



# Redshaw Substation

## Scoping Report

## SP Energy Networks

### Redshaw 400kV Substation Scoping Report

**Project Number**  
12595

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# Contents

<b>Chapter 1</b>		<b>Chapter 5</b>	
<b>Introduction</b>		<b>1 Archaeology and Cultural Heritage</b>	<b>17</b>
Project Overview	1	1 Introduction	17
The Need for the project	1	1 Study Area	17
Background to the Project	2	2 Existing Conditions	17
Application for Consent	2	2 Design Considerations	18
The Applicant	2	2 Proposed Surveys and Assessment Methodologies	18
The EIA Team	2	2 Potential Significant Effects	21
Document Structure	3	3 Approach to Mitigation	22
		Consultee List	22
<b>Chapter 2</b>		<b>Chapter 6</b>	
<b>The EIA Process and Assessment Methodology</b>		<b>4 Hydrology, Hydrogeology and Peat</b>	<b>24</b>
What is EIA?	4	4 Introduction	24
The EIA Process	4	4 Study Area	24
Approach to Mitigation	6	6 Existing Conditions	24
Uncertainty	6	6 Design Considerations	25
EIA Report Structure	6	6 Proposed Surveys and Assessment Methodologies	25
		Potential Significant Effects	25
		Approach to Mitigation	26
		Consultee List	26
<b>Chapter 3</b>		<b>Chapter 7</b>	
<b>Project Description</b>		<b>7 Noise and Vibration</b>	<b>27</b>
Introduction	7	9 Introduction	27
The Proposed Development	7	9 Study Area	27
Construction Works	8	Existing Conditions	28
Commissioning & Operation	9	Design Considerations	28
Decommissioning	9	Proposed Assessment Methodologies	28
		Potential Significant Effects	29
		Approach to Mitigation	29
		Consultee List	29
<b>Chapter 4</b>		<b>Chapter 8</b>	
<b>Landscape and Visual Amenity</b>		<b>10 Topics Proposed to be Scoped Out</b>	<b>30</b>
Introduction	10	16 Introduction	30
Proposed Surveys and Assessment Methodologies	10	Ornithology	30
Study Area	11	Ecology	31
Existing Conditions	11	Traffic and Transport	32
Siting and Design Considerations	15		
Potential Significant Effects	15		
Consultee List	16		

## Contents

Air Quality	34
Socio-Economics, Tourism and Recreation	34
Climate Change	34
Human Health	34
Major Accidents and Disasters	34

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<b>Appendix A</b>	
<b>Consultee List</b>	<b>A-1</b>

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<b>Appendix B</b>	
<b>Questions for Consultees</b>	<b>B-1</b>

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<b>Appendix C</b>	
<b>Peat Survey Report</b>	<b>C-1</b>

# Chapter 1

## Introduction

### Project Overview

**1.1** This Scoping Report has been prepared by LUC on behalf of SP Energy Networks (SPEN). SPEN intends to submit a planning application to South Lanarkshire Council for consent under Section 32 of the Town and Country Planning (Scotland) Act 1997, to construct and keep installed, a new 400kV /132kV substation ('the Proposed Development'), to meet the requirement for future expansion and accommodation of planned renewable energy projects and potential connections in the area.

**1.2** It is anticipated that 2 gigawatts (GW) of renewable energy will be connected to the transmission network in this area in the future. The new substation will help to reinforce the network to facilitate future connections. The Proposed Development will provide security to existing supplies as it will create an alternative 'feed' should a catastrophic event occur on the system at Kilmarnock South. This will give more reliability to the network and ensure power continuity. The Proposed Development is located wholly within South Lanarkshire Council.

**1.3** This report accompanies SPEN's request for a Scoping Opinion which is being sought from South Lanarkshire Council in accordance with Regulation 17 of the Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017 (as amended).

**1.4** Scoping is an early step in the Environmental Impact Assessment (EIA) process, the objective of which is to ensure the assessment process focuses on the likely significant effects associated with a project. Scoping also provides an opportunity for consultees to comment on the proposed methodologies for the EIA, identify sources of baseline information and raise any specific issues requiring assessment.

### The Need for the project

**1.5** As the electricity transmission and distribution license holder for central and southern Scotland, SPEN has a legal duty to develop and maintain a technically feasible and economically viable transmission and distribution system.

**1.6** The existing transmission grid infrastructure in the South of Scotland will, in the next few years, be operating at full

capacity and will therefore no longer be able to accommodate the planned and potential new generation in the area.

**1.7** To ensure sufficient capacity for electricity that needs to be transmitted throughout the area, SPEN's proposal is to construct a new substation close to the existing 400kV electricity transmission line (Scotland to England 400kV interconnector) and be able to accommodate a new overhead line connection from Glenmuckloch substation in the future. The Proposed Development is expected to ensure a more reliable fit for purpose and economical transmission network.

## Background to the Project

**1.8** LUC on behalf of SPEN conducted an initial strategic optioneering study in 2019 to identify potential substation search areas based on technical and environmental considerations. Taking account of the findings of the 2019 optioneering study, a 'Redshaw 400kV Substation Siting Study' was undertaken in March 2023<sup>1</sup>. This 2023 report led to the identification and appraisal of three substation siting areas (SS1, SS2, and SS3) and concluded with SS2 as the preferred site for the new substation. These substation siting areas are identified in **Figure 1.1**.

**1.9** After further technical review, SPEN identified an alternative site immediately adjacent to SS2, sited to the south of the existing Scotland to England 400kV interconnector (**Figure 1.1**). This has been termed SS4 and has also been subject of detailed technical, environmental and economic assessment following the initial identification of SS2. SS4 has been appraised in 'The Redshaw 400kV Substation Appraisal Supplementary Report'<sup>2</sup> which presents the findings of the appraisal process.

**1.10** Public consultation has been undertaken for the proposals. This was held from the 5<sup>th</sup> to 30<sup>th</sup> June 2023, which included advertised newspaper notices, three public consultation events and collection of feedback received through the consultation process<sup>3</sup>. No changes to the Proposed Development have resulted from the public consultation.

**1.11** SS4 has now emerged as the proposed site from an environmental, technical and economic perspective and is being progressed as the proposed development site through this scoping request. **Figure 1.2** provides the expected extent

of the red line planning application boundary of the Proposed Development site. Whilst the extent of the proposed red line/site boundary encompasses the areas of both SS2 and SS4, the development area will be contained within the red line boundary as per **Figure 1.2**.

## Application for Consent

**1.12** Consent will be sought under the Town and Country Planning (Scotland) Act 1997 (as amended) for planning permission for the erection and operation of the 400kV substation and associated infrastructure (full details of the project description are found in **Chapter 3** of this Scoping Report).

## The Applicant

**1.13** SPEN owns and operates the electricity transmission and distribution networks in Southern and Central Scotland through its wholly-owned subsidiaries, SP Transmission plc (SPT) and SP Distribution plc (SPD). SPT is the holder of a transmission licence<sup>4</sup>. SPEN's transmission network is the backbone of the electricity system within its area, carrying large amounts of electricity at high voltages from generating sources such as wind farms, power stations and various other utilities across long distances to connect homes and businesses. The transmission network consists of approximately 4,000km of OHLs and over 600km of underground cables. The electricity is then delivered via the distribution network which has over 150 substations and in excess of 100 grid supply points which serves approximately two million customers in Southern and Central Scotland.

**1.14** SPEN is required to identify electrical connections that meet the technical requirements of the electricity system, which are economically viable, and cause on balance, the least disturbance to both the environment and the people who live, work and enjoy recreation within it.

## The EIA Team

**1.15** The EIA is being coordinated by LUC. LUC is accredited with the Institute of Environmental Management and Assessment (IEMA) EIA Quality Mark. This accreditation is independently reviewed each year and recognises commitment to excellence in EIA activities and sharing good

<sup>1</sup> A document which outlines the methodology and findings of the siting study which has been undertaken to inform consultation, as well as the details of the public consultation process (2023). Available [online] at: [https://www.spenergynetworks.co.uk/userfiles/file/11980\\_Redshaw%20400kV\\_Substation\\_%20Siting%20Study\\_03\\_04\\_23\\_inc\\_Figures\\_pdf\\_compressed.pdf](https://www.spenergynetworks.co.uk/userfiles/file/11980_Redshaw%20400kV_Substation_%20Siting%20Study_03_04_23_inc_Figures_pdf_compressed.pdf)

<sup>2</sup> A supplementary document that details the methodology and findings relating to the identification of Substation Siting Area 4 (SS4)

(2023). Available [online] at:

[https://www.spenergynetworks.co.uk/userfiles/file/Redshaw\\_400kV\\_Appraisal\\_Report\\_Supplementary\\_Report.pdf](https://www.spenergynetworks.co.uk/userfiles/file/Redshaw_400kV_Appraisal_Report_Supplementary_Report.pdf)

<sup>3</sup> Redshaw\_substation\_PAC\_report\_digital\_Oct\_2023.pdf (spenergynetworks.co.uk)

<sup>4</sup> The references below to SPEN in the context of statutory and licence duties and the application for Section 37 consent should be read as applying to SP Transmission plc.

practice. The EIA Quality Mark demonstrates that LUC has sufficient expertise to ensure that all EIA related activities are undertaken to a high standard in accordance with Regulation 5(5)(a) of the EIA Regulations.

*5) In order to ensure the completeness and quality of the EIA report—*

*(a) the developer must ensure that the EIA report is prepared by competent experts*

**1.16** The organisations listed in Table 1.1 have undertaken the specialist assessments and inputs into the Scoping Report and are providing expertise and competence in relation to the Proposed Development:

**Table 1.1: Scoping/EIA Team<sup>5</sup>**

Topic	Team
EIA Report Co-Ordination	LUC
Landscape and Visual Amenity	LUC
Geology / Hydrology	Kaya Consulting
Ecology	LUC
Ornithology	LUC
Cultural Heritage	CFA
Noise	Hoare Lea
Transport	Mott MacDonald
Air Quality	LUC
Socio-Economics / Tourism	LUC
Climate Change	LUC
Human Health	LUC
Major Accidents and Disasters	LUC

- Chapter 2 provides information on the EIA process and assessment methodology.
- Chapter 3 provides a brief description of the Proposed Development and its location.
- Chapters 4 to 9 provide details of the topic areas to be considered in the EIA.
- Chapter 10 sets out the topics proposed to be scoped out of the EIA.

**1.18 Appendix A** details the consultees that will be approached by the Council to inform the scope of the EIA, as well as those that will be approached for information to inform the EIA. **Appendix B** provides a consolidated list of the questions put forward to the consultees to focus the response to the Scoping Report; these are also included at the end of each chapter.

## Document Structure

**1.17** The remainder of this report is structured as follows:

<sup>5</sup> Note a number of these topics are proposed to be scoped out and will therefore not be subject of detailed assessment in the EIA

# Chapter 2

## The EIA Process and Assessment Methodology

### What is EIA?

**2.1** EIA is the process of process of systematically compiling, evaluating and presenting all the likely significant environmental effects, both positive and negative, of a proposed development, to assist the determining authority in considering the application. It enables the significance of these effects to be clearly understood, and where required, mitigation to be identified to address significant effects.

**2.2** The information compiled during the EIA is presented within an EIA Report to accompany the application for consent.

**2.3** EIA is an iterative process and runs in tandem with project design. As potential effects are identified, for example through baseline surveys, the design of the Proposed Development will be adjusted to reduce or avoid adverse effects where possible and mitigation measures will be proposed as appropriate.

### The EIA Process

**2.4** The EIA will be conducted in accordance with current legislation, policy and guidance. The EIA process usually includes the following key stages as set out below.

#### Screening

**2.5** Development projects that are described within Schedule 1 of the EIA Regulations will always require EIA and are referred to as 'Schedule 1 Developments'. Development projects listed in Schedule 2 that are located in a 'sensitive area', or which exceed one of the relevant criteria or thresholds given in Schedule 2 are referred to as 'Schedule 2 Developments'. Not all Schedule 2 Developments require EIA as only a development project that is likely to have significant environmental effects by virtue of its size, location or nature will require assessment. Where the potential for Schedule 2 Developments to result in likely significant effects is considered to be uncertain, then Regulation 8 of the EIA Regulations allows for an applicant to apply to the Scottish Ministers for an EIA Screening Opinion to determine if an EIA is required. A development project that requires EIA is referred to as 'EIA development'.

**2.6** Whilst the Proposed Development does not fall explicitly within the 'descriptions of development' set out in Schedule 1



or Schedule 2 of the Town and Country Planning (Environmental Impact Assessment) Regulations 2017 ('the EIA Regulations'), consideration has been given to the nature, size and location of the Proposed Development and potential for significant effects in accordance with Schedule 3 (Regulation 7(2) of the EIA Regulations).

**2.7** The scale, nature and location of the Proposed Development are such that, to allow the environmental effects of the project to be appropriately considered and understood, SPEN has taken the decision to prepare an EIA. As such, no Screening Opinion has been sought from the Council.

### Scoping

**2.8** The purpose of Scoping is to focus the EIA on the likely and relevant significant environmental effects associated with the Proposed Development. On the basis of the expert judgement of the assessment team, experience from similar projects, as well as relevant policy, guidance and standards, each topic chapter within this report outlines:

- Potential likely significant effects associated with construction and/or operation of the Proposed Development, which will be assessed in detail in the EIA Report.
- Effects which are considered unlikely to be significant and requiring no further assessment.

### Baseline Conditions

**2.9** The EIA Regulations require that aspects of the environment which are likely to be significantly affected by the Proposed Development are clearly defined within the EIA Report. To achieve this, it is necessary to gather environmental information on the current status of each topic proposed for consideration as part of the EIA, i.e., 'baseline conditions'. This will be undertaken as the first step in the assembly of data for the EIA Report through a combination of consultation with relevant stakeholders, field survey work and desk-based research.

**2.10** For the purposes of the assessment, the baseline is considered to be the existing environment within each defined topic study area and will consider other similar developments, i.e. infrastructure projects which are at the following stages in the development process:

- operational;
- under construction; or
- consented.

**2.11** The study area for each discipline is defined separately to reflect the potential extent of likely significant effects associated with the Proposed Development. The study area

for each discipline is not necessarily defined by the extent of the proposed new substation, with some study areas being smaller and some larger depending on the nature of effects and taking into account professional judgement and best practice. Details on the existing conditions of the study area, and the surveys which will be undertaken for each topic are detailed in **Chapters 4 to 9** in this report.

**2.12** In accordance with the EIA Regulations, climate change will also be considered in the context of understanding how baseline conditions for each topic area could change during the lifetime of the Proposed Development.

