Appendix 6.1: Peat Survey Report

KAYA CONSULTING

SP Energy Networks

400kV ZV OHL Diversion

Peat Survey Report

May 2024

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Table of Contents

List of Figures

List of Tables

List of Photographs

1 Introduction

Kaya Consulting Ltd was commissioned by SP Energy Networks, through Land Use Consultants Limited (LUC), to undertake a peat depth survey for the 400kV ZV OHL Diversion project.

The site is located to the north of the B7078 in the South Lanarkshire Council area. The site is approximately 8km to the north of Abingdon and 5km to the south of Uddington. The M74 lies some 500m to the north-west of the site.

Figure 5-A (see end of document) shows the extent of the proposed diversion. The proposed route comprises of 5 towers and covers approximately 1.1km, diverting the existing OHL to the north of the proposed substation. The existing ground cover along the route corridor is comprised of a mix of bog and grassland. No peat probes or cores were taken within a 15m buffer of the existing high voltage OHL for health and safety reasons.

Most of the surveyed area slopes in a southerly and south-easterly direction.

This report covers the methodology and output of the peat survey undertaken at the site. The purpose of the survey was to establish an understanding of the peat depths at the site to optimise site design and layout to minimise both the extent of disruption to peatlands and the quantity of peat excavated. The survey was comprised of surveying a 10m grid in a 50m buffer zone around the proposed towers and a 25m grid in the surrounding area which may be used for construction access to the towers during the works. Cores were also taken to verify the results of the peat probing.

2 Methodology

2.1 Desk-based Initial Assessment

The Carbon and Peatland Map 2016 (NatureScot, 2016) was consulted prior to the peat survey. The map contains information on the likely peatland classes present within the survey area. The Carbon and Peatland map was developed to be used as “a high-level planning tool to promote consistency and clarity in the preparation of spatial frameworks by planning authorities”.

Within the Carbon and Peatland map, Class 1 and Class 2 peatlands are identified as areas of “nationally important carbon-rich soils, deep peat and priority peatland habitat”. Class 1 peatlands are also “likely to be of high conservation value” and Class 2 “of potentially high conservation value and restoration potential”.

The Carbon and Peatland map for the site is shown in **Figure 5-A**. The site is entirely comprised of Class 3 peatland. This is described as land where the “dominant vegetation cover is not priority peatland habitat but is associated with wet and acidic type. Occasional peatland habitats can be found. Most soils are carbon-rich soils, with some areas of deep peat”.

The results of the desk-based assessment indicated that peat was potentially present along the proposed OHL route.

2.2 Survey Methodology

The survey methodology follows current guidance in Scotland (Scottish Government, Scottish Natural Heritage, SEPA (2017) Peatland Survey. Guidance on Developments on Peatland, on-line version only).

The field survey was undertaken by a hydrologist with the appropriate experience of assessing hydrology, hydrogeology, geology, soil, and peat in upland environments.

2.2.1 Survey Dates

The peat survey was undertaken on the 15th of September 2023 and 6th of February 2024.

2.2.2 Peat Survey

The following methods were employed for the peat survey:

- The site was sampled using a 10m grid within a 50m buffer of the proposed towers and a 25m systematic grid across in the surrounding area which may be used for construction access to the towers during the works. The survey points were aligned to best fit the Ordnance Survey National Grid reference grid. The grid was generated using QGIS software.
- A total of 815 sampling points were surveyed. The extent and results of the peat survey is illustrated in **Figure 5-B**.
- The peat survey was carried out using an extendable fibreglass utility probe capable of sampling to 5m. Depth recordings were taken by rounding up to the nearest 0.05m.

3 Results

3.1 Peat Depths

Table 3-A and **Figure 5-B** show the results obtained during the peat survey. A total of 815 probes were collected across the survey period.

The Scottish Government guidance document on peat landslide hazard and risk assessment (Scottish Government, 2017) defines peat as a soil greater than 0.5m in depth, with an organic matter content of more than 60%. Soils of less than 0.5m depth are classified as organo-mineral soils. This is further evidenced by JNCC (2011), SNH (Bruneau, et al, 2014) and the James Hutton Institute (2019).

