6.1.13 The assessment of the underlying substrate from the probing and coring data was limited with an interpretation only made from the core locations, peat probing and limited exposures. The most common substrate was sand and gravel as well as solid bedrock, silts and clays were less frequently identified.

Suitability for Re-Use

6.1.14 The characteristics of the excavated peat (e.g. fibrosity and water content) determines its suitability for re-use with the wettest most amorphous peat generally being the least suitable.

6.1.15 For the purpose of this SPMP it has been assumed that the top 0.4m will be acrotelmic peat consisting of fibrous peat and the surface vegetation. The following assumptions have been made with regard of the characteristics of the peat and the intended suitable reuses at the Proposed Development:

- Acrotelmic peat / peat soils – when stripped with the vegetation, intact turves of acrotelmic peat or peaty soils will be suitable for surface reinstatement, dressing back and tying in infrastructure to the surrounding vegetation and habitats.
- Fibrous catotelmic peat – most suitable for reinstatement beneath the replaced acrotelm. It may also be used as a surface layer with careful site selection and management to control erosion and encourage vegetation recovery (e.g. seeding, translocation of vegetation and fencing to deter deer grazing).

- Amorphous catotelmic peat – peat of this type will only be suitable for reinstatement of excavations beneath a surface vegetation layer. However, the volume of amorphous peat that will require removal is anticipated to be small given that infrastructure has avoided the need to excavated deep peat where possible.

6.1.16 Where peat stripped contains significant volumes of residual forest materials such as brash or stumps, efforts will be made to minimise mixing and consequential damage to the peat. However, it is acknowledged this may not be possible in every instance and the presence of residual forest materials may reduce the peats suitability for reinstatement. Nonetheless, handling of peat containing residual forest materials will follow good practice, and will aim to be reused in a way to maximise its reinstatement potential.

7. POTENTIAL IMPACTS ON PEAT FROM CONSTRUCTION ACTIVITIES

General

7.1.1 The key element for construction of the OHL will comprise the erection of the H Wood Poles. The following section outlines the engineering requirements and to what extent peat will be disturbed by this activity. It is planned to use existing access tracks to minimise disturbance and to allow distribution of construction materials at appropriate areas along the route thereby minimising impact to the site.

7.1.2 There are four primary types of impact on peat that can occur during the construction phase. 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 soil 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.

Wooden Poles

7.1.3 The proposed H pole is based on a Trident design requiring a matched pair of poles erected 2.5 m apart with supporting crossarm steelwork linking the poles at the top, typical trident pole design is shown in **Plate-1**. The OHL would be composed of a combination of suspension poles, angle / tension poles and terminal poles (at the sealing end structure):

- Suspension Poles: these are used for straight sections of OHL where there is no need to terminate the conductor. 137 pairs of suspension poles would be required for the Proposed Development;
- Angle Poles: these are used either in-line, where there is a need to terminate the conductors, and / or where there is a need to change the orientation of the OHL. 51 pairs of angle poles would be required; and
- Terminal Poles: these are used where there is a requirement to terminate the OHL at each substation. It's anticipated that these are needed at each end of the Proposed Development.

Plate-1 Trident Wood Pole

Pole Foundations & Construction

7.1.4 The foundations for a double trident wood H pole would be installed via the use of a tracked excavator to excavate a trench approximately 3.0 m wide, 4.0 m in length, and 2.5 m deep, into which the poles would be installed before the excavated material is reinstated. During excavation, different soil horizons would be stored separately and backfilled in the order they were removed.

7.1.5 Where suitable turves are available they would be stripped and stored separately from sub soils to be reused in final reinstatement.

7.1.6 In areas of soft ground and / or very deep peat where firm ground cannot be found 'bog shoes' may be added to the foundations to maximise stability of the structure by floating the structure with wider foundations.

7.1.7 Foundation types and designs for each pole would be confirmed following detailed geotechnical investigation at each position. In some pole locations, it may be necessary to add imported hardcore backfill around the pole foundations to provide additional stability in areas where the natural sub soils have poor compaction qualities; however, this would be minimised as far as reasonably practicable. The engineering fill would be inert, in particular not of an alkaline pH, which could impact on acidic peat.

7.1.8 Pole structures would be assembled completely within the laydown areas and laid out prior to transportation to the required locations. The assembled pole structures would be moved directly from the assembly areas to the pole site, either by tracked machine or helicopter where access is particularly difficult and / or remote from existing access tracks, and erected utilising one or two excavators, dependant on the complete H pole assembled weight.

7.1.9 Following commissioning of the Proposed Development, it is anticipated that all areas disturbed during construction would be reinstated. Reinstatement would form part of the contract obligations for the successful Principal Contractor and would include all works sites, such as underground cables and pole locations.

7.1.10 Reinstatement principles would be in accordance with best practice measures, as well as mitigation proposals recommended by the environmental professionals undertaking the assessment which would be incorporated into the project Construction and Environmental Management Plan (CEMP), prepared and implemented by the Principal Contractor.

Laydown Areas & Construction Compounds

7.1.11 Temporary compounds and laydown areas would be required to facilitate the construction of the Proposed Development. The locations of these compounds will be determined by the Principal Contractor once they are appointed. Once these area(s) have been identified, the Principal Contractor will consult with THC, and any other relevant statutory authority, to ascertain whether statutory permissions are required. Where statutory permissions are required, the Principal Contractor would be responsible for securing all permissions necessary to operate these sites.

Access Tracks

7.1.12 Vehicle access is required to each support structure location during construction to allow excavation and creation of foundations and erection of the support structure. The existing access tracks that lead from the main carriageway (A836) to Dalnessie Estate would be used where possible. No permanent new access tracks are anticipated to be required for the Proposed Development. Local access to each pole location from the existing access tracks would be via the use of all-terrain vehicles with the use of temporary track-way or bog mats where necessary.

7.1.13 Preference would be given to lower impact access solutions including the use of low pressure tracked personnel vehicles and temporary track solutions in boggy / soft ground areas to reduce any damage to, and compaction of,

the ground. These journeys would be kept to a minimum to minimise disruption to habitats along the route. The access tracks would be a minimum of 5 m wide to allow for bidirectional transit of any vehicle types.