### Assessment of Effects

**2.13** For each topic that is identified as requiring further consideration, a detailed technical assessment will be carried out in line with the scope and methodology agreed with relevant consultees. Technical assessments will be undertaken appropriately by qualified consultants in line with technical standards and relevant guidance. The assessments will take into account both the construction and operational phases of the proposed new substation in relation to the study area and its environs.

### Assessment of Significance

**2.14** The EIA Regulations do not define significance and it is, therefore, necessary to define this for the Proposed Development. The methods used vary according to the topic assessed and may be quantitative (e.g. comparing predicted values against published thresholds/criteria) or qualitative, based on experience and professional judgement. The proposed methodology to be used for determining the significance of effects for each topic area are detailed in this Scoping Report and will also be fully described within the individual chapters of the EIA Report.

### Cumulative Assessment

**2.15** An assessment will be made of the likely significant cumulative effects of the Proposed Development in combination with other existing electricity infrastructure where relevant. These will include:

- Developments which are the subject of applications for consent and which have been submitted to the relevant authorities but not yet determined;
- Developments which are consented; and
- Developments which are under construction.

**2.16** The scope and methodology for the cumulative assessment will be agreed with the relevant statutory consultees. As the study areas will be defined separately for

each topic assessed in the EIA, this will mean that the number of cumulative schemes considered in each topic will vary.

**2.17** Figure 2.1 provides details of the developments to be considered in the cumulative assessment.

**2.18** SPEN are aware of other infrastructure projects which may be proposed in the area, however, where information on these projects are not yet in the public domain, they have been excluded from the cumulative assessment at the routeing and consultation stage due to the lack of certainty regarding their progression at this time. Further consideration of cumulative schemes will be reviewed and updated at the EIA stage of the process.

## Approach to Mitigation

**2.19** Part 7 of Schedule 4 of the EIA Regulations notes that the EIA Report should include details of proposed mitigation measures to avoid, prevent, reduce or, if possible, offset any identified significant adverse effects on the environment and, where appropriate, set out monitoring measures which will be put in place.

**2.20** To ensure a proportionate approach is taken to the EIA process, the EIA will assume in many cases that mitigation measures are embedded within the Proposed Development. This can include avoiding and/or mitigating likely significant environmental effects associated with substations through careful siting, as has been undertaken for the Proposed Development during the substation siting study process. Embedded mitigation can also include 'standard' practices and procedures, such as implementing a Construction Environmental Management Plan (CEMP) and use of good practice construction techniques to minimise environmental effects thereby reducing, as far as practicable, the need for additional mitigation measures or environmental controls. Further detail on embedded mitigation is provided in each technical chapter.

**2.21** Where necessary, additional mitigation measures are proposed to reduce the significance of effects, and these will be set out in detail in the EIA Report.

**2.22** The EIA Report will identify and assess likely significant effects prior to mitigation and, where mitigation measures are proposed, their likely effectiveness will be examined and the significance of the 'residual' effect then assessed. SPEN will be committed to implementing all the mitigation measures identified in the EIA Report and where appropriate, the mitigation measures implemented will be monitored for effectiveness.

**2.23** Where there are opportunities for offsetting and/or positively enhancing effects, these will be identified through the EIA process.

## Uncertainty

**2.24** The EIA process is designed to enable good decision-making based on the best possible information about the environmental effects of a project. There will, however, always be an element of uncertainty as to the exact scale and nature of the effects. These may arise through shortcomings in available information or due to the inherent limitations of the professional judgement process. As required in Schedule 4, Part 6 of the EIA Regulations, any uncertainty will be explicitly recognised and detailed in the EIA Report.

## EIA Report Structure

**2.25** The EIA Report will be structured as follows, subject to any changes to the scope identified through the consultation process:

- Description of the EIA process, including details of consultation which has taken place;
- Description of the Proposed Development; and
- Individual environmental assessment topic chapters, including a description of the mitigation measures required to prevent, reduce and, where possible, offset any significant adverse effects on the environment; enhancement measures where appropriate will also be included as well as details of relevant planning policy.

**2.26** Each chapter of the EIA Report, where practicable, will adopt a consistent format. This will ensure compliance with the EIA Regulations regarding completeness and accuracy. Each chapter will comprise an opening introduction to the topic, including a summary of the expertise of the chapter author, followed by:

- Legislation/Policy/Guidance;
- Environmental Baseline (derived from desk studies and surveys undertaken);
- Effects Assessment (identification of the effects and their significance);
- Mitigation (and monitoring as appropriate);
- Residual Effects (assessment of effect significance once mitigation has been incorporated); and
- Summary of Significant Effects.

**2.27** The EIA Report will also include a Non-Technical Summary (NTS) and supporting appendices including tables, figures and reports.

# Chapter 3

## Project Description

### Introduction

**3.1** This chapter provides details of the components that comprise the Proposed Development. This comprises the proposed new substation itself and associated works, road and junction improvements, landscaping, temporary compounds, soils, materials, vehicle storage areas and drainage. It provides information on the construction and operational requirements of the Proposed Development, including providing information on:

- The construction process including details of the indicative construction programme, and the proposed environmental management procedures;
- The operational maintenance requirements associated with the substation extension; and
- Health and Safety procedures.

**3.2** Within this chapter and those which follow, the 'Proposed Development' includes the 400kV Redshaw substation (outlined in **Figure 3.1**) together with all associated works to be undertaken within the planning application boundary as detailed in the following paragraphs unless the context indicates otherwise.

### The Proposed Development

**3.3** The Proposed Development lies in proximity to the existing 400kV Scotland to England interconnector (ZV route) at Redshaw. The overhead line (OHL) route from the proposed Glenmuckloch to Redshaw Reinforcement Project OHL will connect from the proposed Glenmuckloch substation near Kirkconnel (subject of the submitted Section 37 application to the Energy Consents Unit; ECU00001988), to the Proposed Development at Redshaw. The OHL route from the proposed Glenmuckloch substation to the new 400kV Redshaw substation is subject to a separate routeing and consultation process and will be subject of a separate Section 37 consent to the Scottish Ministers.

**3.4** The existing Scotland to England 400kV interconnector route will also 'turn in' to the Proposed substation at Redshaw, with the 132kV collector required due to the renewable generation applications received by SPEN to date. The existing Scotland to England 400kV interconnector will be diverted to accommodate the Proposed Development, with an existing tower removed and new towers required to create the

diversion. The tower removal and new towers will be subject of a separate consenting process.

### The New Substation and Associated Works

**3.5** The layout of the Proposed Development and site boundary is illustrated on **Figure 3.1**. The Proposed Development will consist of the following infrastructure:

- A new 400 kV Gas Insulated Switchgear (GIS) substation building which will house gas insulated electrical switchgear and plant (approximately 91 m x 30 m);
- A new 132 kV Gas Insulated Switchgear (GIS) substation building which will house gas insulated electrical switchgear and plant (approximately 56 m x 17.5 m);
- A small distribution substation building to provide ancillary power, lighting, heating and ventilation;
- 7 x 360 MVA 400/132 kV Super Grid Transformer (an auto transformer used to stepdown voltage level from 400kV to 132kV);
- 1 x 120 MVA 132/33 kV Grid Transformer (a power transformer that will be used to stepdown voltage level from 132kV to 33kV);
- 2 x 90 MVA 132/33 kV Grid Transformer (a power transformer that will be used to stepdown voltage level from 132kV to 33kV);
- 5 x 33kV/415V Earthing Auxiliary transformer (providing the 33kV system earth connection and also used to provide site auxiliary supplies);
- A new permanent access track from local public road to substation compound;
- Internal access roads and parking provision; and
- A new 3 metre high steel palisade security fence and internal fencing around the live compound.

### New 400kV Gas Insulated Electrical Switchgear and Plant

**3.6** The new substation will contain new switchgear, cable sealing ends and 6 terminal gantries up to 13 m height. These are generally of metal lattice construction with concrete bases with associated foundations. There will also be two buildings for 400kV GIS and 132 kV GIS respectively with outdoor equipment i.e SA, CVT, Earth Switch etc with structure and associated foundation.

### Security Fencing

**3.7** The Proposed Development will be surrounded by a 3 m high standard steel palisade security fence and internal

fencing around the live compound. Warning notices about possible dangers will be displayed on the fencing.

### Drainage Works

**3.8** The Proposed Development will allow for the provision of a suitable water supply system for the new building facilities. It will also allow for the appropriate provision of the following drainage systems:

- Surface water system, which shall accommodate the new substation platform layout, access road, all compound hard standing areas and any proposed internal road.
- Foul, rain, and surface water system associated with the proposed buildings. This will include provision of appropriate septic tanks.
- Oil containment and separation system schemes associated with the new transformers which will be installed at the site. Design will be based on current standards and pollution prevention guidelines at the time of design.

**3.9** All drainage outflows (after being suitably treated) will finally discharge through agreed outfall/s. Final outfall arrangements for the site will depend on discussions between SPEN and SEPA for this specific project.

**3.10** Details of the proposed drainage arrangements will be progressed through detailed design.

### Construction Works

**3.11** The construction of the Proposed Development requires additional infrastructure such as construction compounds to store materials, access tracks, etc. All have limited maintenance requirements, and all are subject to well-established procedures for dismantling/decommissioning. Construction timelines will be approximately 6 years in phases. Starting from approximately April 2025 until October 2031 including phase wise commissioning starting from October 2027 until October 2031. The construction will include but not limited to earthworks, foundations, building works, installation of equipment's, road works, fencing, OHL works, etc.

### Access Track Construction

**3.12** Access to the Site will be via the B7078. Details of the site access junction/arrangements will be progressed through detailed design.

**3.13** This will include a permanent access track from the local public road to the substation compound. The access track will be 5 m wide and will not require any passing places. It is expected that the access track will be constructed with stone,

however a bituminous finish may be required depending on the gradient required for the transformer delivery; this will be confirmed through detailed design.

new upgraded equipment and refurbished. This will be determined closer to the end of the operational life of the Proposed Development.

### Temporary Working

**3.14** Temporary working areas will be required for the duration of construction works; working areas will comprise of areas approximately 75 m x 75 m and will be located in the immediate locale where land permissions permit. In some cases, the shape or size of the working area will be determined by nearby environmental or land use constraints, identified during the EIA process/prior to construction. Following the completion of the construction works, the temporary working areas will be reinstated and restored to former conditions.

### Interaction with existing Scotland to England 400kV interconnector

**3.15** The Scotland to England 400kV interconnector OHL will be diverted prior to the start of substation construction. The foundations and tower erection build will be done offline, and suitable outages will be taken to ensure the interconnector is reinstated and connects to the grid. Once the substation construction is complete, the Scotland to England 400kV interconnector will be routed through the substation and final commissioning will undertaken.

### Construction Timescales

**3.16** It is expected that the construction of the Proposed Development would take approximately 6 years from receipt of all relevant consents. The construction will be done in phases Starting from April 2025 until October 2031.

**3.17** A detailed programme of works will be produced by the construction contractors prior to the commencement of works onsite.

### Commissioning & Operation

**3.18** On completion of the electrical plant installation, the substation will be connected to the existing Scotland to England 400kV interconnector route and a period of equipment testing will be undertaken prior to the new equipment becoming operationally live from October 2027 until October 2031 in phases.

**3.19** The expected operational life of the Proposed Development is 99 years from the date of commissioning.

### Decommissioning

**3.20** When the operational life of the Proposed Development comes to an end, it is possible that it may be re-equipped with

# Chapter 4

## Landscape and Visual Amenity

### Introduction

**4.1** This chapter sets out the proposed approach to the assessment of the likely significant effects of the Proposed Development on landscape and visual amenity (including the visual amenity of residents), including a consideration of the implications for designated landscapes, and cumulative effects.

**4.2** A desk-based review of existing information has been undertaken to inform this chapter, including Ordnance Survey (OS) maps, the relevant Local Development Plan, and the NatureScot Landscape Character Assessment (2019).

**4.3** The Landscape and Visual Impact Assessment (LVIA) will be carried out in line with relevant legislation and standards, including the Guidelines for Landscape and Visual Impact Assessment - 3rd Edition (GLVIA3)<sup>6</sup>.

**4.4** The LVIA will be undertaken by Chartered Members of the Landscape Institute (CMLI) at LUC.

### Proposed Surveys and Assessment Methodologies

**4.5** Following the approach to the EIA set out in Chapter 2, the LVIA, Cumulative LVIA (CLVIA), and presentation of landscape and visual effects will be carried out in line with relevant legislation and standards, as well as the following guidelines, in so far as they are relevant to the Proposed Development:

- Management and Assessment (IEMA) (2013) Guidelines for Landscape and Visual Impact Assessment - 3rd Edition (GLVIA3);
- NatureScot (2021) Guidance - Assessing the Cumulative Landscape and Visual Impact of Onshore Wind Energy Developments;
- Landscape Institute (2019) Technical Guidance Note 02/19 Residential Visual Amenity Assessment (RVAA)

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<sup>6</sup> Landscape Institute and Institute for Environmental Management and Assessment (IEMA) (2013) Guidelines for Landscape and Visual Impact Assessment - 3rd Edition (GLVIA3)

- Landscape Institute (2019) Technical Guidance Note 06/19 Visual Representation of Development Proposals; and
- Scottish Natural Heritage<sup>7</sup> (2017) Visual Representation of Wind Farms Guidance - Version 2.2.

**4.6** Landscape and visual assessments are distinct, but interconnected, processes and the assessment will describe potential landscape and visual effects separately. The LVIA will consider potential effects on:

- Landscape as a resource in its own right (caused by changes to the constituent elements of the landscape, its specific aesthetic or perceptual qualities and the character of the landscape); and
- Views and visual amenity as experienced by people (caused by changes in the appearance of the landscape).

**4.7** Judging the significance of landscape and visual effects requires consideration of the nature of the receptor and the nature of the effect on the receptor. GLVIA3 states that the nature of receptors, commonly referred to as their sensitivity, should be assessed in terms of the susceptibility of the receptor to the type of change proposed, and the value attached to the receptor. The nature of the effect on each receptor, commonly referred to as its magnitude, should be assessed in terms of size and scale; geographical extent; duration and reversibility. Judgements of sensitivity and magnitude are then combined to form a judgement regarding the overall significance of effect.

**4.8** A detailed methodology for the LVIA, including the cumulative assessment, has not been included within this scoping report but can be provided to consultees on request, however an overview of the key receptors and outline method in relation to visual amenity, sequential views and cumulative assessment are provided below to inform consultee responses to scoping.