Probe penetration depths were mainly <0.25m with only 80 probes returning depths of 0.25 – 0.49m and only 10 probes were ≥ 0.5m. The survey concluded that the majority of the survey area is not peat (i.e. depths are less than 0.5m), with only two small, isolated pockets of peat identified.

Figure 5-B shows the spatial distribution of the peat depths from the peat survey data.

Table 3-A: Peat Depth Summary

Peat depth range (cm)	Number of probes	Percentage of total probes
<25	725	89%
25 - 49	80	9.8%
50 - 99	10	1.2%
>100	0	0.0%
Total	815	100%

3.2 Peat Cores

Table 3-B shows the information collected from the peat coring. Two cores were taken in the vicinity of ZV111. It was not possible to retrieve a core sample from the deepest probed area adjacent to the watercourse at tower ZV111 as ground conditions were too wet.

None of the cores identified peat ≥50cm. The two cores identified a shallow layer of acrotelmic peat, underlain by peaty gley soils.

The cores taken are shown in **Image 3-A**.

Table 3-B: Coring Data

Core ID Number	Core Depth (cm)	Peat	Acrotelm Thickness (cm)	Catotelm Thickness (cm)	Von Post	Notes
1	40	No	20	0	H1	Thin, relatively dry organic layer underlain by 15cm of organo-mineral soil with stony subsoil below
2	35	No	15	0	H1	Thin, relatively dry organic layer underlain by 15cm of organo-mineral soil with stony subsoil below

3.3 Peatland Condition

As part of the peat survey the peatland condition was assessed at each probing location. The peatland condition categories were based on those used in the NatureScot Peatland Condition Survey guidance; see the NatureScot guidance document for more detailed information on the classification approach.

The peatland condition categories were:

- Actively eroding
  - *Actively eroding: Flat bare*
  - *Actively eroding: Hagg / gully*
- Drained
  - *Drained: Artificial*
  - *Drained: Hagg / gully*
- Forested / previously forested
- Modified
- Near natural
- Not peatland

The proposed route was found to be relatively uniform in its condition and was classed as 'Not peatland'. The dominant vegetation was grass and the impact of grazing is evident. Areas of sphagnum moss growth are limited, with areas of soft rush present in the less well drained portions of the route such as along the watercourse near ZV111. General site conditions are pictured in **Photo's 3-B and 3-C.**

Two small, isolated pockets of peat >50cm in depth were identified. The first is close to the watercourse at ZV111 (**Photo 3-D**) and the second consists of an area of peaty soil to the north of the proposed location of ZV109R.

Photo 3-A: Cores Taken at Site

Photo 3-B: Site Condition (looking south-east from the proposed location of ZV110A)

Photo 3-C: Site Condition (looking west towards the proposed location of ZV108)

Photo 3-D: Site Condition (looking north towards ZV111)

4 Summary

Kaya Consulting Ltd was commissioned by SP Energy Networks, through Land Use Consultants Limited (LUC), to undertake a peat depth survey for the 400kV ZV OHL Diversion project.

This report covers the methodology and output of the peat survey undertaken at the site. The purpose of the survey was to establish an understanding of the peat depths at the site to optimise site design and layout to minimise both the extent of disruption to peatlands and the quantity of peat excavated.

A total of 815 probes were collected across the peat survey.

98.8% of probes were recorded as having a peat depth of less than 50cm across the peat survey. These probes are classified as organo-mineral soils and not formally considered to be peat. The site is predominantly covered in shallow peaty gleys, mineral soils with a high organic matter content.

Two small, isolated pockets of peat >50cm in depth were identified. The first is close to the watercourse at ZV111 and the second consists of an area of peaty soil to the north of the proposed location of ZV109R.

It is likely that the development can be designed to avoid all areas of peat.

5 References

- Bruneau, P.M.C & Johnson, S.M. (2014). Scotland's peatland - definitions & information resources. Scottish Natural Heritage Commissioned Report No 701.

- James Hutton Institute (JHI) (2019). Organic Soils. Website: https://www.hutton.ac.uk/learning/exploringscotland/soils/organicsoils. James Hutton Institute.