8. PROPOSED MITIGATION DURING CONSTRUCTION

8.1.1 There are a number of ways in which detailed design and construction activities can be specified to minimise impacts on peatlands. The following section outlines briefly the likely mitigation required to minimise impact, based on the reuse of peat specific to key elements of the Proposed Development. These recommendations should be incorporated into the Principal Contractor's CEMP for the site finalised design.

Avoidance

8.1.2 The infrastructure layout has been designed to avoid or minimise impact on blanket bog habitats and peat, particularly peat >1 m depth, and has been through an iterative process to design around these constraints through route and alignment section processes outlined in **Chapter 2** of the EA. Due to the small areal footprint of proposed pole foundations a 30 m buffer was applied to each pole and the maximum depth recorded from surveys points within that buffer was used in peat excavation calculations. This is considered a conservative approach by applying maximum likely depth based on the information available. The outcomes of the depth depths surveys are illustrated within **Figure 10.2.1: SPMP Peat Depth**

Minimise Peat Disturbance

8.1.3 The Proposed Development was designed through an iterative approach informed by site surveys and constraints mapping, with peat being a significant factor. The proposed positioning of wood poles and alignment of access routes has sought to minimise the need for peat excavation in the first instance. In this regard, the Proposed Development has prioritised the use of existing tracks and will not include construction of new permanent access tracks.

8.1.4 Micro siting of the Proposed Development into areas of shallow peat may be undertaken following further investigation and detailed design post-consent.

8.1.5 All contractors will be made aware of the sensitivity of peat and wetland habitats, and will be required to work within the narrowest practical construction corridor when working in or near areas of peat.

8.1.6 As far as possible, appropriate handling and storage of excavated materials will be undertaken such that their integrity and subsequent reuse is not jeopardised. Further details are provided in the following sections.

Access Tracks

8.1.7 The precise route of access is to be finalised upon the appointment of a Principal Contractor. However, the existing tracks will be utilised where possible. In areas with peat greater than 1 m, the use of low pressure tracked vehicles and temporary access panels would be preferred to ensure hydrological connectivity is maintained and avoid compaction of the peat or substrate below.

8.1.8 Local access to each pole location from the existing access tracks would be via the use of all-terrain vehicles with the use of temporary track-way or bog mats where necessary.

Peat Excavation, Storage and Transport

8.1.9 Peat should be re-used or reinstated with the intention that its supported habitat continues to be viable, the following good practice apply:

Excavation

8.1.10 Excavated peat should be excavated as turves, including the acrotelm (surface vegetation) and a layer of adjoining catotelm (more humified peat) typically up to 0.5 m thick in total, or as blocks of catotelm; the acrotelm should not be separated from its underlying peat:

- the turves should be as large as possible to minimise desiccation during storage;
- contamination of excavated peat with substrate materials should be avoided; and
- consider timing of excavation activities to avoid very wet weather and multiple handling to minimise the likelihood of excavated peat losing structural integrity.

8.1.11 If possible, extract intact full depth acrotelm layers from the top surface of the peat deposit. This technique will maintain connectivity between the surface vegetation and the partially decomposed upper layers of the catotelm.

8.1.12 The timing of excavation should be planned as to allow reinstatement to be undertaken as quick as possible in order to minimise the peat and vegetation drying out, affecting its capacity for future re-use.

8.1.13 Any dewatering of excavations in peat and peatland should only be undertaken when absolutely necessary.

8.1.14 Subject to gradients and ground conditions, preference will be given to lower impact access solutions including the use of low pressure tracked personnel vehicles and temporary track solutions in boggy / soft ground areas to reduce any damage to, and compaction of the ground. These journeys would be kept to a minimum to minimise disruption to habitats along the Proposed Development.

Temporary Storage

8.1.15 Any peaty soils / peat to be removed during construction would require a temporary storage area near to the construction works. Where peat cannot be transferred immediately to an appropriate restoration area, short term storage will be required. In this case, the following good practice applies;

- local gullies, diffuse drainage lines (or very wet ground) and locally steep slopes should be avoided for peat storage;
- stored upper turves (incorporating vegetation) should be organised and identified according to NVC community (assisted by the Environmental Clerk of Works, ECoW) 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 two months).

Transport

8.1.16 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 the time of excavation. If Heavy Goods Vehicles (HGVs) / dump trucks that are used for transporting non-peat material are also to be used for peat materials, measures should be taken to minimise cross-contamination of peat soils with other materials.

Handling

8.1.17 Following refinement of the OHL peat model, a detailed storage and handling plan should be prepared by the Principal Contractor, including:

- best estimate excavation volume at each infrastructure location (including peat volumes split into area / volume of ‘acrotelm’ or ‘turf’, and volume of catotelm);

- volume to be stored locally and volume to be transferred directly on excavation to restoration areas elsewhere (e.g. peat restoration areas and forest drains) in order to minimise handling;
- location and size of storage area relative to natural peat morphology / drainage features; and
- irrigation requirements and methods to minimise desiccation of excavated peat during short term storage.

8.1.17.1 These parameters are best determined post-consent in light of detailed ground investigation with the micro-siting areas for each element of infrastructure.

Restoration & Re-Use

Re-Use Pole Reinstatement

8.1.18 All excavated material (including peat and non-peat soils) from the installation of the trident H poles in peat <3 m thickness will be re-used for reinstatement backfilling and surrounding individual pole locations.

8.1.19 The principles of peat re-use and reinstatement of excavated peat as part of the Proposed Development reinstatement are as follows:

- peat should not be placed where no peat is present;
- the placement of amorphous catotelmic peat in locations that encourages amorphous catotelmic peats functionality within the peatland system (i.e. connected to the water table); and
- the placement of acrotelmic peat and turves over the top of amorphous catotelmic peat.

8.1.20 In following these principles, the following must be considered:

- the placement of amorphous catotelmic peat must be in a location that will encourage the retention of water and thus decrease the risk of the peat drying, oxidising and degrading;
- the placement of amorphous catotelmic peat must not form topographic highs situated at an elevation above the likely surrounding water table;
- the source of the amorphous catotelmic peat should be from excavations / temporary storage as local as possible in order to minimise transport distances; and
- the placement of amorphous catotelmic peat must not result in any geotechnical instability.