## Study Area

**4.9** Informed by the type and scale of the Proposed Development, a study area of 3km (**Figure 4.1**) is proposed for the LVIA. An initial indicative bare ground Zone of Theoretical Visibility (ZTV) map has been prepared for the Proposed Development, as shown on **Figures 4.2** and **4.3**. The extent of the study area has been informed by the preliminary ZTV and professional judgement and defined on the basis that at distances greater than 3km significant effects

on landscape character and visual amenity, including residential visual amenity, are unlikely to occur.

**4.10** The ZTV has been prepared based on the provisional design parameters for the Proposed Development, detailed in Chapter 3 and shown on **Figures 3.1** and **3.2**. The maximum height of the infrastructure of the Proposed Development will not exceed 15m.

**4.11** As shown on **Figure 4.2** and **Figure 4.3** the ZTV suggests that the Proposed Development would be visible from the majority of the study area; however, because the ZTV is based on a bare ground model, it is likely that existing features such as areas of mature plantation woodland, tree belts, buildings and other structures will reduce the extents of visibility experienced.

**4.12** The ZTV illustrates that there will be limited visibility from the settlement of Crawfordjohn as a result of landform providing screening. Visibility is also indicated from the property of Thirstane and the property of Blackburn Farm to the south-east of the Site, at a distance of 2-2.5km.

**4.13** Visibility of the Site is indicated from the B7078 to the east but is largely screened to the north due to the intervening landform of Wildshaw Hill. The ZTV indicates visibility from the M74 from a 1km section to the east, south-east of the Site.

**4.14** Visibility is indicated from Core path CL3464/1 running parallel to the B7078, to the south-east of the Site, whilst to the north of the Site indicated visibility is very limited due to existing landform of Wildshaw Hill.

**4.15** Predicted visibility is principally indicated from the Plateau Moorlands – Glasgow & Clyde Valley LCT (213), extending south-east from the Site, with some visibility to the south-west as the landform rises. Visibility is also indicated from within the Upland River Valley – Glasgow and Clyde Valley LCT (207) and Southern Uplands – Glasgow and Clyde Valley LCT (217), concentrated largely in the areas of extensive forestry to the south-east of the Site.

## Existing Conditions

**4.16** The study area extends between Abington and Uddingston, within the South Lanarkshire Council local authority area.

**4.17** The landscape of the study area extends across low lying and gently sloping terrain north of the B7078, between approximately 280 m Above Ordnance Datum (AOD) and 310 m AOD. The Proposed Development is located directly east of tower ZV110.

<sup>7</sup> Formally Scottish Natural Heritage (SNH) before rebranding to NatureScot in August 2020

**4.18** The Proposed Development will be evident in views from the M74 to the east, the B7078 and the National Cycle Network (NCN) Route 74 to the west, however views will be limited to short sections of these routes. The visibility of the Proposed Development from the periphery of the Douglas Valley SLA to the west, north-west will be limited by intervening landform. The existing landform of the site slopes west, south-west towards the B7078 and provides opportunities to integrate the development into the existing landform (embedded mitigation), and screen or reduce perceptibility of the Proposed Development in views from the M74, with opportunities for further additional mitigation to be incorporated around the site.

**4.19** In terms of land use the study area extends across low lying and gently sloping terrain between the B7078 and M74, between approximately 257m and 392m AOD. Land-cover comprises predominantly rough grazing and open moorland, with pockets of coniferous forest located to the north-west of the site.

**4.20** The existing electricity transmission network within the study area includes the 400kV OHL of the Scotland to England interconnector running from north-west to south-east broadly parallel with the M74, whilst a network of 11kV electricity distribution lines cross the study area to the north and south of the site.

### Landscape Character

**4.21** The 'Scottish Landscape Character Assessment', published by SNH in 2019<sup>8</sup> describes the landscape character of the site and the study area, organised via Landscape Character Types (LCTs). Landscape designations recognise the presence of particularly valued characteristics in a local or national context and tend to encompass a number of LCTs in combination. LCTs and landscape designations within the study area are shown overlaid with the ZTV on **Figure 4.3**.

**4.22** The site is located within the Plateau Moorlands – Glasgow & Clyde Valley LCT. Key characteristics include:

- *“Large scale landform;*
- *Undulating hills and sloping ridges in the western areas; a more even plateau landform in the east;*
- *Distinctive upland character created by the combination of elevation, exposure, smooth plateau landform, moorland vegetation;*
- *Predominant lack of modern development;*

- *Extensive wind turbine development, including one of the largest wind farms in Scotland, Black Law; and*
- *Sense of apparent naturalness and remoteness which contrasts with the farmed and settled lowlands, although this has been reduced in places by wind energy development”<sup>9</sup>*

**4.23** The Upland River Valley – Glasgow & Clyde Valley LCT<sup>10</sup> crosses slightly into the study area. Key characteristics include:

- *“A series of valleys formed along faultlines through the Plateau Moorlands and paired with valleys to the south and west in Ayrshire.*
- *South-west to north-east orientation of the valleys*
- *Strong contrast between the wooded and settled character of the valleys and the exposed enclosing uplands.*
- *Transition from the exposed upper reaches to more sheltered lowland areas.”*

**4.24** South Lanarkshire Council conducted its own local landscape character assessment<sup>11</sup> in November 2010. According to this assessment the site sits on the edge of the Foothills (10) LCT, Plateau Moorland (6) LCT and the Rolling Moorland (7) LCT.

**4.25** The key characteristics of the Foothills (10) LCT include:

- *“A varied landscape of rounded hills, farmland and small valleys, forming a transition between the farmlands and the Rolling Moorlands and Southern Uplands;*
- *Hilltops often dominated by heather moorland, with a transition to rough grazing and enclosed pastures on lower slopes; some areas of coniferous woodland;*
- *Becoming higher and more open with poorer pastures towards the south west; and*
- *Scattered settlements and farms but the higher hills have little in the way of modern settlement.”*

**4.26** The key characteristics of the Plateau Moorlands (6) LCT include:

- *“Distinctive upland character created by the combination of elevation, exposure, smooth, plateau landform, moorland vegetation and, with the exception of windfarms, a comparative lack of modern development;*

<sup>8</sup> <https://www.nature.scot/professional-advice/landscape/landscape-character-assessment/scottish-landscape-character-types-map-and-descriptions>

<sup>9</sup> [LCT 213 - Plateau Moorlands - Glasgow & Clyde Valley](#)

<sup>10</sup> [LCT 207 - Upland River Valley - Glasgow & Clyde Valley](#)

<sup>11</sup> [Landscape character assessment - final report, November 2010 Planning and building standards - South Lanarkshire Council](#)



- *these areas share a sense of apparent openness and exposure which contrasts with the farmed and settled lowlands but do not feel remote;*
- *increasingly these areas are subject to significant landscape change resulting from extensive large scale windfarm development and associated reduction in area of commercial forestry.”*

**4.27** The key characteristics of the Rolling Moorland (7) LCT include:

- *“Distinctive upland character created by the combination of elevation, exposure, smooth, rolling or undulating landform, moorland vegetation and the predominant lack of modern development;*
- *these areas share a sense of apparent wildness and remoteness which contrasts with the farmed and settled lowlands and the windfarm-dominated Plateau Moorlands;*
- *there are extensive views over the surrounding Ayrshire and Lanarkshire lowlands from the hilltops”*

### Designated Landscapes

**4.28** The Proposed Development is not located within any nationally or locally designated landscapes. The north-western extents of the study area include a small proportion of the locally designated Douglas Valley Special Landscape Area (SLA). Relevant special qualities include *“scenic compositional qualities of a meandering river passing through a sheltered, mature pastoral landscape enclosed by moorland hills.”*<sup>12</sup> The southern extent of the L&V study area includes a small proportion of the Leadhills and Lowther Hills SLA. The special qualities of this SLA relate primarily to the extensive uplands at the core of the designated area. The Proposed Development will be visible from higher ground at the northern edge of the Leadhills and Lowther Hills SLA (within approximately 1.6 km – 3 km).

### Visual Amenity

**4.29** The LVIA will also consider the potential for adverse and beneficial effects upon visual receptors (people) should there be potential visibility of the proposed new substation.

**4.30** The preliminary ZTV shown on **Figure 4.2** illustrates the likely maximum extent of theoretical visibility across the study area.

**4.31** The main communication routes within the study area comprise:

- The M74, which extends north through south-east of the Site, approximately 0.6km at its closest point;
- The B7078 which runs adjacent to the south-western boundary of the Site; and
- The B740, which shares a junction with the B7078 approximately 0.7km to the south-east of the Site

**4.32** As shown in **Figure 4.2**, there are a number of core paths within the study area.

- CL3464/1 runs along the B7078, adjacent to the Proposed Development.
- CL3463/1 extends to the north-west of the Site and is connected to CL3464/1 along the B7078.
- CL3465/1 extends towards the south-east of the Site and is connected to CL3464/1 along the B7078.
- An ‘Aspirational Core Path’, CL5706/1 extends from Crawfordjohn in the South-east towards north-west of the Site at a distance of approximately 600m at its nearest point.

**4.33** Visual Receptors identified during the appraisal process and desk-study include the following:

- Residential receptors including Redshaw (grid ref: 286029, 628525) approximately 1.4km to the north-west, views from which will be screened by intervening landform, and the property of Thirstane located approximately 2.0km, and Blackburn Farm approximately 2.4km to the south-east of the Site. The Red Moss Hotel (grid ref: 287414, 627043) located approximately 350m to the south is not currently occupied and is not considered as a residential dwelling;
- Recreational receptors at local hill summits, including Auchensaugh Hill (392m AOD);
- Road users on the M74, B7078 and B740; and
- Recreational receptors on the National Cycle Network (NCN) Route 74/B7078 and surrounding minor roads.

**4.34** The ZTV, in conjunction with fieldwork and feedback from stakeholders during the substation siting study process, has been used to inform the selection of representative assessment viewpoints to be considered in the LVIA. Viewpoints have been identified to represent a range of receptors (people), distances and viewing experiences.

**4.35** The proposed viewpoint locations are listed in **Table 4.1** below and are illustrated on **Figure 4.2**.

<sup>12</sup>[https://www.southlanarkshire.gov.uk/download/downloads/id/4147/landscape\\_designations\\_report\\_november\\_2010.pdf](https://www.southlanarkshire.gov.uk/download/downloads/id/4147/landscape_designations_report_november_2010.pdf)

Table 4.1: Proposed Viewpoint Locations

VP ID	VP Name	Easting	Northing	Reasons for Selection
1	B7078 Core Path/NCN 74	287988	626730	Represents views experienced by recreational receptors on NCN Route 74 and Core Path route (CL/3464/1) and road users on the B7078.
2	Wider path network, east of M74 (Outer Law)	288375	627834	Represents views experienced by recreational receptors and road users on the M74.
3	B740/B7078 junction	289114	626000	Represents views experienced by recreational receptors and road users on the B7078 and B740.
4	Auchensaugh Hill, cairn (SM 4234) <sup>13</sup>	285340	627195	Represents views experienced by recreational receptors/visitors to Scheduled Monument (SM), and users of the nearby aspirational Core Path route (CL/5713/1).
5	Thirstone, stone circle 1300m NNW of (SM 5094)	288185	627150	Represents views experienced by recreational receptors/visitors to SM.

**4.36** The final assessment viewpoint locations will be confirmed following the detailed design of the Proposed Development and will be subject to micro-siting in the field to take account of the presence of screening. Each viewpoint will be visited, and 360 degree panoramic photography will be captured in accordance with guidance published by NatureScot<sup>14</sup> and the Landscape Institute<sup>15</sup>, to illustrate the existing baseline characteristics of the view. These characteristics will be detailed in the baseline description, prior to undertaking the assessment of visual effects.

**4.37** Each viewpoint will be presented with baseline photography and wireline visualisations. A selection of key viewpoints will be illustrated with photomontage visualisations to provide a photorealistic illustration of the change in views, including the provision of any additional mitigation measures proposed as part of the final Proposed Development (e.g. landscape mitigation measures such as vegetation/woodland screening). The final representative assessment viewpoints will be agreed through consultation with NatureScot and South Lanarkshire Council.

### Residential Visual Amenity

**4.38** It is not proposed to undertake a separate Residential Visual Amenity Assessment (RVAA) to accompany the LVIA.

Within the 3km study area there are 11 occupied residential properties:

- Redshaw, approximately 1.4km to the north-west;
- Thirstane, approximately 2.0km to the south-east;
- Two properties at Blackburn Farm, approximately 2.4km to the south-east;
- Greenfield Farm, approximately 2.3km to the south, south-east;
- Over Balgray, approximately 2.5km to the south, south-east;
- Holmview Cottage and Burnside Cottage, approximately 2.9km to the south, south-east; and
- Dail Bhreagha, Blairhill House and Townhead Cottage, approximately 2.9km to the south.

**4.39** Based on the preliminary ZTV, theoretical visibility is only predicted to arise for the residential properties of Thirstane and Blackburn Farm, however, actual visibility is likely to be reduced by the presence of intervening features such as woodland/forestry.

<sup>13</sup> Viewpoints 4 and 5 will also be considered within the Archaeology and Cultural Heritage Assessment, with accompanying visualisations, as detail in Chapter 5.

<sup>14</sup> SNH, Visual Representation of Wind Farms, Version 2.2 (February 2017). Available [online] at: <https://www.nature.scot/doc/visual-representation-wind-farms-guidance>

<sup>15</sup> Landscape Institute Technical Guidance Note (TGN) 06/19 Visual Representation of Development Proposals (September 2019).

### Cumulative Assessment

**4.40** There is the potential for cumulative effects to arise within the study area from the addition of the proposed Redshaw 400kV Substation project alongside other developments which are either operational, under construction, consented or the subject of a valid application for consent (proposed).

**4.41** Existing (operational and under construction) developments, such as other transmission infrastructure, wind farms and other vertical infrastructure (e.g. telecommunications masts) form part of the existing baseline environment and will be considered in the LVIA. The cumulative assessment will also consider the likelihood for significant cumulative landscape and/or visual effects to arise through combined, successive, or sequential views of other types of development. Other developments to be considered in the cumulative assessment will be limited to those which are likely to result in a similar type, scale, and extent of visual effects as those arising from the introduction of the Proposed Development.

**4.42** LUC will seek to agree a list of developments to be considered in the cumulative assessment with consultees through the EIA process. The locations of other existing and proposed developments to be considered in the cumulative assessment are shown on **Figure 2.1**.

### Siting and Design Considerations

**4.43** A key design objective from a landscape perspective in the siting of the proposed substation was to minimise visibility from the Douglas Valley SLA, nearby residential properties, and the wider landscape, including views from the M74 motorway to the east and B7078/NCN 74 to the west.

**4.44** The proposed substation site also maximises the opportunity to utilise existing landform and neighbouring terrain to screen wider views of the infrastructure, with gently rising land to the north and east providing effective containment of wider views from the M74 to the east and the Douglas Valley SLA to the north-west.