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- Scottish Government, Scottish Natural Heritage, SEPA (2017). Peatland Survey. Guidance on Developments on Peatland, on-line version only.

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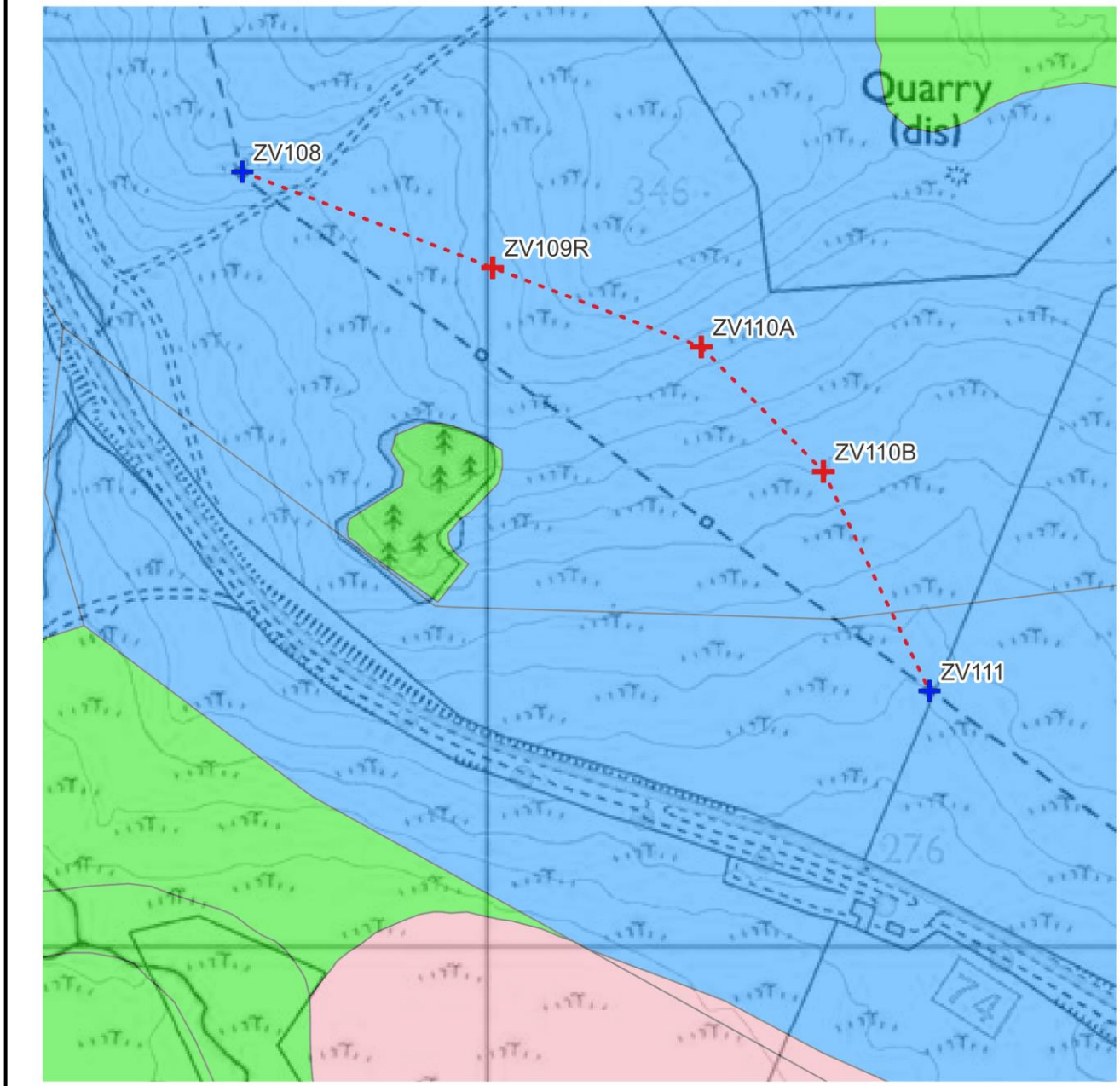

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NatureScot Peatland Classification

