

# Redshaw 400kV Substation

**Design and Access Statement** 

May 2025

Land & Planning

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## 1. Introduction

#### 1.1 Introduction

- 1.1.1 This Design and Access Statement ('DAS') has been prepared by LUC on behalf of Scottish Power Transmission plc (hereafter referred to as 'the Applicant'), to accompany an application for planning permission to construct and keep installed a new 400 kilovolt ('kV') 132kV substation (the 'Proposed Development') in South Lanarkshire Council ('SLC') administrative area. The Site is located in proximity to the existing 400kV Scotland to England interconnector ('ZV route') at Redshaw, approximately 3.5 kilometres ('km') south-east of Douglas and wholly within SLC administrative area (see Figure 1.1: Location Plan).
- 1.1.2 Planning permission is required from SLC under the Town and Country Planning (Scotland) Act 1997<sup>1</sup> as amended ('the 1997 Act'), in consultation with relevant statutory consultees. The Proposed Development is a 'national development' as it falls within the category (No 3 (c)) Annex B of developments set out in Scotland's National Planning Framework 4 ('NPF4') which states: 'New and/or upgraded Infrastructure directly supporting on and offshore high voltage electricity lines, cables and interconnectors including converter stations, switching stations and substations'' (NPF4, Annex B 3(c), page 103)<sup>2</sup>. As such, this DAS has been prepared to meet the requirements of the Town and Country Planning (Development Management Procedure) (Scotland) Regulations 2013<sup>3</sup> and the relevant provisions of the 1997 Act. A planning application for development which belongs to the category of 'national development' must be accompanied by a statement explaining the approach to access and in particular how design principles and concepts have been applied, as well as highlighting specific issues which might access to the development for disabled people.
- 1.1.3 The DAS comprises two parts, namely:
  - The Design Statement, which describes the Proposed Development and how it has evolved through the design process; and
  - The Access Statement, which details how the Site will be accessed during the construction and operation of the Proposed Development.
- 1.1.4 This document should be read in conjunction with the Environmental Impact Assessment (**'EIA**') Report submitted to accompany the application for planning permission.

#### **1.2 Purpose of the DAS**

1.2.1 The purpose of this DAS is to provide information on the principles and approach that have guided the design process and to demonstrate observance of equal opportunity requirements for access. This DAS demonstrates how the Site and its surroundings have been fully appraised to ensure that the final design solution achieves a balance across the range of factors which require to be addressed. It describes the starting point for the Proposed Development's design, the factors which have driven the design process, and subsequent iterations to the layout that were made in response to the environmental and technical issues that were identified during the EIA process as well as consultation with stakeholders. Details are also provided on the access arrangements.

#### 1.3 The Proposed Development

1.3.1 The Proposed Development is described in detail in **Chapter 3: Development Description** of the EIA Report. In summary, it will comprise:

<sup>3</sup> Town and Country Planning (Development Management Procedure) (Scotland) Regulations 2013 (as amended). Available [online] at: https://www.legislation.gov.uk/ssi/2013/155/contents [Accessed: 28 May 2025]

<sup>&</sup>lt;sup>1</sup> The Town and Country Planning (Scotland) Act 1997. Available [online] at: <u>https://www.legislation.gov.uk/ukpga/1997/8/contents</u> [Accessed: 28 May 2025]

<sup>&</sup>lt;sup>2</sup> National Planning Framework (NPF) 4 Annex B, 3, page 103: National Development Statements of Need identifies strategic renewable electricity generation and transmission infrastructure including new substations as national developments. Available [online] at: https://www.gov.scot/binaries/content/documents/govscot/publications/strategy-plan/2023/02/national-planning-framework-

<sup>4/</sup>documents/national-planning-framework-4-revised-draft/national-planning-framework-4-revised-draft/govscot%3Adocument/national-planningframework-4.pdf [Accessed: 28 May 2025]

- 400kV and 132kV Gas Insulated Switchgear ('GIS') substation buildings;
- A small distribution 33kV Grid Supply Point ('GSP') substation building;
- Grid transformers;
- Access tracks, roads and parking provision;
- Fencing;
- Drainage works;
- Landscaping works;
- Temporary construction compound, laydown areas and associated temporary construction works; and
- Proposed farmers access track.