**4.45** Proximity to residential properties was a key design consideration, and maximising the separation distance between the proposed substation and residential properties has avoided the potential for effects on residential visual amenity which may otherwise give rise to potential effects which would require assessment as part of a Residential Visual Amenity Assessment (RVAA).

### Potential Significant Effects

**4.46** Potential landscape and visual effects associated with the construction and/or operation of the Proposed Development include:

#### Landscape Effects

- Effects during construction on existing landscape character, landscape features and land cover within the host Plateau Moorlands – Glasgow & Clyde Valley LCT 213;
- Effects during on operation on landscape character within the host Plateau Moorlands – Glasgow & Clyde Valley LCT 213; and
- Effects during operation on the Douglas Valley SLA.

#### Visual Effects

- Effects on views experienced by road users within the study area, including the M74 and B7078;
- Effects on views experienced by recreational receptors on the National Cycle Network (NCN) Route 74/B7078 and surrounding minor roads;
- Effects on views experienced by recreational receptors utilising the Core Path Network;
- Effects on views experienced by recreational receptors at local hill summits including Auchensaugh Hill;
- Effects on views experienced by scattered residential receptors; and
- Cumulative visual effects associated with the Proposed Development in combined, successive or sequential views with other existing or proposed energy infrastructure.

### Potential Effects Scoped out of Assessment

**4.47** On the basis of desk based research and survey work undertaken, it is proposed to scope out the following topic areas from detailed assessment:

- Effects on LCTs with no or very limited visibility within the study area, where it is judged that potential significant effects are unlikely to occur;
- Effects on all other SLAs located within the study area, where it is judged that potential significant effects are unlikely to occur;
- Effects on visual receptors (including recreational receptors, residential receptors and road users) for which significant visual effects are unlikely to occur as

indicated by the ZTV mapping and professional judgement; and

- Effects arising from decommissioning of the Proposed Development, given the baseline against which to assess likely significant decommissioning effects cannot be easily predicted, and the approach to decommissioning is not currently known.

### Approach to Mitigation

**4.48** The mitigation of potential landscape and visual effects has been approached through the siting of the Proposed Development, informed by the findings of the Redshaw 400kV Substation Siting Study<sup>16</sup>. The LVIA will inform further modifications and refinements to the detailed design of the Proposed Development and the identification of any further mitigation measures to reduce potential residual effects, such as screening via woodland planting and/or bunding.

### Consultee List

**4.49** It is proposed that the following stakeholders will be consulted in relation to the assessment:

- South Lanarkshire Council
- NatureScot

#### Questions for Consultees

**Q4.1: Are there additional sources of baseline information which should be considered to inform the LVIA, including the cumulative assessment?**

**Q4.2: Is the list of proposed representative assessment viewpoints considered appropriate?**

**Q4.3: Are there other landscape and visual receptors which require consideration within the LVIA?**

**Q4.4: Are there other existing or proposed energy infrastructure developments which should be considered in the cumulative assessment?**

<sup>16</sup> Redshaw 400kV Substation Siting Study (March 2023) Available [online] at: [https://www.spenergynetworks.co.uk/userfiles/file/11980\\_Redshaw%2](https://www.spenergynetworks.co.uk/userfiles/file/11980_Redshaw%2)

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# Chapter 5

## Archaeology and Cultural Heritage

### Introduction

**5.1** This chapter provides an overview of the Archaeology and Cultural Heritage context for the Proposed Development. It sets out proposed Study Areas to be adopted in the EIA and the currently recorded baseline within those study areas. The relevant legislative and policy framework, and the guidance relevant to the EIA, is set out, along with the methodology that will be employed in the EIA.

**5.2** The Cultural Heritage chapter of the EIA Report will assess the potential for direct and indirect effects on the cultural heritage within the Proposed Development Site, arising from construction activities, and effects upon the settings of heritage assets with statutory and non-statutory designations in the wider landscape around the Proposed Development.

**5.3** The assessment of effects on cultural heritage presented in the EIA will be undertaken by CFA Archaeology Ltd.

### Study Area

**5.4** Two study areas will be used for the assessment:

- Inner Study Area: The Proposed Development Site, defined as the infrastructure of the proposed new substation, plus a buffer of 200 m, will form the study area for the identification of heritage assets that could receive direct or indirect effects during construction of the Proposed Development.
- Outer Study Area: A wider study area, extending 3 km from the Proposed Development Site (aligning with that proposed for the LVIA study), will be used for the identification of cultural heritage assets whose settings may be affected by the Proposed Development (including cumulative effects).

### Existing Conditions

#### Inner Study Area (Figure 5.1)

**5.5** There are no Scheduled Monuments and no Listed Buildings within the Inner Study Area, and no part of the Proposed Development lies within a Conservation Area, Inventory Designed Landscape or Historic Battlefield.

**5.6** There is one non-designated heritage asset recorded in the Historic Environment Record (HER) within the Inner Study Area:

- Wildshaw Hill small cairns (12658) is recorded as a random scatter of 13 small cairns, up to 3 m in diameter by 0.5 m high, ranged around the south-west slope of an unnamed hill south of Wildshaw Hill.

**5.7** Desk-based assessment in September 2023 identified a series of possible old tracks crossing the Proposed Development site, on east-west and southwest-northeast alignments, and possible clearance cairns visible in lidar imagery. Field survey (September 2023) identified seven clearance cairns (two within the Site Boundary) of those recorded in the HER. The survey also found a short section of an old trackway (within the Site Boundary) and a possible structure (ca 200 m east of the Site Boundary) (Figure 6.1).

### Outer Study Area (Figure 5.2)

**5.8** There are three Scheduled Monuments within 3 km of the Proposed Development:

- Auchensaugh Hill, cairn (SM 4234) is a prehistoric burial cairn, measures about 15 m diameter by 0.9 m high, on the summit of Auchensaugh Hill.
- Wildshaw Hill, cairn 500m WSW of summit (SM 4511) is a prehistoric burial cairn, 1 m high and 10.7 m in diameter, standing in open moorland on Wildshaw Hill.
- Thirstone, stone circle 1300m NNW of (SM 5094) is a prehistoric stone circle, 40 m in diameter, that sits on a south-west facing slope 100 m east of Wildshaw Burn. Thirteen stones are visible, with at least a further ten lying below the peat. There is a possible outlier c. 10 m beyond the circle to the north.

**5.9** In addition to these, there are two assets classified in the HER as non-statutory register (NSR) sites, and deemed to be potentially of national importance and of schedulable quality:

- Auchensaugh Hill Enclosure (10054) is described as two concentric annular banks. The outer circle is 28.5 m diameter overall, the inner 15 m. The banks are 0.3 m high on average; the outer is spread 2.5-3.5 m broad, the inner 2.0-2.5 m.
- Auchensaugh Hill, Mound/Shieling-hut (13295) is described as the remains of a much-disturbed possible ditched mound. A bank can be traced on the east side which has a stony content and a maximum height of 0.2 m. There is a suggestion of a ditch on the west side.

## Design Considerations

**5.10** The Proposed Development infrastructure will be designed to avoid the on-site constraints identified during desk-based assessment and field survey insofar as that can be achieved.

**5.11** Sites that can be avoided will be preserved in situ and features that cannot be avoided will be subject to construction phase mitigation to ensure their proper recording ahead of their loss.

## Proposed Surveys and Assessment Methodologies

### Desk-Based Assessment

**5.12** A desk-based assessment will be conducted covering the Inner Study Area. Sources to be consulted for the collation of data for the EIA will include:

- West of Scotland Archaeology Service (WoSAS) HER;
- The National Record for the Historic Environment (NRHE);
- Historic Environment Scotland's (HES) on-line GIS Spatial Data Warehouse;
- Historic and modern aerial photographic resources; and
- Lidar imagery, available through Scottish Remote Sensing Portal.

### Field Survey

**5.13** A walk-over survey of the Inner Study Area will be carried out, to verify the findings of the desk-based assessment and to assess the baseline character, condition and sensitivity of the sites identified.

### Assessment Method

**5.14** The effects of the Proposed Development on heritage assets will be assessed on the basis of their type (direct effects, indirect impacts, setting impacts, and cumulative impacts) and nature (adverse or beneficial). The assessment will take into account the value/sensitivity of the heritage asset, and its setting, and the magnitude of the predicted impact.

- Direct impacts: occur where the physical fabric of the asset is removed or damaged, or where it is preserved or conserved, as a direct result of the proposal. Such impacts are most likely to occur during the construction phase and are most likely to be permanent.
- Indirect impacts: occur where the fabric of an asset, or buried archaeological remains, is removed or damaged,

or where it is preserved or conserved, as an indirect result of the proposal even though the asset may lie some distance from the proposal. Such impacts are most likely to occur during the construction phase and are most likely to be permanent.

- Setting impacts: these are generally direct and result from the proposal causing change within the setting of a heritage asset that affects its cultural significance or the way in which it is understood, appreciated, and experienced. Such impacts are generally, but not exclusively, visual, occurring directly as a result of the appearance of the proposal in the surroundings of the asset. However, they may relate to other senses or factors, such as noise, odour or emissions, or historical relationships that do not relate entirely to intervisibility, such as historic patterns of land-use and related historic features. Such impacts may occur at any stage of a proposal’s lifespan and may be permanent, reversible, or temporary.
- Cumulative impacts: can relate to impacts on the physical fabric or on the setting of assets. They may arise as a result of impact interactions, either of different impacts of the proposal itself, or additive impacts resulting from incremental changes caused by the proposal together with other projects already in the planning system or allocated in a Local Development Plan.
- Adverse effects are those that detract from or reduce cultural significance or special interest of heritage assets.
- Beneficial effects are those that preserve, enhance or better reveal the cultural significance or special interest of heritage assets.

### Assigning Sensitivity to Heritage Assets

**5.15** Cultural heritage assets are attributed value or importance through the designation process. Designation ensures that sites and places are recognised by law through the planning system and other regulatory processes. The level of protection and how a site or place is managed varies depending on the type of designation and the laws and policies that apply to it (HES 2019b).

**5.16** **Table 5.1** summarises the relative sensitivity of heritage assets (including their settings) relevant to the Proposed Development, based on the guidance set out in the SNH/HES EIA Handbook (version 5; 2018).

**Table 5.1: Sensitivity of Heritage Assets**

Sensitivity of Asset	Definition / Criteria
High	Assets valued at an international or national level, including: <ul style="list-style-type: none"> <li>– Scheduled Monuments</li> <li>– Category A Listed Buildings</li> <li>– Inventory Gardens and Designed Landscapes</li> <li>– Inventory Historic Battlefields</li> <li>– Non-designated assets that meet the relevant criteria for designation (including sites recorded in HERs as non-statutory register (NSR) sites of presumed national importance)</li> </ul>
Medium	Assets valued at a regional level, including: <ul style="list-style-type: none"> <li>– Archaeological sites and areas that have regional value (contributing to the aims of regional research frameworks)</li> <li>– Archaeologically Sensitive Areas (ASA) (where these are identified in Local Authority records)</li> <li>– Non-Inventory Designed Landscapes (NIDL) (where these are identified in Local Authority records)</li> <li>– Category B Listed Buildings</li> <li>– Conservation Areas</li> </ul>
Low	Assets valued at a local level, including: <ul style="list-style-type: none"> <li>– Archaeological sites that have local heritage value</li> <li>– Category C listed buildings</li> <li>– Unlisted historic buildings and townscapes with local (vernacular) characteristics</li> </ul>
Negligible	Assets of little or no intrinsic heritage value, including: <ul style="list-style-type: none"> <li>– Artefact find-spots (where the artefacts are no longer in situ and where their provenance is uncertain)</li> <li>– Poorly preserved examples of particular types of features (e.g.</li> </ul>

Sensitivity of Asset	Definition / Criteria
	quarries and gravel pits, dilapidated sheepfolds, etc)

### Criteria for Assessing Significance of Effects

5.17 The magnitude of impact (adverse or beneficial) will be assessed in the categories, high, medium, low, and negligible and described in **Table 5.2**.

**Table 5.2: Magnitude of Impact**

Magnitude of Impact	Criteria	
	Adverse	Beneficial
High	<p>Changes to the fabric or setting of a heritage asset resulting in the complete or near complete loss of the asset's cultural significance.</p> <p>Changes that substantially detract from how a heritage asset is understood, appreciated, and experienced.</p>	<p>Preservation of a heritage asset in situ where it would otherwise be completely or almost completely lost.</p> <p>Changes that appreciably enhance the cultural significance of a heritage asset and how it is understood, appreciated, and experienced.</p>
Medium	<p>Changes to those elements of the fabric or setting of a heritage asset that contribute to its cultural significance such that this quality is appreciably altered.</p> <p>Changes that appreciably detract from how a heritage asset is understood, appreciated, and experienced.</p>	<p>Changes to important elements of a heritage asset's fabric or setting, resulting in its cultural significance being preserved (where this would otherwise be lost) or restored.</p> <p>Changes that improve the way in which the heritage asset is understood, appreciated, and experienced.</p>
Low	<p>Changes to those elements of the fabric or setting of a heritage asset that contribute to its cultural significance such that this quality is slightly altered.</p> <p>Changes that slightly detract from how a heritage asset is understood, appreciated, and experienced.</p>	<p>Changes that result in elements of a heritage asset's fabric or setting detracting from its cultural significance being removed.</p> <p>Changes that result in a slight improvement in the way a heritage asset is understood, appreciated, and experienced.</p>

Magnitude of Impact	Criteria	
	Adverse	Beneficial
Negligible	Changes to fabric or setting of a heritage asset that leave its cultural significance unchanged and do not affect how it is understood, appreciated, and experienced.	

### Assessment of Effects on Setting

5.18 The SNH/HES EIA Handbook (2018) Appendix 1, paragraph 42 advises that:

*"In the context of cultural heritage impact assessment, the receptors are the heritage assets and impacts will be considered in terms of the change in their cultural significance".*

5.19 Historic Environment Scotland's guidance document, 'Managing Change in the Historic Environment: Setting' (HES 2016), notes that:

*"Setting can be important to the way in which historic structures or places are understood, appreciated, and experienced. It can often be integral to a historic asset's cultural significance."*

*"Setting often extends beyond the property boundary or 'curtilage' of an individual historic asset into a broader landscape context".*

5.20 The guidance also advises that:

*"If proposed development is likely to affect the setting of a key historic asset, an objective written assessment should be prepared by the applicant to inform the decision-making process. The conclusions should take into account the significance of the asset and its setting and attempt to quantify the extent of any impact. The methodology and level of information should be tailored to the circumstances of each case".*

5.21 The guidance recommends that there are three stages in assessing the impact of a development on the setting of a historic asset or place:

- Stage 1: identify the historic assets that might be affected by the proposed development.
- Stage 2: define and analyse the setting by establishing how the surroundings contribute to the ways in which the historic asset or place is understood, appreciated, and experienced; and,
- Stage 3: evaluate the potential impact of the proposed changes on the setting, and the extent to which any negative impacts can be mitigated.