Re-Use in Depressions & Hollows

8.1.21 Excavated catotelmic amorphous peat can also be re-used within the vicinity of the Proposed Development in filling depressions or basins where excavated peat can be retained on account of favourable hydrological / hydrogeological conditions. Re-using peat in this manner will minimise potential soil losses through drying, erosion and degradation and maximise the chances that excavated peat could function as a peatland system. This potential re-use option could provide an additional method to retain and beneficially re-use excavated peat.

8.1.22 During the re-use of excavated peat in hollows or depressions, the following best practice should be followed:

- carefully evaluate potential re-use sites, for their suitability, and agree that these sites are appropriate with the landowners and relevant consultees. This should include checking the ecological status of the pools by a suitably qualified ecologist;
- undertake necessary vegetation clearance and rework mineral soil to provide optimum conditions prior to peat re-use;
- reinstatement profiles should reflect the existing topography and not create topographic highs. Peat re-use should not exceed 1.5 m;

- minimise transport distances and ensure that suitable machinery (low pressure excavators) and access methods (bog matting) are adopted;
- careful handling of surface turves to be used after peat placement. Undertake re-use and revegetation work as soon as possible or order to minimise the effects of erosion;
- where required, consider exclusion of livestock from areas of peat re-use, to minimise impacts on revegetation; and
- as far as reasonably practicable, re-use should be carried out concurrently with construction rather than at its conclusion.

Re-Seeding

8.1.23 Natural regeneration of vegetation is the preferred option for reinstatement and re-use.

8.1.24 During the construction works, in areas where the spreading of seed rich materials or natural regrowth are considered impractical, ineffective, or where re-establishment of vegetation is observed to be failing, consideration will be given to re-seeding methods.

8.1.25 Where additional re-seeding is deemed necessary, a suitable seed mix will be agreed with the local planning authority.

8.1.26 The success of construction and the subsequent re-use of peat across the site will be monitored by the ECoW to ensure that adverse effects on the peatland environment are appropriately understood and subsequently reduced via any remedial works that may be required (although not expected).

9. PEAT BALANCE ASSESSMENT

Introduction

9.1.1 To estimate the volume of peat that could be re-used as part of construction and demonstrate that no excavated peat shall be generated as waste, an indicative estimate has been calculated based on best practice and past project experience. This estimate has incorporated the predicted volumes of both acrotelmic and catotelmic peat to be excavated and opportunities for peat re-use.

9.1.2 Due to the depth of peat at the site, the entire soil column is assumed to be peat as opposed to soil or peat soil. The upper 40 cm is assumed to be acrotelmic peat and beyond 40 cm considered to be catotelmic peat. Catotelmic peat >1.0 m is assumed to be amorphous.

9.1.3 It should be noted that this assessment has not accounted for excavation volumes of glacial sub-soils or weak bedrock material which may be deemed unsuitable for incorporation into foundations and hardstand elements.

9.1.4 Due to the minor extent of the Proposed Development, no bulking factor has been applied.

Peat Balance

9.1.5 The activities which would generate volumes of peat are as follows:

- Trident H Poles:
  - A pit measuring 3 m by 4 m will be excavated at each pole location, to a maximum depth of 2.5 m if glacial till / rock is intersected. If glacial till / rock is not intersected within 2.5 m, then the pit will be further excavated to the base of the peat.
  - It is anticipated that in the majority of instances, the total volume excavated soil and peat can be re-used in the backfill and in final landscaping around each pole, up to a maximum of ~30 m^3 per Trident H Pole.
  - All acrotelmic peat will be re-used in the final surface reinstatement around individual pole locations. Catotelmic peat (amorphous and fibrous) would be prioritised for re-use in the backfill of excavations. Where there is insufficient capacity for catotelmic peat re-use at pole locations, peat will be transported short distances to adjacent poles which may have additional re-use capacity (peat will not be placed where there was no peat before).
- The construction compounds will be temporary features. Whilst locations for these are yet to be determined, these are likely to be located adjacent to roads or other accessible areas where peat is generally absent. The Stage 2 or Stage 3 SPMP will include details of peat balance for construction compounds.
- All access tracks are temporary with the majority also being existing, and will require no peat excavation. New access tracks will comprise of trackways or use bog matting and are unlikely to require peat excavation, these should aim to using floating construction methods on areas of peat >0.4 to minimise peat disturbance. The Stage 2 or Stage 3 SPMP will include details of peat balance for temporary access tracks.

9.1.6 **Table 9-1** below provides an estimate of the peat soil volumes to be excavated based on the assumptions presented above used in developing these estimates. It also provides estimates of volumes of acrotelmic and catotelmic peat that will be disturbed.

Table 9-1 Estimated peat and soil excavation volumes.

Infrastructure	Number	Excavation Area (m^2)	Soil & Peat Excavation			
			Acrotelmic Peat (m^3)	Cat. (Fib) Peat (m^3)	Cat. (Amp) Peat (m^3)	Peat soils (m^3)
Trident H Poles in Peat ≤0.4 m	20	240	-	-	-	125
Trident H Poles in Peat >0.4 m	101	1212	413	438	412	-
Trident H Poles in Peat ≥3 m	11	132	53	79	440	-
Total (m^3)			**466**	**517**	**852**	**125**

9.1.7 **Table 9-2** provides an estimate of the potential reinstatement opportunities for the Proposed Development.

Table 9-2 Estimated peat volumes for re-use on site (m3)

Infrastructure	Soil & Peat Re-Use			
	Acrotelmic Peat	Cat. (Fib) Peat	Cat. (Amp) Peat	Peat soils
Trident H Poles in Peat ≤0.4 m	-	-	-	125
Trident H Poles in Peat >0.4 m	413	438	412	-
Trident H Poles in Peat ≥3 m	53	79	321	-
Re-use in depressions & hollows	-	-	-	-
Total	**466**	**517**	**733**	**125**
**No estimate for the volume of peat that could be retained in nearby depressions and hollows is provided in this Stage 1 SPMP, but should be included in further revisions at Stage 2 or 3.*				

9.1.8 **Table 9-3** provides a summary of the material balance.

Table 9-3 Estimated peat and peat soil balance (m3)

	Excavation	Re-Use	Surplus (deficit)	Waste Management Plan Required?
Peat soils	125	125	0	No – anticipated re-use locally in adjacent poles.
Acrotelmic Peat	466	466	0	No – anticipated re-use locally in adjacent poles.
Catotelmic Peat (Fibrous)	517	517	0	No – anticipated re-use locally in adjacent poles.
Catotelmic Peat (Amorphous)	852	733	119	No – anticipated re-use locally in adjacent poles.