#### 1.4 The Applicant

- 1.4.1 This application is being made by the Applicant, who owns and operates the electricity transmission and distribution networks in Southern and Central Scotland. The Applicant is the holder of a transmission licence. The Applicant'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.
- 1.4.2 The Applicant 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.

## 2. The Design Statement

#### 2.1 The Site and its Surroundings

- 2.1.1 The Site is located in proximity to the existing ZV route at Redshaw, approximately 3.5km south-east of Douglas and wholly within SLC (see **Figure 1.1**). The Site area covers approximately 20.65 hectares ('**ha**'). The landform of the Site slopes south towards the B7078, from a high point of approximately 340 metres ('**m**') Above Ordnance Datum ('**AOD**') in its northern extent, to approximately 276m AOD in its southern extent. The Site is located within the Plateau Moorland Landscape Character Type Landscape Character Type (LCT) (213).
- 2.1.2 Land cover within the Site comprises open moorland and rough grassland used for sheep grazing, with a small block of coniferous forestry immediately to the west (outwith the Site boundary).
- 2.1.3 The nearest properties to the Site are Red Moss Hotel (currently not occupied and subject to demolition for the location of the proposed Red Moss Battery Energy Storage Scheme ('**BESS**') currently at application stage<sup>4</sup>), located approximately 350m to the south of the Site and a residential property at Redshaw, located 1.4km to the north-west of the Site. The Site is located within the Black Burn catchment. There is one unnamed watercourse within the Site which flows south-westerly direction, along the eastern Site boundary. The eastern portion of the Site presently drains to this watercourse with the remainder of the Site draining south towards the B7078.

### 2.2 Site Selection Process

#### **Consideration of Alternatives**

- 2.2.1 Regulation 5(2)(d) of the Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017<sup>5</sup> ('**the EIA Regulations**') states that an EIA Report should include "*a description of the reasonable alternatives studied by the developer, which are relevant to the development and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the development on the environment". This is not a requirement to detail alternative sites, but rather a requirement to indicate why a particular design choice is made, and what environmental effects result, in cases where alternatives have been considered.*
- 2.2.2 An initial strategic optioneering study<sup>6</sup> was conducted in 2019 by LUC on behalf of the Applicant to identify potential substation areas taking into consideration technical and environmental factors. The results identified search areas which were taken forward for a substation siting study (Redshaw 400kV Substation Siting Study<sup>7</sup>) undertaken in March 2023 and a further technical review and an appraisal (Redshaw 400kV Substation Appraisal Supplementary Report<sup>8</sup>) undertaken in May 2023. Of all proposed options, the site emerging as the Proposed Development Site (see Figure 1.1) was taken forward through to the detailed design and EIA process.
- 2.2.3 The Site has been selected through the 2019 and 2023 optioneering and siting studies considering a number of criteria below:

#### Economic considerations

The Site generally costs less to construct relative to other sites considered taking into account expected civil engineering, plant, equipment and labour costs. The discounted sites would have required significant earthworks and soil removal from site, resulting in significant transport movements and associated costs. The topography of the Site allows for cut and fill without the need to transport surplus material offsite. GIS was chosen over an Air

https://www.legislation.gov.uk/ssi/2017/102/contents [Assessed: 28 May 2025]

<sup>&</sup>lt;sup>4</sup> The proposed Red Moss BESS is located on the site of the former Red Moss Hotel and adjacent yard (ECU Reference: ECU00005043). Available [online] at: <u>https://www.energyconsents.scot/ApplicationDetails.aspx?cr=ECU00005043</u> [Accessed: 6/5/2025]

<sup>&</sup>lt;sup>5</sup> The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017. Available [online] at:

<sup>&</sup>lt;sup>6</sup> Glenmuckloch to ZV 400kV Strategic Optioneering Study Strategic Options Report (2019). Available [online] at:

https://www.spenergynetworks.co.uk/userfiles/file/Glenmuckloch to ZV Route 400kV Strategic Optioneering Study.pdf [Accessed: 6/5/2025] 7 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

<sup>&</sup>lt;sup>8</sup> A supplementary document that details the methodology and findings relating to the identification of Substation Siting Area 4 (SS4) (2023). Available [online] at: <u>https://www.spenergynetworks.co.uk/userfiles/file/Redshaw\_400kV\_Appraisal\_Report\_Supplementary\_Report.pdf</u> [Accessed: 6/5/2025]

Insulated Switchgear ('AIS') solution, as AIS would have required a significantly larger land take that would not have been possible on all sites considered without significant additional earthworks and the need for soil removal from site.