**5.22** The SNH/HES EIA Handbook (2018) Appendix 1, paragraph 43 advises that:

*“When considering setting impacts, visual change should not be equated directly with adverse impact. Rather the impact should be assessed with reference to the degree that the proposal affects those aspects of setting that contribute to the asset’s cultural significance”.*

**5.23** Following these recommendations, the finalised Proposed Development zone of theoretical visibility (ZTV) will be used to identify those heritage assets (as listed above: paragraphs 6.7 and 6.8) from which the Proposed Development may theoretically be visible. Preliminary appraisal of the scoping ZTV, shows that there would be no visibility of the Proposed Development from Wildshaw Hill cairn (SM 4511).

**5.24** Consideration will also be given to heritage assets where there is no predicted visibility from the asset but where views of or across the asset are important factors contributing to its cultural significance. In such cases, consideration will be given to whether the Proposed Development could appear in the background to those views.

**5.25** The sensitivity of the asset (**Table 5.1**) and the magnitude of the predicted impact (**Table 5.2**) are used to inform an assessment of the significance of the effect (direct effect or effect on setting), summarised using the formula set out in the matrix in **Table 5.3**. The matrix employs a graduated scale of significance (from Negligible to Major effects) and where two outcomes are possible through application of the matrix, professional judgment supported by reasoned justification, will be used to determine the level of significance.

**Table 5.3: Significance of Effects**

Magnitude of Impact	Sensitivity of Asset			
	High	Medium	Low	Negligible
High	Major	Major / Moderate	Moderate / Minor	Minor / Negligible
Medium	Major / Moderate	Moderate	Moderate / Minor	Minor / Negligible
Low	Moderate / Minor	Moderate / Minor	Minor	Negligible
Negligible	Minor / Negligible	Minor / Negligible	Negligible	Negligible

**5.26** Major and Moderate effects are considered to be ‘significant’ in the context of the Town and Country Planning (Development Management Procedure) (Scotland)

Regulations 2013. Minor and Negligible effects are considered to be ‘not significant’.

**5.27** Where a significant effect on the setting of an asset is predicted as a result of change within its surroundings using the approach outlined above, an assessment will be made as to whether that effect would result in a significant adverse effect on the integrity of its setting (NPF4 Policy 7(h)ii). For the purposes of the assessment, the integrity of the setting of an asset will be considered to be maintained if the settings’ contribution to the cultural significance of the asset, and its capacity to convey that significance to visitors, would not be compromised by the Proposed Development either alone or cumulatively.

### Cumulative Assessment

**5.28** The assessment of cumulative effects on heritage assets will be based upon consideration of the effects of the Proposed Development on the settings of assets with statutory designations and non-statutory designations within 3 km of the Proposed Development, in addition to the likely effects of other developments that are under construction, those that are consented but not yet built and those that are currently at the application stage (and for which sufficient detail is available upon which to develop an assessment).

**5.29** The assessment of cumulative effects on the settings of heritage assets from the Proposed Development in combination with pre-existing developments will be addressed in the course of the assessment of effects of the Proposed Development alone, as pre-existing developments are part of the baseline environment.

**5.30** Unless required otherwise, proposed developments at the scoping or pre-application stage will not be included in the assessment, as such proposals are not fully formed and may be subject to changes that cannot be foreseen.

**5.31** The schemes to be included in the cumulative impact assessment will be those identified through the LVIA consultations with SLC and NatureScot.

**5.32** The assessment will take into account the relative size and scale of the identified developments, their distance from affected assets, and the potential degree of visibility of the various developments from the assets under consideration. The use of cumulative wireline visualisations will be used to aid the assessment.

### Potential Significant Effects

#### Potential Effects Scoped into Assessment

**5.33** The assessment will consider the following potential effects:

- Direct and indirect effects on non-designated cultural heritage sites or features within the Proposed Development site.
- Effects on the settings of heritage assets resulting from intervisibility between the asset and the Proposed Development.
- Cumulative effects on the settings of heritage assets with other existing or proposed developments.

**5.34** The nature and locations of the known heritage assets within the Inner Study Area (12658) are such that it may be possible to avoid some or all of them by design and significant adverse direct or indirect effects from construction avoided.

**5.35** It is possible that there could be other, as yet unrecorded or unknown and buried remains of archaeological interest within the Site and any such remains could be directly affected by construction of the Proposed Development. It is not presently possible to predict where any such buried remains may be located, and other mitigation measures will need to be considered to address the possibility of direct and indirect impacts on buried archaeological deposits.

**5.36** Based on the baseline established by desk-based assessment to inform this scoping opinion and the scoping ZTV, it is considered that those heritage assets that could have adverse effects on their settings are:

- Two scheduled monuments (SM 4234 and SM 5094).
- Two NSR sites (10054 and 13295).

**5.37** As a minimum, the two scheduled monuments are proposed to be subject of visualisations in the EIA Report<sup>17</sup>.

### Potential Effects Scoped out of Assessment

**5.38** The following effects are proposed to be scoped out of full assessment:

- Effects on the settings of Listed Buildings, Conservation Areas, Inventory Gardens and Designed Landscape and Historic Battlefields. There are no heritage assets with those designations within the Outer Study Area.
- Effects of the Proposed Development on designated heritage assets (or NSR sites) beyond 3 km of the Proposed Development unless any are advised through Scoping considered to have settings sensitive to change and liable to being potentially adversely affected by the Proposed Development.

## Approach to Mitigation

### Design Mitigation

**5.39** The primary approach to mitigation for direct and indirect (physical) effects will be through the design of the Proposed Development layout to avoid known cultural heritage features and preserve these intact as far as is possible.

**5.40** Effects on the settings of heritage assets within the Outer Study Area will be avoided or reduced where possible through design.

### Construction Phase Mitigation

**5.41** Heritage assets, or areas of constraint, in proximity to the Proposed Development would be fenced off/marked out for avoidance during the construction phase.

**5.42** Where avoidance is not possible direct effects will be kept to a minimum, as far as reasonably practical, to limit disturbance to heritage assets.

**5.43** Where direct effects cannot be avoided or reduced, the assets will be subject to mitigation to ensure their preservation by record. Measures could include:

- archaeological evaluations or set piece excavations where heritage assets cannot be avoided;
- watching briefs/archaeological monitoring in archaeologically sensitive areas; and
- the implementation of a working protocol should unrecorded archaeological features be discovered.

### Post Construction Monitoring

**5.44** Where necessary, post construction site visits would be carried out to verify the effectiveness of the marking-out/avoidance mitigation, to ensure that all markers have been removed and that no damage has occurred to demarcated heritage assets.

### Decommissioning Phase Mitigation

**5.45** Areas of constraint that lie close to as-built components of the Proposed Development would be fenced off/marked out for avoidance during any future decommissioning phase.

## Consultee List

**5.46** It is proposed that the following stakeholders will be consulted in relation to the assessment:

<sup>17</sup> Views from Auchensaugh Hill, cairn (SM 4234) and Thirstone, stone circle 1300m NNW of (SM 5094) will be illustrated by viewpoints 4 and

5 in the LVIA as detailed in Chapter 4, Table 4.1, with accompanying photomontage visualisations.

- Historic Environment Scotland (HES)
- West of Scotland Archaeology Service (WoSAS)

**Questions for Consultees**

**Q5.1: Do you agree that the scope of the proposed assessment is appropriate for this Proposed Development?**

**Q5.2: Do you agree that the proposed study areas are appropriate for this Proposed Development?**

**Q5.3: Do you agree that the proposed assessment methodology is appropriate?**

**Q5.4: Do you agree with the main potential setting impacts identified?**

**Q5.5: Are there any other heritage assets, in addition to those listed in paragraph 5.36, that you wish to see specifically considered for assessment of effects on their setting, and represented by visualisations?**

# Chapter 6

## Hydrology, Hydrogeology and Peat

### Introduction

**6.1** This chapter sets out the proposed approach to the assessment of likely significant effects on hydrology, hydrogeology and peat during construction and operation of the Proposed Development. The assessment will be carried out in line with relevant legislation and standards.

**6.2** The assessment of effects on hydrology, hydrogeology and peat will be undertaken by suitably qualified and experienced staff at Kaya Consulting Limited.

### Study Area

**6.3** The study area for hydrology and hydrogeology comprises the Proposed Development Site and watercourses and catchments within and up to 500 m downstream of the site (**Figure 6.1**). A 1km search area from the site boundary was used for private water supplies and groundwater abstractions.

**6.4** The study area for peat comprises the area within the Proposed Development Site boundary. **Figure 6.2** shows the NatureScot (2016) carbon and peatland classes and results for the peat depth survey (**Appendix C**). Existing conditions of the study area are described below.

### Existing Conditions

**6.5** A desk-based review of 1:25,000 scale Ordnance Survey maps, 1:50,000 scale British Geological Survey (BGS) Geology maps, 1:250,000 scale Soils Maps of Scotland and 1:250,000 SNH (now NatureScot) Carbon and Peatland 2016 Map has been undertaken to identify watercourses and ground conditions within the vicinity of the proposed substation. A peat depth and hydrology survey was undertaken in September 2023 to inform the baseline assessment (**Appendix C**).

**6.6** The Proposed Development site is located on the south-eastern slope of Wildshaw Hill north of the B7078 in the South Lanarkshire Council area. The M74 lies approximately 500m to the north-west. The site slopes south at a gradient of between 1 in 7 and 1 in 14. The site is presently used for rough grazing and the dominant ground cover is semi-improved grass, with areas of soft rush indicating areas of poorly drained soil.

**6.7** The geology of the Proposed Development Area is comprised of Devonian sandstone of the Auchtitench Sandstone Formation. These are medium- and coarse-grained, poorly sorted, volcanoclastic sandstones with pebble beds and substantial interbeds of andesitic lava pebble conglomerates, and thin fine-grained sandstone, siltstone, mudstone and andesitic and basaltic lava beds.

**6.8** The drift deposits in the Proposed Development site are dominated by till, primarily Devensian Diamicton superficial deposits.

**6.9** The NatureScot (2016) Carbon and Peatland Map (shown in **Figure 6.2**) indicates the Site is Class 3 peatland:

- Class 3 – 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.

**6.10** A peat depth survey of the site was carried out on 15 September 2023, the details are provided in **Appendix C** and summarised in **Figure 6.2**. Probe depths on the site were mainly <0.25m with only 7 probes returning depths of 0.25–0.5m and no depths were ≥0.5m. Coring confirmed that the site is largely underlain by shallow peaty-gleys (**Appendix C**). Hence, the survey concluded that site contains no peat.

**6.11** A review of the SEPA Future Flood Maps indicates that there are no areas identified to be at risk of flooding in a 1 in 200-year event (plus an allowance for climate change) within the Proposed Development site. Similarly, the SEPA Flood Maps do not identify any area within the proposed development to be at risk of flooding in the 1 in 1000-year event.

**6.12** A small unnamed watercourse was identified and mapped (**Figure 6.1**) just within the eastern site boundary during the hydrology walkover survey, which flows south before culverting under the B7078. This watercourse is a tributary to the Black Burn. The eastern portion of the site presently drains to this watercourse, with the remainder of the site draining south towards the B7078 road. The catchment to this watercourse is limited and due to the gradient of the surrounding land, any overtopping flows as a result of the culvert blockage would follow existing ground levels south towards the B7078.

**6.13** Consultation with South Lanarkshire Council (SLC) and SEPA was undertaken to obtain relevant water supply information, including abstractions and private water supplies (PWS). SLC provided PWS data and no PWS or groundwater abstractions were identified within a 1km radius of the site. We

are awaiting data from SEPA and we will confirm this following receipt of data from SEPA.

**6.14** Based on ecology and hydrology surveys undertaken to date no GWDTE were identified on the site.

## Design Considerations

**6.15** Where possible a 50m buffer will be applied to all watercourses to minimise the risk of potential impacts due to changes in runoff, sedimentation, or water quality.

**6.16** Where possible, all excavations <1m should be over 100m away from any groundwater abstractions, private water supplies (PWS) or Ground Water Dependent Terrestrial Ecosystems (GWDTEs) as per SEPA guidance<sup>18</sup>. Excavations >1m will where possible be over 250m away from these receptors. Based on initial findings it is assumed that there are no PWS, groundwater abstractions or GWDTE receptors within 250m of the site. This will be confirmed once PWS and groundwater abstraction data has been received from SEPA and the local council.

## Proposed Surveys and Assessment Methodologies

**6.17** In addition to the desk- and field-based surveys undertaken to date, consultation with South Lanarkshire Council and SEPA will be undertaken to obtain relevant water supply information, including abstractions and private water supplies (PWS).

**6.18** The findings of the survey work and baseline assessment will contribute to environmental constraints mapping and will provide input and feedback into design iterations and subsequent environmental assessment. The assessment of significance will be based on the sensitivity of receptor and magnitude of effect.

## Potential Significant Effects

### Potential Effects Scoped into Assessment

**6.19** Taking account of the findings of the work undertaken to date, and professional experience, whilst still adopting a precautionary approach at this preliminary stage, potential effects associated with the construction and/or operation of the Proposed Development include:

- Pollution of surface water and groundwater, including drinking water supplies (if any), through operation of machinery (e.g., spillage of fuels, oils etc.) during site preparation and construction.

<sup>18</sup> SEPA (2017) Land Use Planning System Guidance Note 31: Guidance on Assessing the Impacts of Development Proposals on

- Pollution of surface water, including private drinking water supplies caused by releases of sediment to watercourses from excavated/stockpiled material during construction, or works near streams.
- Modifications to natural drainage patterns, changes to runoff rates and volumes and consequent increase in flood risk during construction and operation.

### Potential Effects Scoped out of Assessment

**6.20** The following effects are proposed to be scoped out of full assessment:

- Potential effects on geology.
- Potential effects on peat.

### Approach to Mitigation

**6.21** In addition to the careful siting of infrastructure components, and given SPEN's commitment to, and prior experience of, implementing accepted good practice during construction and operation, together with the current regulatory context, many potential effects on the water environment can be avoided or reduced. With respect to the current regulatory context, a Construction Site Licence (CSL) will be required for the works under the Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended) (CAR). Consultation with SEPA throughout the EIA process will be undertaken in relation to those activities for which a licence or registration is required.