9.1.9 **Table 9-3** has identified that in general, excavated peat can be appropriately re-used as part of the reinstatement of the Proposed Development. The small surplus of catotelmic (amorphous) peat identified has the potential to be re-used in adjacent poles as outlined in **Annex B**. Although a requirement is not anticipated, surplus peat can also be re-used locally in peat depressions, forestry ditches, and hollows at discussed in **Section 8**

9.1.10 On the basis of the peat balance calculations provided, measures for the recycling, other recovery and disposal of waste peat (and consequential peat waste management plan) are therefore not required.

10. MONITORING & INSPECTION

10.1.1 The success of construction and the subsequent re-use of peat across the site will be monitored by the ECoW to ensure that effects on the peatland environment are appropriately understood and subsequently reduced via any remedial works that can be undertaken. The details of any required monitoring would be discussed and agreed with SEPA, NatureScot and the Local Planning Authority prior to commencement. Appropriate monitoring is important to:

- provide reassurance that established in-place mitigation and reinstatement measures are effective and Proposed Development is not having a significant adverse impact upon the local and/or wider environment;
- indicate whether further investigation is required and, where pollution is identified or unsuccessful reinstatement, the need for additional mitigation measures to prevent, reduce or remove any impacts on the environment; and
- understand the long-term effects of the site on the natural environment.

10.1.2 A suitable reinstatement monitoring strategy should also be implemented in line with good practise by the Principal Contactor, where surveys can be carried out to monitor the success of peat re-use and subsequent reinstatement. Complimentary to best practise geotechnical monitoring, the success of vegetation reinstatement can provide an insight into the effects of the Proposed Development on the local environment. Full details of the environmental monitoring strategies will be finalised following consultation with SEPA, NS, and THC.

11. PEATLAND HABITAT ENHANCEMENT

11.1.1 In the case of the Proposed Development, the area of priority of potential priority peatland permanently, directly, and indirectly impacted would be relatively minor on account of the limited extent of the wood pole foundations and absence of drainage, permanent tracks, or other linear infrastructure. However, targeted restoration could still be undertaken to provide enhancement in accordance with NPF4, Policy 5.

11.1.2 In order to provide a beneficial effect, it is recommended that targeted peatland restoration be undertaken within the vicinity of the Proposed Development to repair peat hags or other active erosion features. This would not involve the re-use of peat excavated from the Proposed Development as importing peat is not necessary for the peatland habitat enhancement. Instead, such works would aim to improve the functionality of adjacent peatland through mechanical intervention. Restoration techniques could include drain blocking, fugitive juvenile tree removal, gully blocking, hag or eroding edge reprofiling and bare peat pan restoration.

11.1.3 Any peatland restoration works should be undertaken in accordance with the principles outlined in this technical appendix. Peat restoration activities should be planned and undertaken by a suitably experienced contractor. Further advice on specific restoration prescriptions can be found within NS peatland action technical compendium[15].

[15] NatureScot (2024) Peatland Action - Technical Compendium, NatureScot. Available at: https://www.nature.scot/doc/peatland-action-technical-compendium [Accessed: September 2024].

12. DISCLAIMER

12.1.1 The information presented in this SPMP is based on the results of peat surveys carried out on behalf of SSEN Transmission prior to EA submission.

12.1.2 It is highlighted that whilst attempts have been made to collect peat depth and condition information, further investigations can be carried out as part of detailed site investigation (post-consent). This process can provide further information across all infrastructure locations, which should be used to further refine the peat excavation and reuse volumes provided in this report.

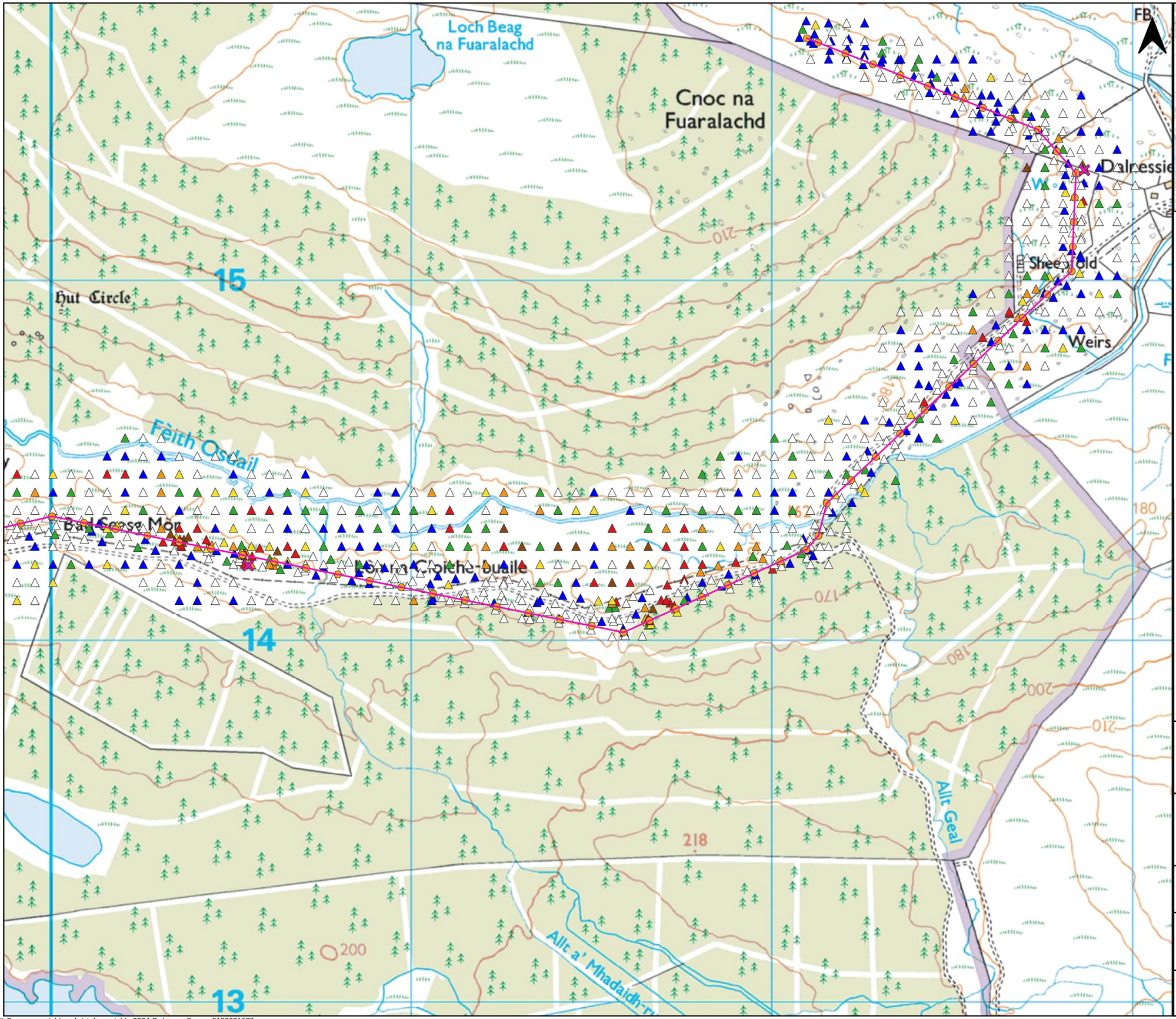
12.1.3 The SPMP should be considered a live document throughout the planning process and any future pre-construction phases of works. As such, additional information can be incorporated following the results of detailed site investigations carried out prior to construction, as well as from any discussions with SEPA or other engaged stakeholders throughout the development process.