#### **Technical considerations**

- The Site meets the objective of being within proximity to the existing ZV route and can accommodate new proposed overhead line connections including 132kV connections into the substation and the connection of a 400kV line from Glenmuckloch substation.
- The location was identified as a site which is located between towers ZV108 and ZV111 (see Figure 2.1), where it is considered that the existing tension towers would give the optimal ability to divert the existing OHL circuits<sup>9</sup>, whilst two new terminal towers would be constructed in place of tower ZV110 to turn both circuits into the new site. The Site is located to the east of tower ZV110 to satisfy these technical requirements. The positioning of the towers following diversion of the ZV route 400kV is shown in Figure 2.2.
- The Site has minimum impact to the ZV route in terms of location. Easy 'loop-in and loop-out' of the line would be possible. The location will minimise impact to the ZV route, with planned outages being kept to 8 weeks in total (4 weeks for each circuit) and during the construction phase there will be fewer tower modifications required compared to other sites considered through the optioneering study.

#### Environmental considerations

- The Site has a good landscape fit and the presence of existing landscape and infrastructure features (including woodland planting and electricity and renewables infrastructure) to integrate and where possible screen the substation infrastructure.
- The Site is not covered by any environmental designations and is of low ecological value.
- The Site has good transport links for access to the site for construction and operation.
- The Site has the opportunity to minimise impacts to the environment by reducing cut and fill activities to minimise the earthworks required compared to other site options.

#### 2.3 The Design Strategy

2.3.1 The design strategy sets out the overall approach to the design of the Proposed Development. The overarching aim of the design was to minimise visibility of the Proposed Development, which was done through the Site selection process as detailed above and to avoid significant effects on any onsite environmental constraints. It describes the starting point for the Proposed Development's design, and subsequent modifications to the design that were made in response to environmental considerations, constraints and effects, and feasibility of construction as information became available through the EIA process.

#### **Design Objectives**

- 2.3.2 A number of technical and environmental constraints have been considered in the iterative design process and have guided the design of the Proposed Development as design objectives. The design objectives for each component of the Proposed Development are detailed below:
  - Landscape and Visual: Minimising 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.
  - Archaeology and Cultural Heritage: Avoiding cultural heritage assets within the Site.
  - Hydrology and Hydrogeology: Maintaining a 50m buffer to all marked watercourse (with a 10m riparian buffer applied to a small unnamed watercourse) and avoidance of watercourse crossings. Ensuring the appropriate attenuation and treatment of surface water runoff via the Proposed Developments' permanent drainage design, which includes Sustainable Drainage Systems ('SuDS'). In addition, avoid the two Scottish Water underground pipes that are within the southern part of the Site and buffer them appropriately during early design. The Site

<sup>&</sup>lt;sup>9</sup> ZV Route 400kV Diversion to allow for the proposed Redshaw Substation to be built (2024). Available [online] at: <u>https://www.spenergynetworks.co.uk/pages/zv\_route\_400kv\_diversion.aspx</u> [Accessed: 6/5/2025]

access track is the only infrastructure that will have to cross the pipes. Further cognisance of the pipes will be required during detailed design of the track and Site drainage, and prior to and during construction works.

Topography: Avoiding steep slopes to ensure constructability and reduce health and safety risk whilst reducing the need for significant cut and fill engineering works.

#### Site Infrastructure Design

2.3.3 The infrastructure (including the temporary construction compound, access tracks, etc) required was designed and arranged in such a way as to avoid the identified onsite constraints to the greatest feasible extent. Whilst the majority of the ancillary site infrastructure layout was designed alongside the final substation layout, the layout has been modified according to identified onsite constraints throughout the iterative EIA process. Elements such as the location of the temporary construction compound were also designed and assessed for their potential effects throughout this process.