**6.22** Several good practice pollution prevention and control measures will be put in place during construction. These will be embedded into the project design and will reflect best practice guidance and recognised industry standards (e.g., SEPA guidance, including their Guidance for Pollution Prevention (GPPs), CIRIA SUDS Manual<sup>19</sup> and Control of Water Pollution from Construction Sites<sup>20</sup>, amongst others).

**6.23** Therefore, a number of measures are not considered to be mitigation as such, but rather an integral part of the design/construction process as part of good practice; and it is proposed that these will be taken into account prior to assessing the likely effects of the Proposed Development. However, where appropriate, more tailored mitigation measures will be identified prior to determining the likely significance of residual effects.

### Consultee List

**6.24** It is proposed that the following stakeholders will be consulted in relation to the assessment:

- SEPA;
- NatureScot;
- Scottish Water; and
- South Lanarkshire Council.

#### Questions for Consultees

**Q6.1: Are there any additional sources of baseline information which should be referred to, to inform the appraisal of effects on hydrology and hydrogeology?**

**Q6.2: Is the proposed methodology appropriate?**

**Q6.3: Are the proposed list of effects which are scoped in appropriate?**

**Q6.4: Is the proposed approach to mitigation appropriate?**

<sup>19</sup> CIRIA SUDS Manual (2015) C753

<sup>20</sup> CIRIA Control of water pollution from construction sites. Guidance for consultants and contractors, (2001) C532

# Chapter 7

## Noise and Vibration

### Introduction

7.1 This chapter sets out the proposed approach to the assessment of likely significant effects on receptors sensitive to noise and vibration arising from the Proposed Development.

7.2 The assessment of effects of noise and vibration will be undertaken by suitably qualified and experienced staff at Hoare Lea.

### Study Area

7.3 The study area for noise and vibration will be defined as the infrastructure of the proposed new substation plus a buffer zone of 1 km, in line with the experience of the EIA team.

7.4 Sensitive properties located further away would experience reduced effects of noise and vibration from the Proposed Development and therefore the assessment at the nearest properties is considered sufficiently representative.

7.5 The assessment will also consider noise-sensitive receptors located along the proposed construction access route, in relation to the potential increases in road traffic noise associated with the construction phase of the Proposed Development.

### Desk Study

7.6 The following mapping data sources for the Study Area have been used in the preparation of this chapter:

- Ordnance Survey mapping information; and
- Google Earth Satellite photography.

7.7 Only one potential noise-sensitive property has initially been identified within the study area: the Red Moss Hotel (**Figure 4.2**). It is understood that the Red Moss Hotel is currently unoccupied.

7.8 A desk-based review of noise-sensitive receptors will be undertaken and supported by the consultation set out below.

### Field Surveys

7.9 Noise monitoring was previously undertaken (by others) at the Red Moss Hotel location in 2011 to support the planning application for the Middle Muir Wind Farm.

**7.10** A noise survey is being undertaken to supplement the historical data (from 2011) at the Red Moss Hotel in December 2023.

**7.11** Consultation has been initiated with South Lanarkshire Council's Environmental Health Department<sup>21</sup>. This has included the requirements for baseline noise monitoring and potential survey location and methodology.

## Existing Conditions

**7.12** Although the Study Area is generally rural in nature, the noise environment is likely to be influenced by road traffic, both from the B7078 as well as the M74 located further north (although potentially screened in some cases by the local terrain). The contribution from road traffic may also decrease for some periods of the night.

**7.13** In addition, the local noise environment is likely to be influenced by 'natural' sources, such as wind-disturbed vegetation, birds, farm animals, as well as farm activities.

**7.14** Noise from operational wind turbines may also represent a contribution to the noise environment during quieter periods: for example, the nearest turbines of the Middle Muir Wind Farm are located more than 1 km to the south-west.

## Design Considerations

**7.15** The proposed layout of the Proposed Development will be reviewed and feedback provided to the design team to reduce or minimise potential operational noise effects in particular, where practical to do so.

## Proposed Assessment Methodologies

**7.16** Guidance from the Scottish Government (2011) Technical Advice Note: Assessment of Noise (TAN-Noise) will be referenced in defining the sensitivity of the receptors considered. A hotel may be considered to be less noise-sensitive than private residential property due to its transient/leisure use, and this will be discussed as part of the above consultation.

**7.17** Receptors of low or very low sensitivity, such as unoccupied buildings or industrial/commercial facilities are proposed to be discounted from the analysis as significant effects are unlikely.

**7.18** Construction activities can generate noise as well as localised vibration. These activities, by their very nature, tend to be temporary and highly variable, and the assessment will therefore focus on understanding the need for dedicated management measures and, if so, the types of measures that

are required. Traffic associated with the construction may also be associated with the creation of increases in traffic noise for receptors already exposed to road traffic.

**7.19** British Standard (BS) 5228 Parts 1 and 2 'Code of practice for noise and vibration control on construction and open sites' (British Standards Institution (BSI), 2009, amended 2014) provide guidance on a range of considerations relating to construction noise and vibration including general control measures, estimating likely levels and example criteria.

**7.20** Predictions of construction noise levels will be made referencing typical activity emission levels and likely variations in noise levels at surrounding receiver locations, using the prediction methodology and source data for various construction plant and activities set out in BS 5228 Part 1. Similarly, prediction of construction vibration associated with certain activities known to generate potentially perceptible levels of ground-borne vibration, such as ground compaction will be undertaken using guidance in BS 5228 Part 2, also on a reasonable worst-case basis.

**7.21** The assessment of construction noise and vibration will identify if and when predicted noise levels may be above standard guideline limits, taking into account the character of the area, as well as the potential duration and nature of the different activities.

**7.22** The construction traffic will be assessed against relevant baseline levels on access routes using the methodology of Calculation of Road Traffic Noise (Department of Transport, 1988), in cases where potentially large increase in traffic flows (and/or proportion of heavy vehicles) are predicted. Associated effects would be assessed in line with the guidance in Design Manual for Roads and Bridges (Transport Scotland, 2019), in addition to guidance in BS 5228 part 1 where relevant.

**7.23** Operational noise from mechanical and electrical equipment associated with the substation could also affect neighbouring sensitive receptors.

**7.24** BS 4142 'Methods for Rating and Assessing Industrial and Commercial Sound' (BSI, 2014, amended 2019) provides an objective method for rating the likelihood of complaint from industrial and commercial operations. It also describes the means of determining noise levels from fixed plant installations and determining the background noise levels that prevail on a site.

**7.25** The potential operational noise generated by the Proposed Development will be predicted based on typical noise emission levels using indicative manufacturer selections and experience of similar developments. Predicted noise

<sup>21</sup> Email from Hoare Lea to Kenny Joyes at SLC Environmental Health sent 30.11.23



levels at the nearest receptors will be assessed against relevant baseline noise levels in accordance with the methodology of BS 4142. Account would be taken of the potential character in the noise in accordance with the standard and considering relevant contextual factors.

## Potential Significant Effects

### Potential Effects Scoped into Assessment

**7.26** The assessment will consider the following potential effects:

- Noise and vibration associated with construction activities.
- Noise associated with construction traffic (along the access route).
- Noise associated with operation of the substation.

### Potential Effects Scoped out of Assessment

**7.27** The following effects are proposed to be scoped out of full assessment:

- Vibration associated with construction traffic;
- Noise and vibration from decommissioning;
- Noise associated with maintenance activities (including traffic);
- Vibration associated with operation and maintenance.

**7.28** Occasional momentary vibration can arise when heavy vehicles pass dwellings at very short separation distances, but this will already be the case from existing traffic and is not sufficient to constitute a risk of significant effects in this instance and therefore vibration effects from construction traffic is scoped out of the EIA.

**7.29** The works involved for the decommission phase would be similar or of a lower magnitude/duration than for the construction phase, and therefore have similar/lower effects and subject to similar management or control procedures, and therefore do not require explicit consideration. On this basis decommissioning noise and vibration impacts are scoped out of the EIA.

**7.30** Maintenance activities during the operational phase of the substation would generally be limited and unlikely to generate high noise levels outside of very short-term periods and do not require further consideration. Traffic generated during the operation and maintenance of the proposed development is likely to be limited and sporadic and therefore unlikely to be associated with significant effects.

**7.31** The Proposed Development would not include equipment with large moving parts which would create

perceptible levels of vibration at neighbouring receptors. In addition, all equipment would be installed on suitable vibration-isolating mounts. Therefore, operational vibration levels generated would be minimal and unlikely to be associated with any significant effects.

## Approach to Mitigation

**7.32** Where potentially significant noise effects are identified, measures to prevent, reduce and where possible offset these adverse effects will be proposed. The mitigation measures proposed will draw on guidance and best practice and will be appropriate to the nature and significance of the effect identified.

**7.33** Possible additional mitigation measures for construction activities may include:

- Application for prior consent under section 61 of the Control of Pollution act;
- Consideration of construction working hours; and
- Localised screening or management of construction activities.

**7.34** For operational noise, standard engineering measures such as selection of suitably quiet plant, use of enclosures and silencers, and solid screening, may be considered if required to reduce operational noise levels at neighbouring receptors.

## Consultee List

**7.35** It is proposed that the following stakeholders will be consulted in relation to the assessment:

- South Lanarkshire Council Environmental Health Department.

### Questions for Consultees

**Q7.1: Do you agree with the proposed Noise and Vibration Study Area?**

**Q7.2: Do you agree with the scoping in and out of effects in relation to noise and vibration?**

# Chapter 8

## Topics Proposed to be Scoped Out

### Introduction

**8.1** The aim of this EIA Scoping Report is to identify the information to be included in the EIA. In doing so, certain effects associated with a particular topic may be 'scoped out' and these have been discussed in the preceding chapters (under 'potential effects to be scoped out of assessment'). This Chapter provides details of the whole topics that are proposed to be 'scoped out' of the EIA where it has been deemed unlikely that the Proposed Development will result in significant effects on these topics. Justification for the proposal to 'scope out' these topics is provided below.

### Ornithology

**8.2** In the 2022 and 2023 bird breeding seasons (April to August of both years) and in the non-breeding season covering September 2022 to March 2023, baseline ornithology field surveys were undertaken on the site of the Proposed Development.

**8.3** These surveys provide baseline ornithology data that has comprehensive spatial coverage of the Proposed Development. The surveys undertaken were:

- Breeding bird surveys;
- Breeding raptor surveys; and
- Flight activity surveys (VP watches).

**8.4** The Proposed Development has the potential to affect bird populations through indirect habitat loss because of temporary disturbance and/or displacement during construction and operation, and due to direct habitat loss for the lifetime of the Proposed Development.

**8.5** Impacts on bird populations are evaluated with respect to species of high and moderate conservation concern, defined as those listed on Annex 1 of EU Birds Directive, Schedule 1 of the Wildlife and Countryside Act 1981 (as amended), qualifying species on statutory designated sites that have connectivity with the Proposed Development (SNH 2016<sup>22</sup>), and species on the Red-list of Birds of Conservation Concern (BoCC)<sup>23</sup>.

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<sup>22</sup> SNH (2016). Assessing Connectivity with Special Protection Areas (SPAs) - Guidance. Version 3. SNH, Battleby.

<sup>23</sup> Stanbury, A., Eaton, M., Aebischer, N., Balmer, D., Brown, A., Douse, A., Lindley, P., McCulloch, N., Noble, D., and Win I. 2021. The status of our bird populations: the fifth Birds of Conservation Concern

**8.6** A desk-based exercise was undertaken to review designated sites in the vicinity of the Proposed Development. The closest Special Protection Area (SPA) is the Muirkirk and North Lowther Uplands SPA (also designated as the North Lowther Uplands Site of Special Scientific Interest (SSSI)) which is approximately 5.5km away. The core foraging ranges of the SPA qualifying species<sup>9</sup> mean that there is no connectivity with the Proposed Development.

**8.7** Baseline surveys showed that only one species of high or moderate nature conservation importance made use of habitats within the area of the Proposed Development, namely curlew which is Red-listed in BoCC. A single curlew breeding territory may overlap with the Proposed Development, but the territory centre is outside the Site. Hence, although breeding curlew may make use of habitats within the site of the Proposed Development and, therefore, be subject to displacement, the relatively small area (approximately 20ha) does not provide exceptional resources for this species, and abundant similar habitat is available locally. Hence, significant effects on the regional curlew population<sup>24</sup>, which numbers at least 3,851 breeding pairs<sup>25</sup> are considered unlikely.

**8.8** On the basis of the information collated on bird populations at the Proposed Development, and taking account of the small area of habitat that will be lost, amounting to approximately 0.2km<sup>2</sup>, effects on all ornithological receptors are proposed to be scoped out of EIA, as there is no prospect of significant effects arising from the Proposed Development in isolation or cumulatively with other plans or projects in the region.

## Ecology

**8.9** An Extended Phase 1 Habitat Survey and preliminary desk study have been undertaken to provide high level information to inform this Scoping Report.

**8.10** The desk study identified the following statutory sites designated for nature conservation purposes within 5km and non-statutory designated sites within 1km, that may have functional connectivity to the Proposed Development:

- Un-named Ancient Woodland Inventory (Long Established of Plantation Origin) woodland, is immediately adjacent to the west of the Site boundary.
- Red Moss Special Area of Conservation (SAC) and Site of Special Scientific Interest (SSSI) is located

approximately 200m to the south of the proposed new substation at its closest point (on the opposite side of the B7078 road). This was designated for its active raised bog habitat and assessed by NatureScot as being in unfavourable condition but recovering.

**8.11** The statutory and non-statutory designated nature conservation sites are shown on **Figure 8.1**.

**8.12** The extended phase 1 habitat survey was carried out on 17th August 2023 in line with best practice methods<sup>26</sup>. The survey identified that the Site was dominated by semi-improved grassland that appears to have been subject to grazing. The south east of the Site included a small water course/ field drain that was largely covered by over-hanging vegetation dominated by soft rush. In places the vegetation around the channel was more open and exposed small pools of open water. A small area of marshy grassland was also present in the south-east corner of the Site.

**8.13** The wider Study Area was also dominated by semi-improved grassland that appears to have been subject to grazing. The west of the Study Area also included a coniferous plantation dominated by Norway spruce, this is included in the Ancient Woodland Inventory as being Long Established of Plantation Origin. The wider landscape was dominated by improved and semi-improved grasslands and there also appeared to be heath habitats present, particularly out with the south of the Study Area.

**8.14** The field study also identified that the habitats in the Study Area were potentially suitable for the following protected/ notable species: badger, water vole and red squirrel.