12.1.4 The peat extraction and re-use volumes are intended as a preliminary indication. The total peat volumes are based on a series of assumptions for the infrastructure layout and peat depth data averaged across discrete areas of the Proposed Development. Such parameters can still vary over a small scale and therefore local topographic changes in the bedrock profile may impact the total accuracy of the volume calculation.

12.1.5 The accuracy of these predictions may be improved though further detailed site investigation (post consent). It is therefore important that the SPMP remains a live document throughout pre-construction and construction phases and is encapsulated within a wider CEMP. The SPMP and volumetric assessments can be updated as more accurate information becomes available.

12.1.6 The purpose of this report is to ensure that there has been a systematic consideration of peat management and a quantitative assessment throughout the development process.

ANNEX A – FIGURES



Key:

- OHL
- Pole schedule
- Peat cores

Peat depth (m)

- <0.5
- 0.5 - 1
- 1 - 1.5
- 1.5 - 2
- 2 - 2.5
- 2.5 - 4
- >4

0 0.2 0.4 km

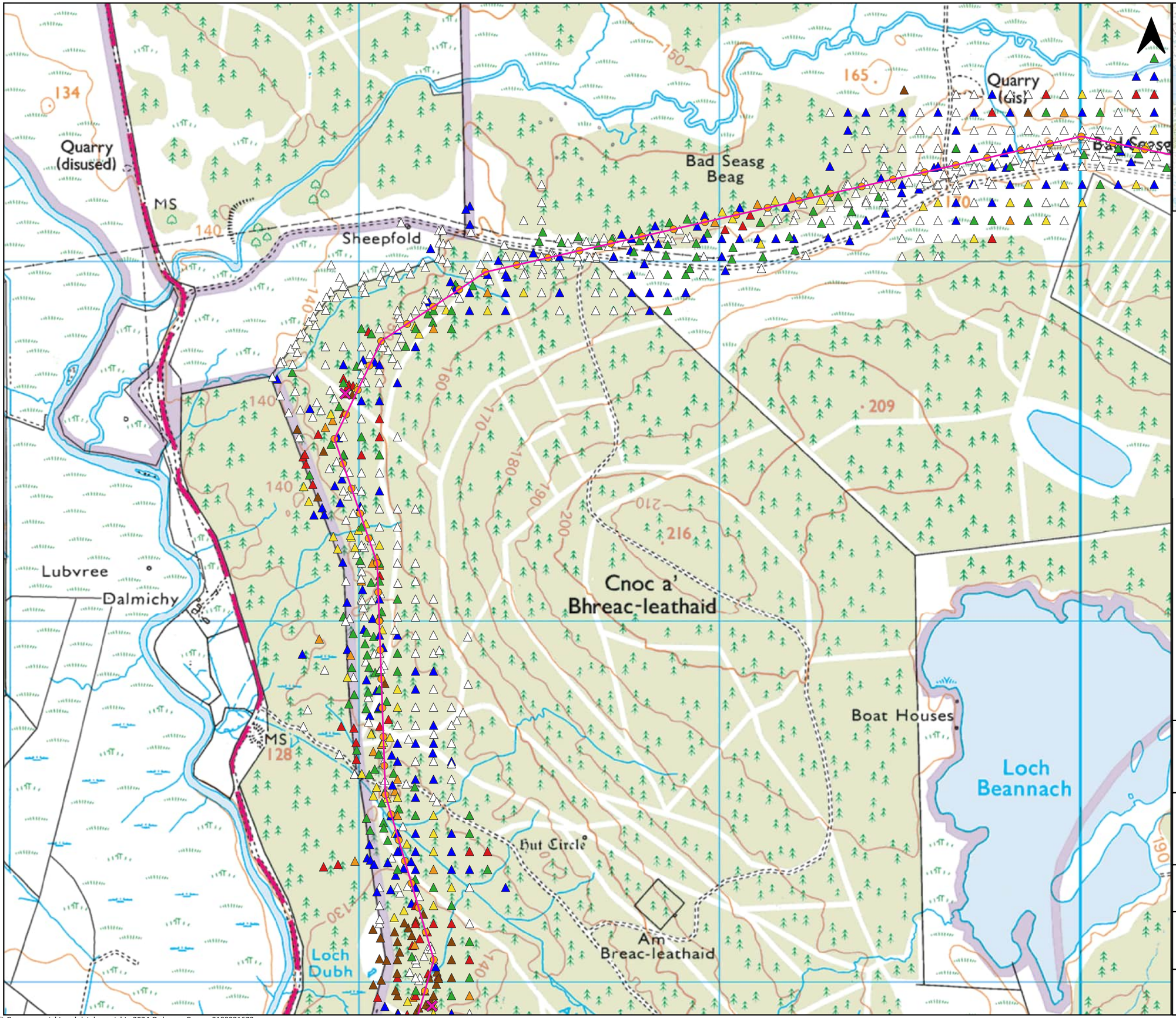
wsp

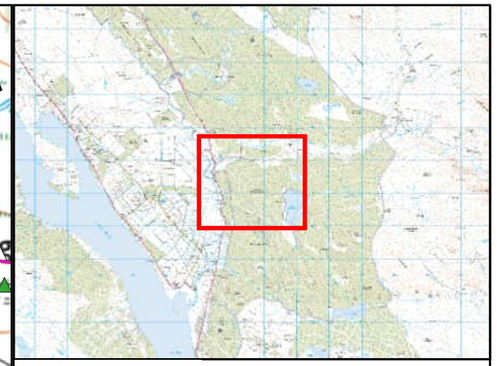
Client: Scottish & Southern Electricity Networks TRANSMISSION

Project: Chleansaid Wind Farm 132 kV OHL Connection

Title: Figure 10.2.1a: SPMP Peat Depth

Date: 16/09/2024 Scale: 1:10,000 @ A3
Drawn: KY Checked: MM Approved: SB





Key:

- OHL
- Pole schedule
- Peat cores

Peat depth (m)

- <0.5
- 0.5 - 1
- 1 - 1.5
- 1.5 - 2
- 2 - 2.5
- 2.5 - 4
- >4

0 0.2 0.4 km

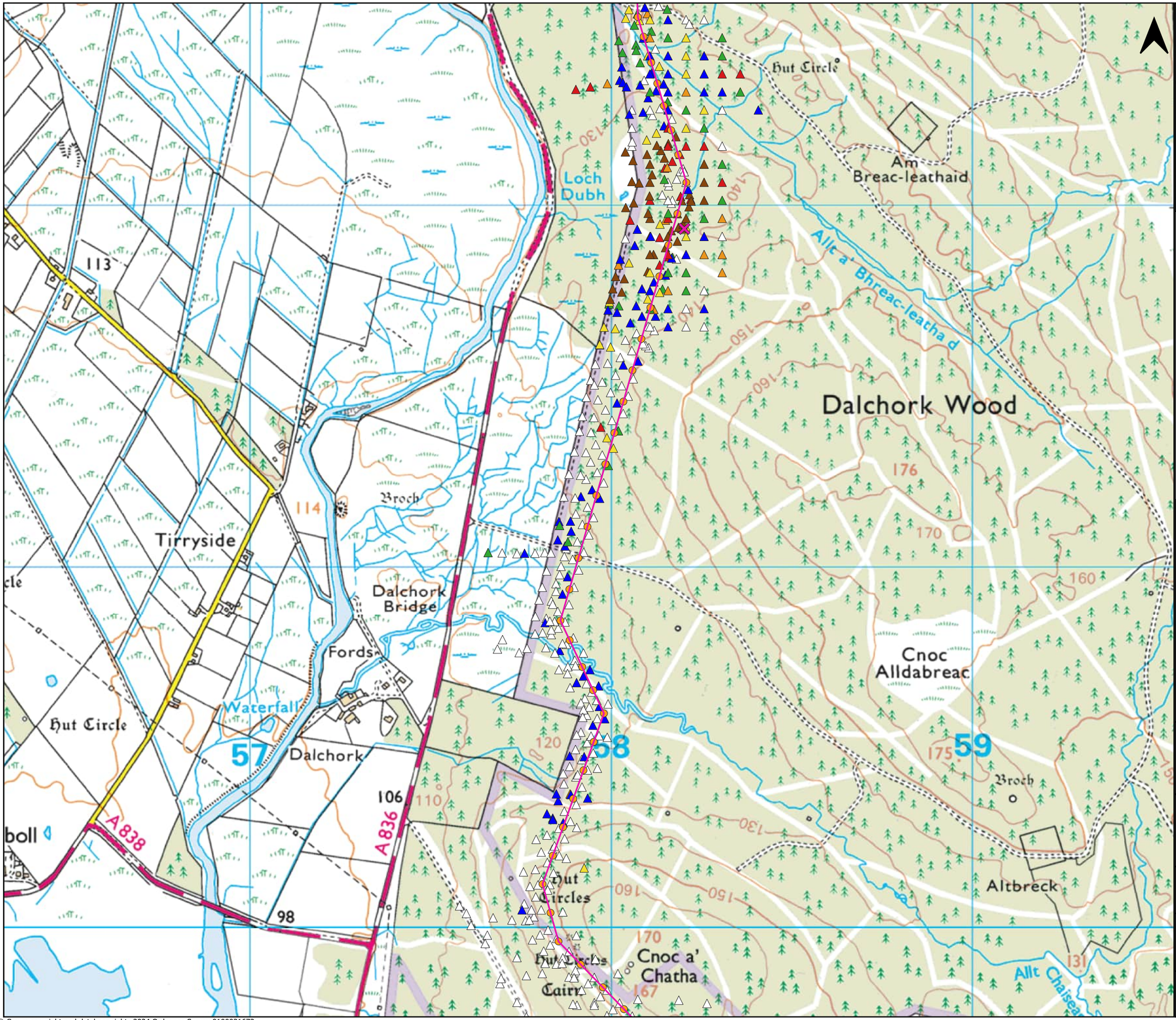
wsp

Client: Scottish & Southern Electricity Networks TRANSMISSION

Project: Chleansaid Wind Farm 132 kV OHL Connection

Title: Figure 10.2.1b: SPMP Peat Depth

Date: 16/09/2024 Scale: 1:10,000 @ A3
Drawn: KY Checked: MM Approved: SB



Key:

- OHL
- Pole schedule
- Peat cores

Peat depth (m)