#### **Design Evolution**

- 2.3.4 The final design of the Proposed Development (see **Figures 2.3** and **2.4**) evolved throughout project development, and the main design changes relate to those noted below, which were considered through the technical design process.
  - Landscape mitigation proposals: led by landscape and ecology teams to identify landscape mitigation proposals which provide both landscape and biodiversity improvements, including biodiversity net gain ('BNG'). The evolution of the mitigation proposals involved considering the placement of existing onsite infrastructure and the temporary compound. Figure 2.5 provides details of the final outline landscape mitigation and biodiversity enhancement plans ('OLMBEP') proposed for the Site.
  - Increase in height of the layout platform to reduce the amount of earthworks required; this was considered through the technical design of the Proposed Development layout but not progressed, due to the need for a stepped platform and retaining wall, which was discounted on landscape and visual grounds. The public also expressed a view that the platform should sit as low as possible, and therefore, the design was not progressed further.
  - Temporary construction compound: the initial temporary construction compound layout was located south-east of the proposed Redshaw substation site, opposite the B7078 and interacting directly with an identified watercourse. As a result, the location of the temporary construction compound was relocated to avoid the watercourse.

#### 2.4 Design Conclusion

2.4.1 The careful design and siting of the Proposed Development has resulted in the minimisation of visibility and avoidance of the identified onsite environmental constraints. The final design layout forms the basis for the assessment of residual environmental effects and a full description of the Proposed Development based on it is set out in **Chapter 3** of the EIA Report.

## 3. The Access Statement

#### 3.1 Access to the Site

- 3.1.1 Access to the Site will be via a new vehicular access adjoining the B7078 (a public road which is administered by SLC). The B7078, runs approximately north to south and is parallel to the nearby M74. The B7078 can be accessed from the north and west via the A70/M74 Junction 12 and from the south via M74 Junction 13. The B7078 and A70 Ayr Road are single carriageway roads subject to a 60mph speed limit.
- 3.1.2 All Heavy Goods Vehicles ('**HGVs**') (for transportation of construction materials) and staff traffic will access the Site via the B7078 either from the north via the A70 or the south via M74 Junction 13.
- 3.1.3 There will be a requirement for the movement of approximately 20 abnormal loads (associated with the movement of transformer and control building components) during the construction phase. Details regarding the transportation of any abnormal loads to Site will be confirmed once a contractor is in place.

#### 3.2 Access for All

3.2.1 The substation buildings onsite will be provided in line with the relevant building regulations (at the time of construction) to accommodate the access needs of people with limited mobility.