**8.15** On the basis of the information collated on non-avian ecology at the Proposed Development, and taking account of the small area of habitat that will be lost, amounting to approximately 0.2km<sup>2</sup>, effects on all ecological receptors are proposed to be scoped out of EIA, as there is no prospect of significant effects arising from the Proposed Development in isolation or cumulatively with other plans or projects in the region.

**8.16** However, to comply with relevant nature conservation legislation a detailed desk study and field survey will be required. The following scope is proposed:

**8.17** A desk study will be undertaken to identify existing records of ecological features (e.g. designated sites, habitats

in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain. British Birds 114: 723-747.

<sup>24</sup> Effects on bird species are evaluated in respect of regional populations within Natural Heritage Zones (NHZ), in this instance NHZ 19 Western Southern Uplands and Inner Solway. (<https://digital.nls.uk/pubs/e-monographs/2020/216666906.23.pdf>).

<sup>25</sup> Wilson, M. W., Austin, G. E., Gillings S. and Wernham, C. V. (2015). Natural Heritage Zone Bird Population Estimates. SWBSG Commissioned report number SWBSG\_1504. pp72.

<sup>26</sup> JNCC (2010). Handbook for Phase 1 Habitat Survey – A technique for environmental audit (2010). Available at: <https://hub.jncc.gov.uk/assets/9578d07b-e018-4c66-9c1b-47110f14df2a> [Accessed 30/0/823]

and protected species) within the Study Area and will include searches of the following sources:

- NatureScot Site Link Website<sup>27</sup>;
- Scotland Environment Mapping Service<sup>28</sup>;
- South Lanarkshire Council Local Development Plan<sup>29</sup> ;
- South Lanarkshire Council Local Biodiversity Strategy 2018-2022<sup>30</sup>;
- National Biodiversity Network Atlas Scotland under a CC-BY licence<sup>31</sup>;
- Multi-Agency Geographic Information for the Countryside (MAGIC)<sup>32</sup>;
- Ancient Woodland Inventory<sup>33</sup>; and
- The Carbon and Peatland Map<sup>34</sup>Error! Bookmark not defined.

**8.18** The South Lanarkshire Council area is not currently serviced by a local biological records centre. The Glasgow Museums records centre will be approached to ascertain whether they may have records that are relevant to the Study Area.

**8.19** Field surveys will be undertaken within the defined Study Area in line with best practice guidelines endorsed by NatureScot and CIEEM and will include the following:

- Habitat Surveys:
  - Extended Phase 1 habitat survey, to record broad habitat types and their suitability to support protected species.
  - If Habitats of Conservation Concern<sup>35</sup>Error! Bookmark not defined. (including GWDTEs) are identified during the Phase 1 habitat survey, National Vegetation

Classification (NVC)<sup>36</sup> survey will be undertaken to categorise the plant community present.

- Protected species surveys, are expected to be undertaken (following confirmation of the defined red line planning boundary) to inform the planning submission for the following receptors:
  - Badger *Meles meles*.<sup>37</sup>
  - Red squirrel *Sciurus Vulgaris*.<sup>38</sup>
  - Water vole *Arvicola amphibius*.<sup>39</sup>

**8.20** Red squirrel and water vole surveys will be undertaken if any works are likely to come within 30 m of the woodland or drainage channel.

**8.21** An Ecological Appraisal Report will be provided to document the findings of surveys and provide details of avoidance, mitigation and enhancement measures appropriate to the scale of the Proposed Development. All mitigation measures will be developed on the basis of robust science, drawing on current and emerging good practice, and its likely efficacy and success will be considered.

**8.22** A shadow Habitat Regulations Appraisal Screening Report will be required to consider whether the Proposed Development is 'likely significant effects' on the qualifying features of Red Moss SAC.

**8.23** SPEN is committed to delivering 'No Net Loss' and has adopted a Biodiversity Net Gain (BNG) metric to demonstrate this. Therefore, a BNG report and associated calculator will also be produced in relation to the Proposed Development.

## Traffic and Transport

**8.24** The Proposed Development will be accessed from a new vehicular access (for construction and operational traffic)

<sup>27</sup> NatureScot SiteLink. Available [online] at:

<https://sitelink.nature.scot/home> [Accessed 30/08/23]

<sup>28</sup> Scottish Environment Protection Agency (n.d.) Scotland's Environment Map. Available [online] at:

<https://map.environment.gov.scot/sewebmap/> [Accessed 30/08/23]

<sup>29</sup> South Lanarkshire Council (2020). South Lanarkshire Local Development Plan 2. Available at:

<https://www.southlanarkshire.gov.uk/developmentplan2> [Accessed 30/08/23]

<sup>30</sup> South Lanarkshire Council. South Lanarkshire Biodiversity Strategy 2018-2022. Available at:

[https://www.southlanarkshire.gov.uk/downloads/file/1191/biodiversity\\_strategy\\_2018\\_-\\_2022](https://www.southlanarkshire.gov.uk/downloads/file/1191/biodiversity_strategy_2018_-_2022) [Accessed 30/08/23]

<sup>31</sup> NBN Atlas Scotland. Available [online] at: [www.nbnatlas.org](http://www.nbnatlas.org) [Accessed 30/08/23]

<sup>32</sup> Department for Environment, Food and Rural Affairs *et al* (n.d.) Multi-Agency Geographic Information for the Countryside. Available [online] at: <http://magic.defra.gov.uk> [Accessed 30/08/23]

<sup>33</sup> Ancient Woodland Inventory. Available [online] at:

<https://map.environment.gov.scot/sewebmap/> [Accessed 30/08/23]

<sup>34</sup> Scotland's Environment. Carbon and Peatland Map 2016. Available at: [Map | Scotland's environment web](http://www.scotlandscotland.gov.uk/scotlandscotland) [Accessed 30/08/23]

<sup>35</sup> Habitats of Conservation Concern are defined as those habitats included in the following: Conservation priorities in the Habitats Directive (i.e. Annex 1 habitats); potentially groundwater dependent; included in the Scottish Biodiversity List (SBL); Scottish Borders Local Biodiversity Action Plan priority habitats; or Ancient Woodland Inventory sites.

<sup>36</sup> Rodwell *et al*. National Vegetation Classification (vols 1 – 5). 1991 – 2002.

<sup>37</sup> Scottish Badgers (2018) Surveying for Badgers: Good Practice Guidelines. Version 1. Available [online] at:

[https://www.scottishbadgers.org.uk/wp-content/uploads/2020/12/Surveying-for-Badgers-Good-Practice-Guidelines\\_V1-2020-2455979.pdf](https://www.scottishbadgers.org.uk/wp-content/uploads/2020/12/Surveying-for-Badgers-Good-Practice-Guidelines_V1-2020-2455979.pdf) [Accessed 30/08/23]

<sup>38</sup> Gurnell, J & Pepper, H (1994) Red Squirrel Conservation: Field Study Methods. Research Information Note 255. Forestry Commission, Edinburgh. Available [online] at: [Red squirrel conservation: field study methods \(windows.net\)](http://www.forestry.gov.uk/Red_squirrel_conservation_field_study_methods_windows.net) [Accessed 30/08/23]

<sup>39</sup> Strachan, R. & Moorhouse, T. (2006) Water Vole Conservation Handbook 2nd Edition. Wildlife Conservation Research Unit, University of Oxford, Oxford.

adjoining the B7078 (a public road which is administered by South Lanarkshire Council). The B7078, runs approximately north to south and is parallel to the nearby M74. The B7078 can be accessed from the north via the A70 from the south via M74 Junction 13 or from the west via the B740.

**8.25** The B7078 and A70 Ayr Road are single carriageway roads subject to a 60mph speed limit.

**8.26** The local road sections which will be most commonly utilised by Proposed Development generated traffic effectively form the Traffic and Transport Study Area and it is understood that these route sections generally operate without the occurrence of significant traffic congestion.

**8.27** Through review of online UK road traffic collision data (<https://www.crashmap.co.uk>), covering the five-year period ending 31/12/2021, within the Study Area collision incidences appear sporadic.

**8.28** There are no major settlements within the Study Area however the B7078 does facilitate access to Andershaw and Kennoxhead windfarms, a disused hotel and truck stop, Duneaton Quarry and several isolated farmsteads.

**8.29** Some public bus services operate on the A70 Ayr Road but there are no high frequency services which operate on local roads in the general vicinity of the Proposed Development.

**8.30** National Cycle Network route 74 (NCN 74) traverses the Study Area, on B7078 and A70 Ayr Road. Within the Study Area the majority of the NCN 74 is segregated from B7078 and A70 Ayr Road on a shared path/cycleway however there is a 2.2km on-road section which is lined on the B7078 from the A70/B7078 priority junction to the south. The route then continues as a segregated cycle path.

**8.31** Standard HGVs will be used to transport construction materials to the site and all HGV traffic will be required to approach the site on via the B7078 accessed either from the north via the A70 or the south via M74 Junction 13 although it also possible to access the B7078 from the west via B740.

**8.32** Any potentially notable traffic and transport would occur during the construction phase of the Proposed Development, with operational traffic generation expected to be limited to occasional service vehicle movements associated with monitoring and maintenance activities. Accordingly, it is proposed to scope out operational traffic effects from further consideration.

**8.33** Based on experience with similar projects it is estimated that during the construction phase for the Proposed Development there would be around 30 vehicles per day including 12 HGVs (Heavy Goods Vehicles). These traffic volumes are considered to be relatively low and thus non-detrimental in terms of their impact upon traffic congestion.

**8.34** The substation transformer is likely to constitute an abnormal indivisible load due to its gross weight. Local transport of such a load is likely to be possible from the M74 Junction 11/12 via the A70 or M74 Junction 13 without requirement for infrastructure accommodation works. This assumption will be verified once the specification of the transformer component has been confirmed.

**8.35** Although the generated traffic volumes are likely to be low it is pertinent to consider potential interactions with other road users.

**8.36** The construction access routes overlap and/or intersect with the NCN 74 cycle route. It is acknowledged that the NCN 74 cycle route will require some consideration during the construction phase and accordingly this is a matter for attention in the Construction Traffic Management Plan (CTMP).

**8.37** Based on the initial assessment of the scale of the Proposed Development and local context, the traffic generated by the Proposed Development during the construction phase is anticipated to be low and therefore does not warrant further detailed assessment as part of a full EIA.

**8.38** No significant adverse impacts have been identified through the initial assessment at during construction or operational phases of the development; therefore, no specific mitigation or monitoring is proposed.

**8.39** However, based upon professional experience and local knowledge it is considered that a bespoke Construction Traffic Management Plan (CTMP) will require to be developed, approved, and implemented. This requirement is aligned with the aim of minimising local disruption and enhancing safety for all road users during the construction phase of the Proposed Development. Accordingly, it is proposed to develop a preliminary version of the CTMP as an integral element of the EIA. Matters pertaining to movement of abnormal loads would also be incorporated in the CTMP.

**8.40** It is concluded that a further detailed Traffic and Transport assessment (as part of an EIA) for both construction and operational development phases is not required and therefore it is proposed that Traffic and Transport is scoped out of the requirement for EIA.

**8.41** Whilst only low daily traffic volumes are anticipated (during the construction phase) a preliminary and non-generic CTMP will be produced which will be incorporated within the Environmental Appraisal. The CTMP will assist with the coordination of efficient and safe construction traffic activities, including any abnormal load movements, which are associated with the Proposed Development.

## Air Quality

**8.42** During construction and decommissioning works, the operation of equipment, staff transport, construction vehicles and machinery will result in atmospheric emissions of waste exhaust gases containing nitrogen oxides (NO<sub>x</sub>), nitric oxide (NO) and PM10 pollutants. The quantities emitted will depend on engine type, vehicle age, service history and fuel composition. Based on professional judgement it is considered that the number of vehicle movements anticipated to arise from construction, operation and decommissioning from the Proposed Development would not result in any exceedance of air quality standards either at the site or within the wider area. As such, it is proposed to scope out air quality from detailed assessment as part of the EIA.

## Socio-Economics, Tourism and Recreation

**8.43** Due to the short term and localised nature of the construction process, any temporary disturbance created during construction works is likely to be minimal and concentrated in the immediate locality of the Site. As the construction and decommissioning process requires only a small labour force and is short in duration, this also means that it is unlikely that the employment created will affect local employment levels or generate a significant source of income for the area.

**8.44** In relation to tourism, no tourist attractions are noted within 3 km of the Development. Where there is intervisibility with any tourism features identified outwith this area, these will be identified as viewpoints and addressed in the landscape and visual assessment. On this basis, potential effects on tourism are not considered likely to be significant.

**8.45** In terms of recreation, there are several recreational receptors within the 3 km of the Proposed Development; B7078 Core path, National Cycle Network (NCN) Route NCN 74, Wider Path Network east of M74 and B740/B7078 junction as illustrated on **Figure 4.2**. Whilst temporary diversions of paths may be required during construction for safety purposes, construction works will be short in duration, therefore, the impact of a diversion would be limited. All existing recreational paths would be open during operation of the Proposed Development. It is considered that the Proposed Development is unlikely to affect baseline conditions in the relation to recreation, therefore effects on recreation are scoped out.

## Climate Change

**8.46** It is considered unlikely that the Proposed Development will lead to significant effects on climate or the ability of receptors to adapt to climate change, however consideration of this topic will be given within relevant chapters in the EIA

where applicable. This will include the identification of the likely consequences of climate change for baseline conditions/assessment findings and the resilience of proposed mitigation measures to any projected changes in extreme weather, including a heavy rainfall event.

## Human Health

**8.47** The EIA Regulations require that potential effects on human health are considered. However, it is not proposed to undertake a separate assessment of potential effects of the Proposed Development on human health on the basis that air quality and socio-economic impacts are being proposed to be scoped out of the EIA. Furthermore, it is considered that air quality, and dust will be adequately mitigated through implementation of good practice construction methods. Noise and visual effects (which contribute to residential amenity) are proposed to be assessed in full through the EIA.

## Major Accidents and Disasters

**8.48** The Proposed Development is not located in an area with a history of natural disasters such as extreme weather events. The construction and operation of the Proposed Development will be managed within the requirements of a number of health and safety related Regulations, including the Construction (Design and Management) Regulations 2015 and the Health and Safety at Work etc. Act 1974.

### Questions for Consultees

**Q9.1: Do you agree with the list of topics proposed to be scoped out of the EIA?**

# Appendix A

## Consultee List

**A.1** The consultees listed below are proposed to be consulted as part of the EIA Scoping process in agreement with South Lanarkshire Council:

- South Lanarkshire Council
- NatureScot
- Historic Environment Scotland
- West of Scotland Archaeology Service
- SEPA
- Scottish Forestry
- Scottish Water
- Transport Scotland

# Appendix B

## Questions for Consultees

**B.1** Comments from consultees are invited in relation to the following questions detailed within the EIA Scoping Report.