- <0.5
- 0.5 - 1
- 1 - 1.5
- 1.5 - 2
- 2 - 2.5
- 2.5 - 4
- >4

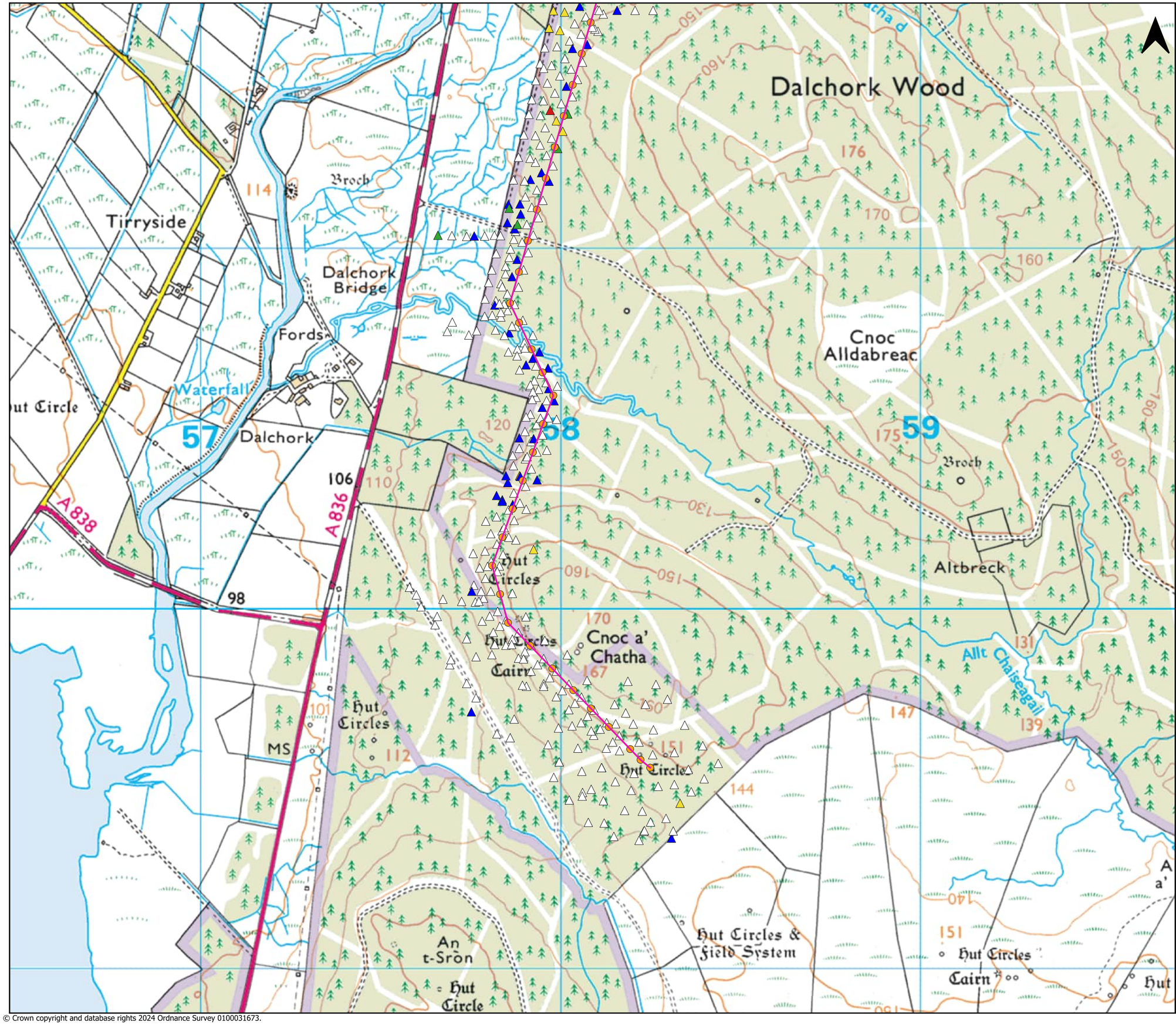
0 0.2 0.4 km

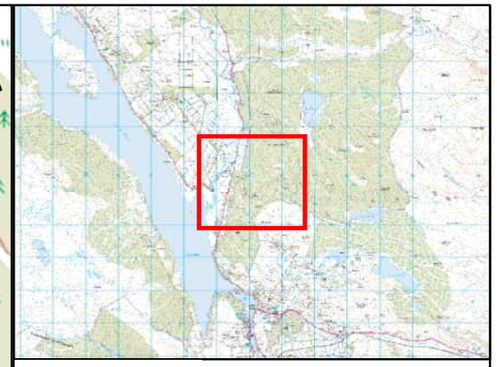
Client: Scottish & Southern Electricity Networks TRANSMISSION

Project: Chleansaid Wind Farm 132 kV OHL Connection

Title: Figure 10.2.1c: SPMP Peat Depth

Date: 16/09/2024 Scale: 1:10,000 @ A3
Drawn: KY Checked: MM Approved: SB





Key:

- OHL
- Pole schedule

Peat depth (m)

- <0.5
- 0.5 - 1
- 1 - 1.5
- 1.5 - 2
- 2 - 2.5
- 2.5 - 4

0 0.2 0.4 km

Client: Scottish & Southern Electricity Networks TRANSMISSION

Project: Chleansaid Wind Farm 132 kV OHL Connection

Title: Figure 10.2.1d: SPMP Peat Depth

Date: 16/09/2024 Scale: 1:10,000 @ A3
Drawn: KY Checked: MM Approved: SB

ANNEX B – EXCAVATION & RE-USE BALANCE

12.1.7 Excavation and re-use calculations are presented in Table B-1 below. Each pole will require excavation to a suitable load bearing strata. During installation poles will be inserted, followed by a layer of imported inert fill. The fill will be covered with peat removed as part of the foundation excavation.

12.1.8 There will be ~30 m3 capacity for catotelmic peat-re-use capacity at each wood pole during reinstatement. In some instances where peat excavations may generate a local surplus, this peat shall be re-used at conjoining poles where there is capacity. Rows for these poles are highlighted green.

12.1.9 In rare instances, aggregated catotelmic peat volumes may be found to be too great to reinstate at neighbouring poles. In these areas the re-use of peat in depressions, forestry ditches, and hollows would be proposed.