#### 3.3 Public Access

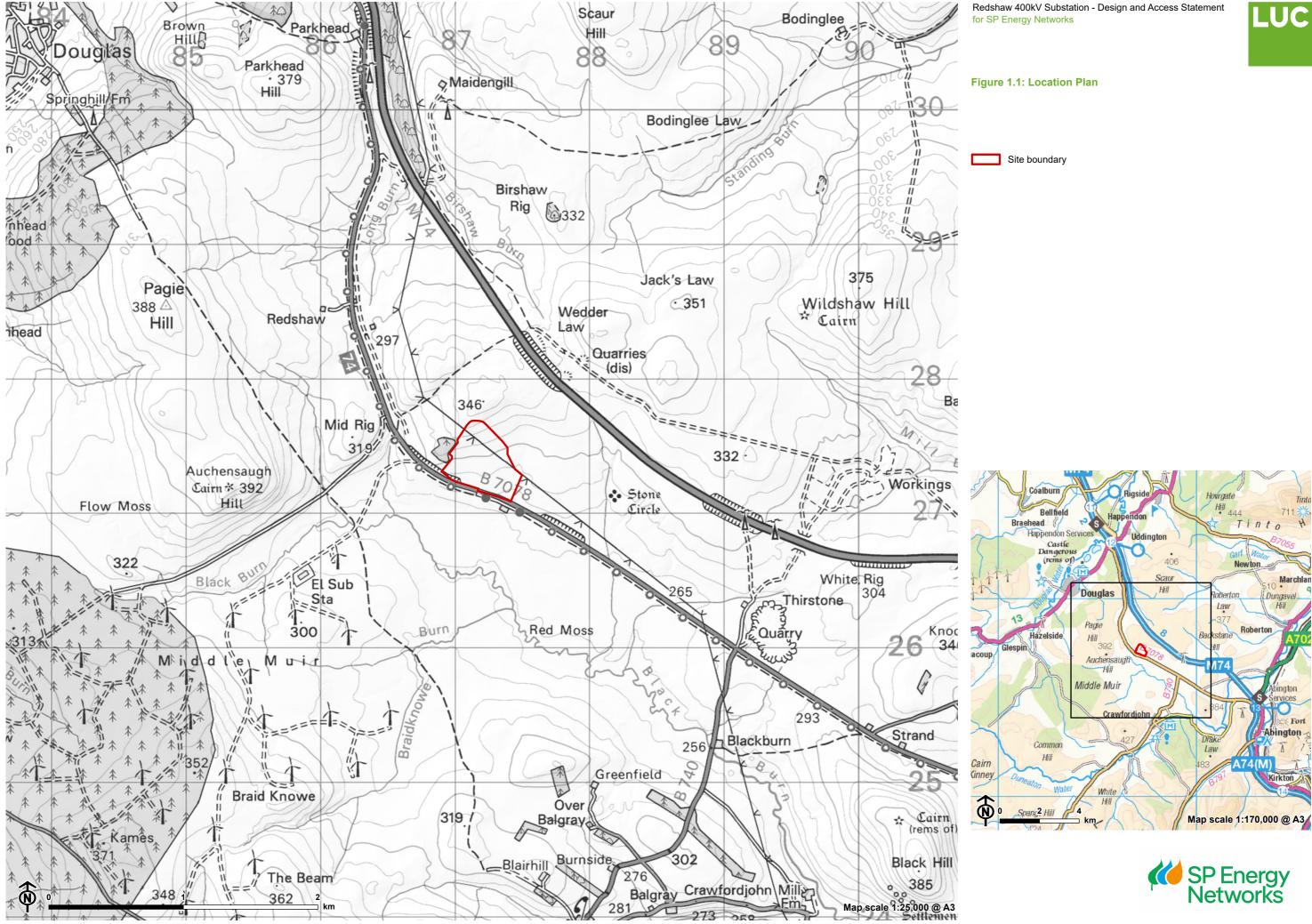
- 3.3.1 A review of the South Lanarkshire Core Paths Map<sup>10</sup> indicates the following Core Paths located in vicinity of the Site which have been considered in the EIA (see **Figure 3.1**):
  - B7078 Core Paths<sup>11</sup> (NCN 74);
  - Douglas Crawfordjohn Aspirational Core Path (CL/5713/1, CL/5706/1); and
  - Mill Scar Core Paths (woodlands trails).
- 3.3.2 The construction access routes overlap and/or intersect with the NCN 74 cycle route (**Figure 3.1**). It is acknowledged that the NCN 74 cycle route will require consideration during the construction phase and this is considered in the Outline Construction Traffic Management Plan ('**CTMP**') submitted separately with the application for planning permission.
- 3.3.3 During construction, the CTMP will be in place to manage traffic into and out of the Site. Furthermore, signage, way makers, and, if required, banksmen, will be deployed to assist users using the paths and any localised diversion considered necessary to ensure that there will be no effects on those using these paths whilst works are ongoing.
- 3.3.4 The new substation will be an industrial installation with no public access. Once operational, it will be accessed only by trained and authorised SPT personnel. The Site will be secured by security fencing and warning notices will be displayed about possible dangers.

<sup>&</sup>lt;sup>10</sup> South Lanarkshire Council (2021) Core Paths Map . Available [online] [Accessed 6/5/2025]

<sup>&</sup>lt;sup>11</sup> Core Paths CL/3463/1, CL/3464/1, and CL/3465/1 form a contiguous route between Parkhead and Nether Abington, adjacent to the B7078