OHL Diversion Route

Pylons

Retained

Relocated

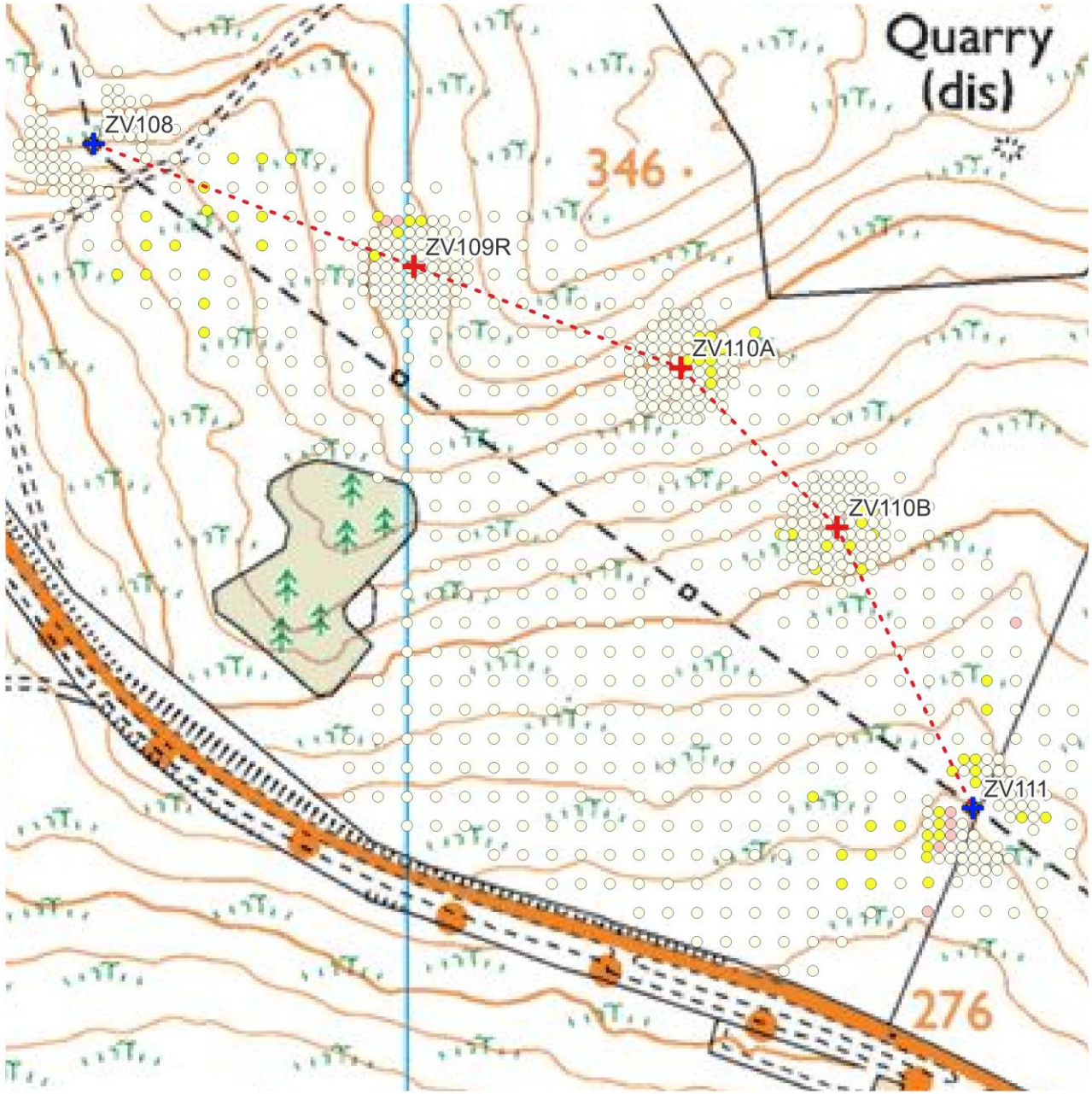
NatureScot Peatland Classification

Class 1

Class 3

Class 5

0 100 200 m



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Peat Survey Data

OHL Diversion Route

Pylons
- Retained
- Relocated

Probe Depth (cm)
- 0 - 25
- 25 - 50
- 50 - 100

0 100 200 m