Table B-1 Excavation and re-use

Pole ID	Maximum Peat Depth Within 30 m of Pole (m)	Total Peat Excavation (m3)	Total Re-Use Capacity (m3)	Surplus Material Volume (m3)	Is Re-Use in Conjoining Poles Feasible?
1	0	0.00	0	0	-
2	0	0.00	0	0	-
3	0.4	4.80	0	0	-
4	0.1	1.20	0	0	-
5	0.2	2.40	0	0	-
6	0.3	3.60	0	0	-
7	0.4	4.80	0	0	-
8	0.1	1.20	0	0	-
9	0.2	2.40	0	0	-
10	0.3	3.60	0	0	-
11	0.4	4.80	0	0	-
12	0.6	7.20	7.2	0	-
13	2.3	27.60	27.6	0	Yes
14	0.4	4.80	0	0	-
15	0.4	4.80	0	0	-
16	0.5	6.00	6	0	-
17	0.5	6.00	6	0	-
18	0.7	8.40	8.4	0	-
19	0.3	3.60	0	0	-
20	0.4	4.80	0	0	-
21	0.5	6.00	6	0	-
22	0.3	3.60	0	0	-
23	0.4	4.80	0	0	-
24	0.5	6.00	6	0	-
25	1	12.00	12	0	-
26	1.9	22.80	22.8	0	-

Pole ID	Maximum Peat Depth Within 30 m of Pole (m)	Total Peat Excavation (m3)	Total Re-Use Capacity (m3)	Surplus Material Volume (m3)	Is Re-Use in Conjoining Poles Feasible?
27	0.5	6.00	6	0	-
28	0.8	9.60	9.6	0	-
29	0.3	3.60	0	0	-
30	2	24.00	24	0	-
31	1.89	22.68	22.68	0	-
32	6.3	75.60	30	45.6	Yes
33	6	72.00	30	42	Yes
34	0.9	10.80	10.8	0	-
35	3.4	40.80	30	10.8	Yes
36	4.5	54.00	30	24	Yes
37	1.1	13.20	13.2	0	-
38	0.9	10.80	10.8	0	-
39	1.8	21.60	21.6	0	-
40	2.13	25.56	25.56	0	Yes
41	2.4	28.80	28.8	0	Yes
42	1	12.00	12	0	-
43	2.4	28.80	28.8	0	Yes
44	1.3	15.60	15.6	0	-
45	4	48.00	30	18	Yes
46	0.5	6.00	6	0	-
47	1.6	19.20	19.2	0	-
48	0.62	7.44	7.44	0	-
49	2.3	27.60	27.6	0	Yes
50	0.4	4.80	0	0	-
51	0.7	8.40	8.4	0	-
52	0.49	5.88	5.88	0	-
53	1.35	16.20	16.2	0	-
54	1.4	16.80	16.8	0	-
55	3.74	44.88	30	14.88	Yes
56	4.4	52.80	30	22.8	Yes
57	1.3	15.60	15.6	0	-
58	3.51	42.12	30	12.12	Yes
59	0.49	5.88	5.88	0	-
60	1.42	17.04	17.04	0	-
61	1.68	20.16	20.16	0	-
62	0.5	6.00	6	0	-
63	0.3	3.60	0	0	-
64	0.3	3.60	0	0	-

Pole ID	Maximum Peat Depth Within 30 m of Pole (m)	Total Peat Excavation (m3)	Total Re-Use Capacity (m3)	Surplus Material Volume (m3)	Is Re-Use in Conjoining Poles Feasible?
65	0.59	7.08	7.08	0	-
66	0.46	5.52	5.52	0	-
67	0.44	5.28	5.28	0	-
68	1	12.00	12	0	-
69	3.06	36.72	30	6.72	Yes
70	0.54	6.48	6.48	0	-
71	1	12.00	12	0	-
72	0.59	7.08	7.08	0	-
73	1	12.00	12	0	-
74	2.9	34.80	30	4.8	Yes
75	0.6	7.20	7.2	0	-
76	2.3	27.60	27.6	0	Yes
77	0.69	8.28	8.28	0	-
78	0.3	3.60	0	0	-
79	1.7	20.40	20.4	0	-
80	0.84	10.08	10.08	0	-
81	1.8	21.60	21.6	0	-
82	0.1	1.20	0	0	-
83	0.5	6.00	6	0	-
84	0.5	6.00	6	0	-
85	2	24.00	24	0	-
86	0.2	2.40	0	0	-
87	1.3	15.60	15.6	0	-
88	1.48	17.76	17.76	0	-
89	0.3	3.60	0	0	-
90	0.2	2.40	0	0	-
91	2.37	28.44	28.44	0	Yes
92	2.7	32.40	30	2.4	Yes
93	0.85	10.20	10.2	0	-
94	3.9	46.80	30	16.8	Yes
95	0.3	3.60	0	0	-
96	1	12.00	12	0	-
97	2.8	33.60	30	3.6	Yes
98	0.43	5.16	5.16	0	-
99	4.89	58.68	30	28.68	Yes
100	0.5	6.00	6	0	-
101	0.4	4.80	0	0	-
102	0.9	10.80	10.8	0	-

Pole ID	Maximum Peat Depth Within 30 m of Pole (m)	Total Peat Excavation (m3)	Total Re-Use Capacity (m3)	Surplus Material Volume (m3)	Is Re-Use in Conjoining Poles Feasible?
103	0.4	4.80	0	0	-
104	1.7	20.40	20.4	0	-
105	0.4	4.80	0	0	-
106	1.28	15.36	15.36	0	-
107	0.3	3.60	0	0	-
108	0.4	4.80	0	0	-
109	1.05	12.60	12.6	0	-
110	0.5	6.00	6	0	-
111	0.8	9.60	9.6	0	-
112	2.5	30.00	30	0	Yes
113	0.53	6.36	6.36	0	-
114	0.4	4.80	0	0	-
115	0.5	6.00	6	0	-
116	2.5	30.00	30	0	- Yes
117	0.9	10.80	10.8	0	-
118	1.8	21.60	21.6	0	-
119	0.7	8.40	8.4	0	-
120	0.4	4.80	0	0	-
121	2.8	33.60	30	3.6	Yes
122	2.6	31.20	30	1.2	Yes
123	1.26	15.12	15.12	0	-
124	0.9	10.80	10.8	0	-
125	1.1	13.20	13.2	0	-
126	0.9	10.80	10.8	0	-
127	2.1	25.20	25.2	0	Yes
128	0.6	7.20	7.2	0	-
129	0.4	4.80	0	0	-
130	0.7	8.40	8.4	0	-
131	0.8	9.60	9.6	0	-
132	0.9	10.80	10.8	0	-