## 4. Summary

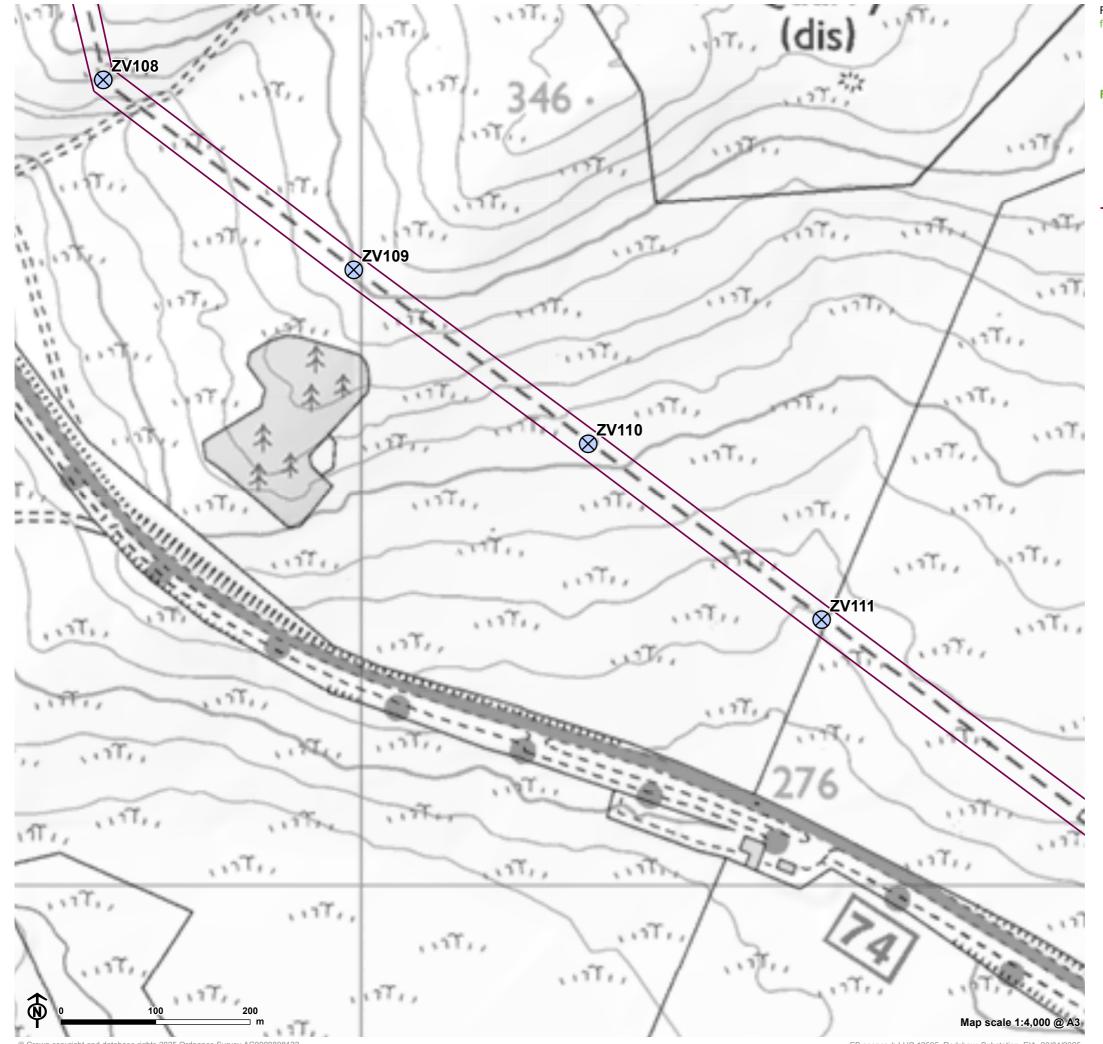
- 4.1.1 This DAS demonstrates that the siting and design of the Proposed Development have been carefully considered and the final design layout reached through the design iteration process. The environmental effects associated with the Proposed Development have been avoided or mitigated through the EIA and iterative design process. The layout evolved by responding to environmental and technical investigations, and the final design was reached by balancing and responding to the constraints and considerations, including feedback from stakeholder, outlined in this DAS.
- 4.1.2 The overarching aim of the design was to minimise visibility of the Proposed Development, which was done through the Site selection and design process as detailed above and to avoid significant effects on any onsite environmental constraints.
- 4.1.3 The Access Statement in this DAS outlines the access routes, access for all considerations and public access of the Proposed Development.