**Table B.1: Questions for Consultees**

Chapter	Question
Chapter 3: project Description	<b>Q3.1:</b> Confirmation is requested on the proposed approach to the assessment of decommissioning of the Proposed Development.
Chapter 4: Landscape and Visual	<p><b>Q4.1:</b> Are there additional sources of baseline information which should be considered to inform the LVIA, including the cumulative assessment?</p> <p><b>Q4.2:</b> Is the list of proposed representative assessment viewpoints considered appropriate?</p> <p><b>Q4.3:</b> Are there other landscape and visual receptors which require consideration within the LVIA?</p> <p><b>Q4.4:</b> Are there other existing or proposed energy infrastructure developments which should be considered in the cumulative assessment?</p>
Chapter 5: Archaeology and Cultural Heritage	<p><b>Q5.1:</b> Do you agree that the scope of the proposed assessment is appropriate for this Proposed Development?</p> <p><b>Q5.2:</b> Do you agree that the proposed study areas are appropriate for this Proposed Development?</p> <p><b>Q5.3:</b> Do you agree that the proposed assessment methodology is appropriate?</p> <p><b>Q5.4:</b> Do you agree with the main potential setting impacts identified?</p> <p><b>Q5.5:</b> Are there any other heritage assets, in addition to those listed in paragraph 5.36, that you wish to see specifically considered for assessment of effects on their setting, and represented by visualisations?</p>
Chapter 6: Hydrology, Hydrogeology and Peat	<p><b>Q6.1:</b> Are there any additional sources of baseline information which should be referred to, to inform the appraisal of effects on hydrology and hydrogeology?</p> <p><b>Q6.2:</b> Is the proposed methodology appropriate?</p> <p><b>Q6.3:</b> Are the proposed list of effects which are scoped in appropriate?</p> <p><b>Q6.4:</b> Is the proposed approach to mitigation appropriate?</p>
Chapter 7: Noise and Vibration	<p><b>Q7.1:</b> Do you agree with the proposed Noise and Vibration Study Area?</p> <p><b>Q7.2:</b> Do you agree with the scoping in and out of effects in relation to noise and vibration?</p>
Chapter 8: Topics Proposed to be Scoped Out	<b>Q8.1:</b> Do you agree with the list of topics proposed to be scoped out of the EIA?



**Appendix C**  
**Peat Survey Report**

**SP Energy Networks**

# **Redshaw 400kV Substation**

**Peat Survey Report**

**October 2023**

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## Table of Contents

<b>1</b>	<b>Introduction</b> .....	<b>1</b>
<b>2</b>	<b>Methodology</b> .....	<b>2</b>
2.1	Desk-based Initial Assessment .....	2
2.2	Survey Methodology .....	2
2.2.1	Survey Dates .....	2
2.2.2	Peat Survey .....	2
<b>3</b>	<b>Results</b> .....	<b>3</b>
3.1	Peat Depths.....	3
3.2	Peat Cores .....	3
3.3	Peatland Condition .....	4
<b>4</b>	<b>Summary</b> .....	<b>7</b>
<b>5</b>	<b>References</b> .....	<b>8</b>

## List of Figures

Figure 5-A: Site Boundary, Topography and NatureScot Peatland Classification.....	9
Figure 5-B: Peat Survey Results.....	10

## List of Tables

Table 3-A: Peat Depth Summary .....	3
Table 3-B: Coring Data .....	4

## List of Photographs

Photo 3-A: Cores Taken at Site .....	5
Photo 3-B: Site Condition (looking south-east from northern boundary) .....	6
Photo 3-C: Site Condition (looking north from southern boundary) .....	6

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# 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 Redshaw 400kv Substation 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 site boundary. The site covers an area of ~20.6ha and is comprised of a mix of bog and grassland. A high voltage powerline crosses the site and no peat probes or cores were taken within a 15m buffer of this infrastructure for health and safety reasons.

Generally, the surveyed area slopes in a south-easterly direction from the higher ground to the north of the site (346m AOD (Above Ordnance Datum)).

This report covers the methodology and output of the preliminary 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 25m grid across the designated survey area within the site boundary. Five 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 within the boundaries of the site.

### 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 team of two 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 15<sup>th</sup> of September 2023.

#### 2.2.2 Peat Survey

The following methods were employed for the peat survey:

- The site was sampled using a 25m systematic grid. 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 298 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 298 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). Depths of 1m or greater are considered to be “deep peat”, according to this same guidance.

All the 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.

After taking a number of cores at the locations where the deepest probes were recorded, it was confirmed that none of the peat probes had a peat depth  $\geq 50$ cm across the peat survey area.

**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
< 50	298	100%
50 - 99	0	0.0%
>100	0	0.0%
<b>Total</b>	<b>298</b>	<b>100%</b>

### 3.2 Peat Cores

**Table 3-B** shows the information collected from the peat coring. A total of 5 cores were taken across the areas of the site where the deepest probe depths were identified; the locations of which are shown in **Figure 5-B**.

None of the cores identified peat  $\geq 50$ cm. Two cores identified a relatively dry, shallow acrotelmic layer in the south-eastern corner of the site, underlain by peaty gleys. Three of the cores confirmed the remaining area of the site was underlain by shallow organo-mineral soil.

The locations cored were all found to be underlain with a stony clay subsoil.

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



Table 3-B: Coring Data

Core ID Number	Peat	Acrotelm Thickness (cm)	Catotelm Thickness (cm)	Von Post	Notes
1	No	20	0	H1	Thin, relatively dry organic layer underlain by 15cm of organo-mineral soil with stony subsoil below
2	No	15	0	H1	Thin, relatively dry organic layer underlain by 15cm of organo-mineral soil with stony subsoil below
3	No	0	0	-	20cm of organo-mineral soil atop light brown stony subsoil
4	No	0	0	-	20cm of organo-mineral soil atop stony clay subsoil
5	No	0	0	-	15cm of organo-mineral soil atop stony clay subsoil

### 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 site was found to be relatively uniform in its condition and was classed as 'Not peatland'. No peat ≥50cm was identified on the site and the dominant vegetation was grass. 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 site. General site conditions are pictured in **Photo's 3-B and 3-C**.

Photo 3-A: Cores Taken at Site



**Photo 3-B: Site Condition (looking south-east from northern boundary)**



**Photo 3-C: Site Condition (looking north from southern boundary)**



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## 4 Summary

Kaya Consulting Ltd was commissioned by SP Energy Networks, through LUC, to undertake a peat depth survey for the proposed Redshaw 400kv Substation 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 298 probes were collected across the peat survey for the Redshaw 400kv Substation site.





100% 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.

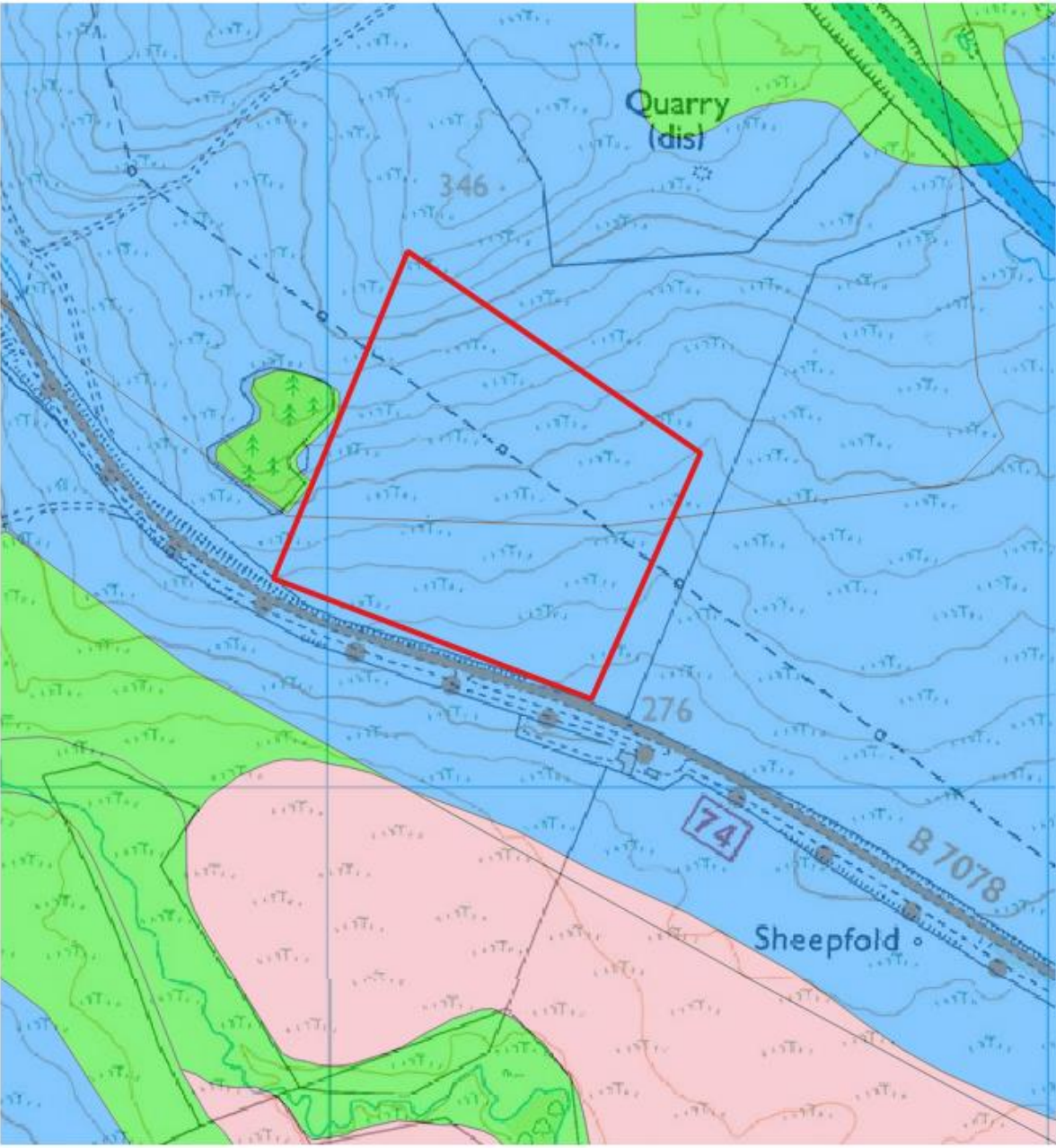
None of the probes were recorded as having a peat depth of over 50cm. The site contains no peat.

## 5 References

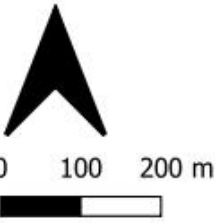
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### NatureScot Peatland Classification





-  Site Boundary
- NatureScot Peatland Classification
  -  Class 1
  -  Class 3
  -  Class 5

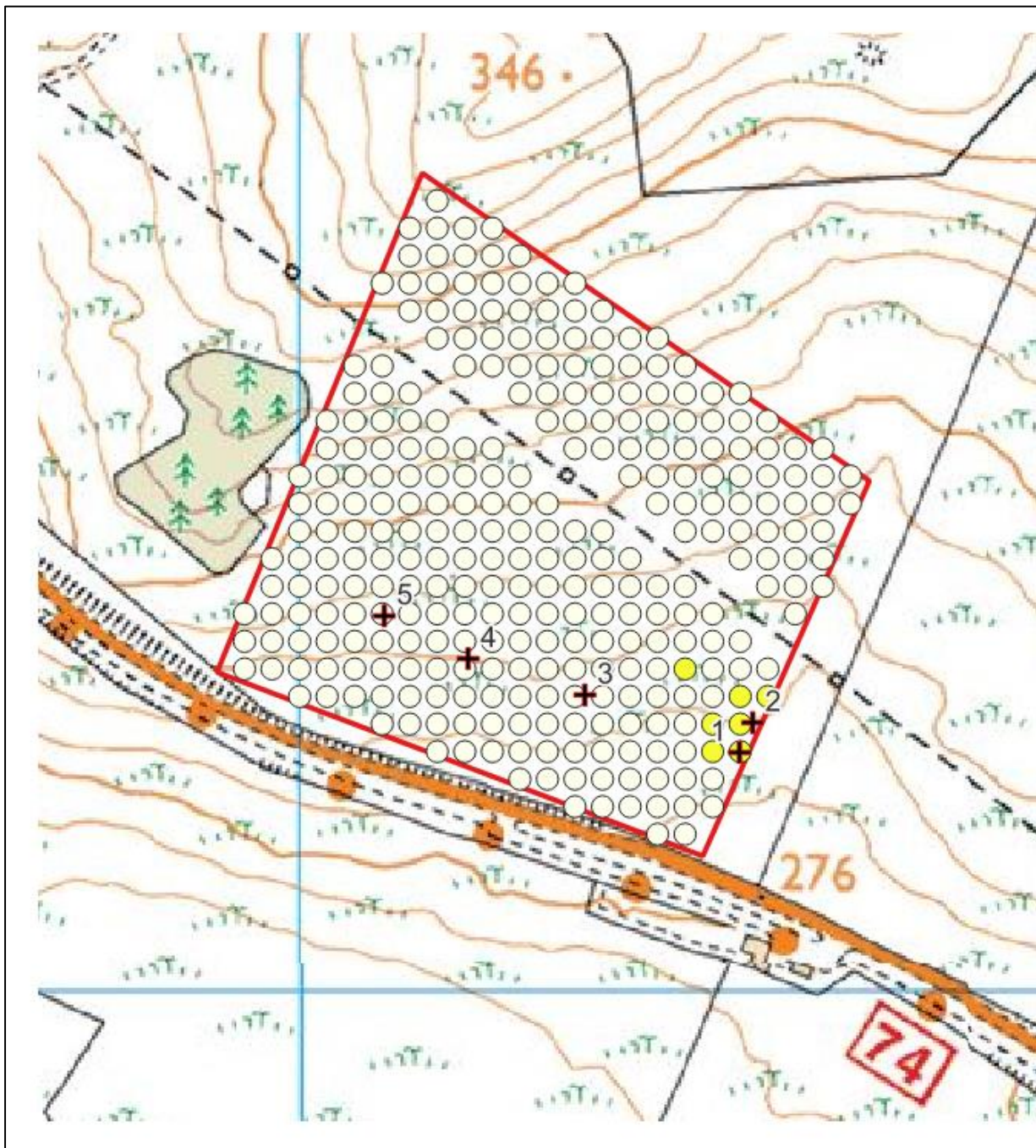


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## Peat Survey Data

-  Site Boundary
- Probe Depth (cm)
  -  0 - 25
  -  25 - 50
-  Peat Core Location



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