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Redshaw 400kV Substation - Design and Access Statement for SP Energy Networks

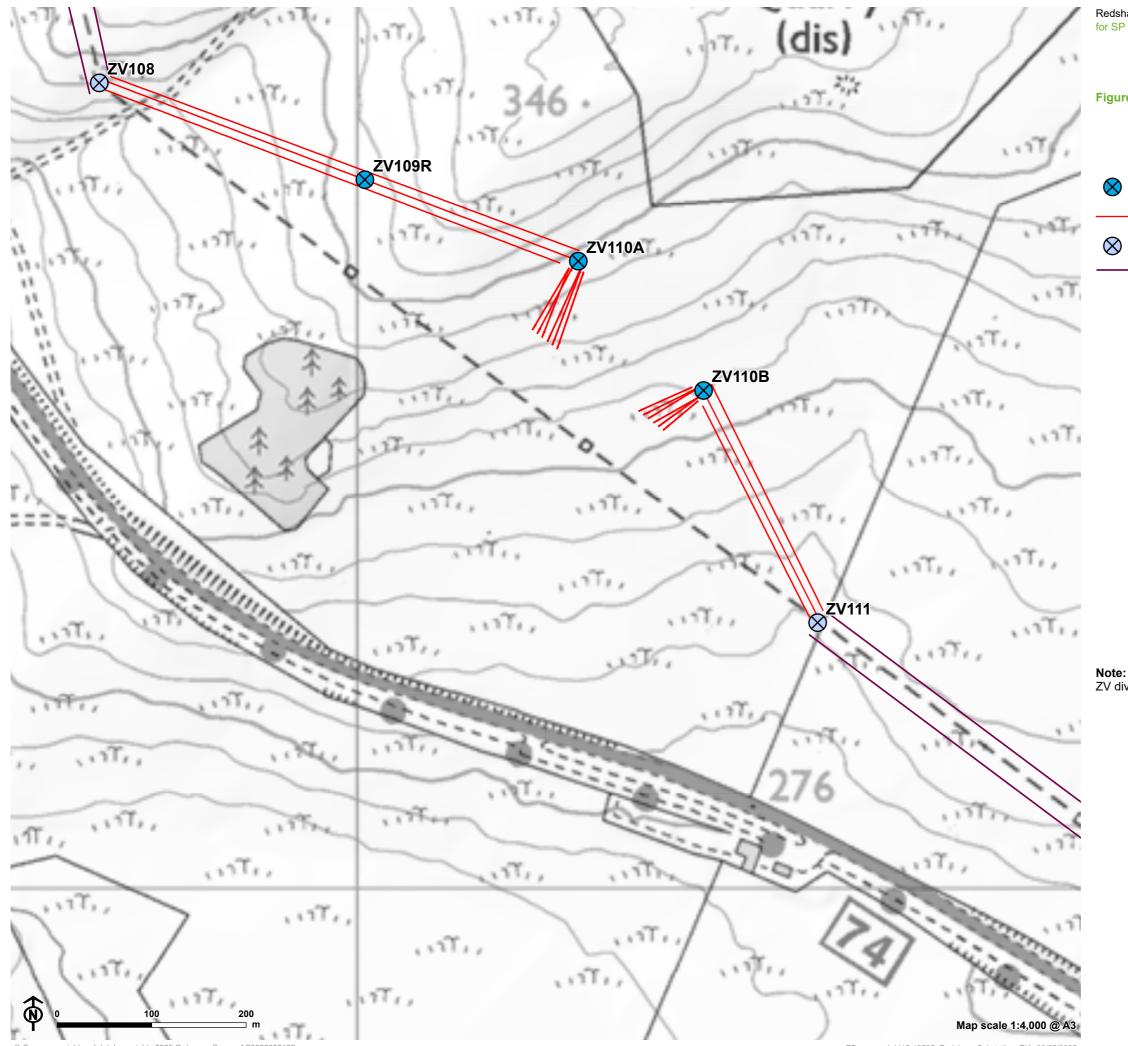


Figure 2.1: General existing site plan

Existing tower

- Existing 400kV Overhead Line (OHL) - ZV route





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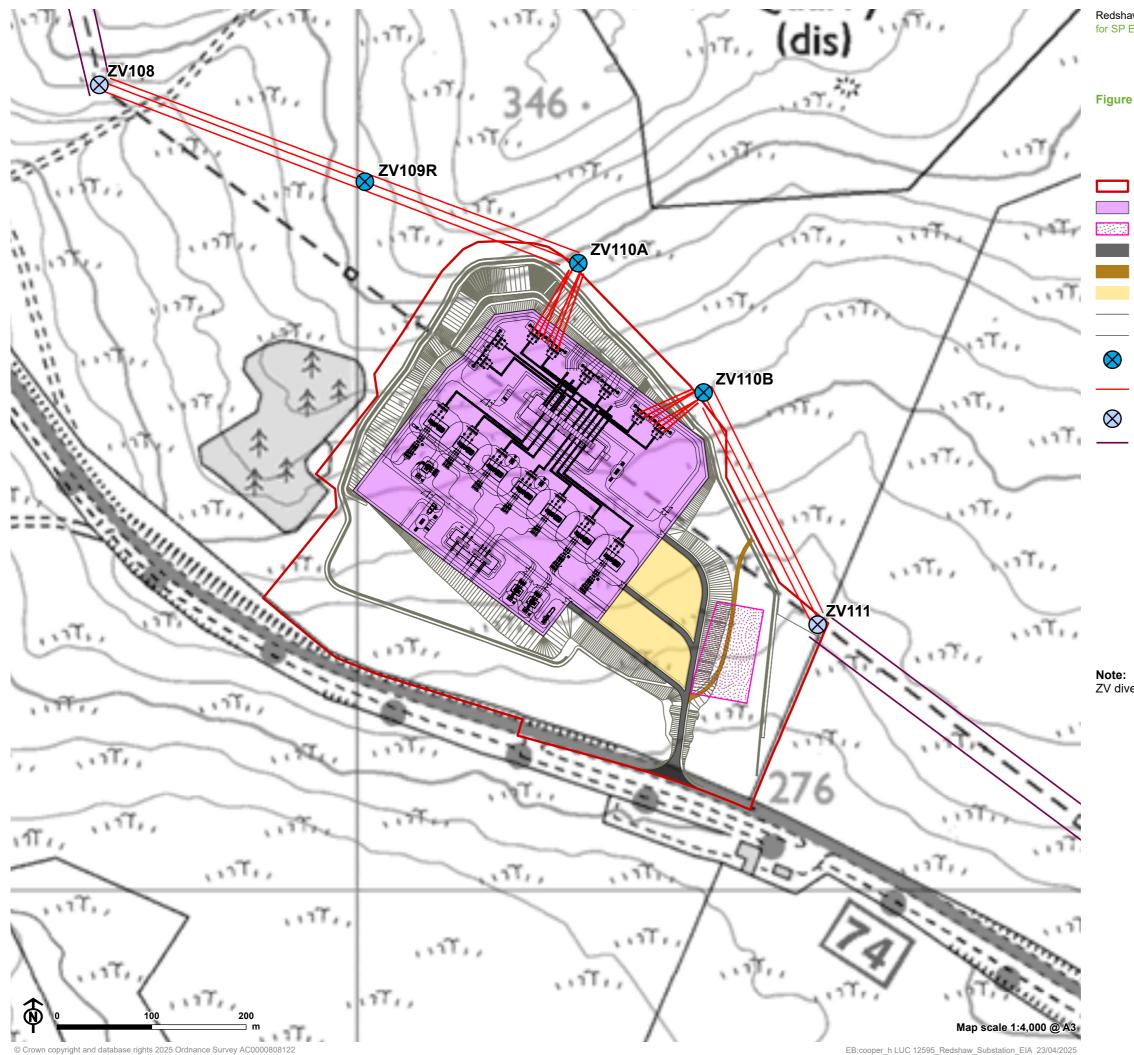


#### Figure 2.2 Proposed ZV diversion

- Proposed tower (pending determination)
  - Proposed 400kV Overhead Line (OHL) ZV diversion (pending determination)
  - Existing tower
  - Existing 400kV Overhead Line (OHL) ZV route

ZV diversion is subject to a separate consenting process.







#### Figure 2.3: Proposed site plan

- Site boundary
  - Proposed Redshaw Substation
  - Proposed temporary compound
  - Proposed access road
  - Proposed farmer's access track
  - Proposed laydown space
  - Proposed platform earth works
  - Proposed electrical layout
  - Proposed ZV diversion tower (pending determination)
  - Proposed 400kV Overhead Line (OHL) ZV diversion (pending determination)
- Existing tower
- Existing 400kV Overhead Line (OHL) ZV route

ZV diversion subject to a separate consenting process.



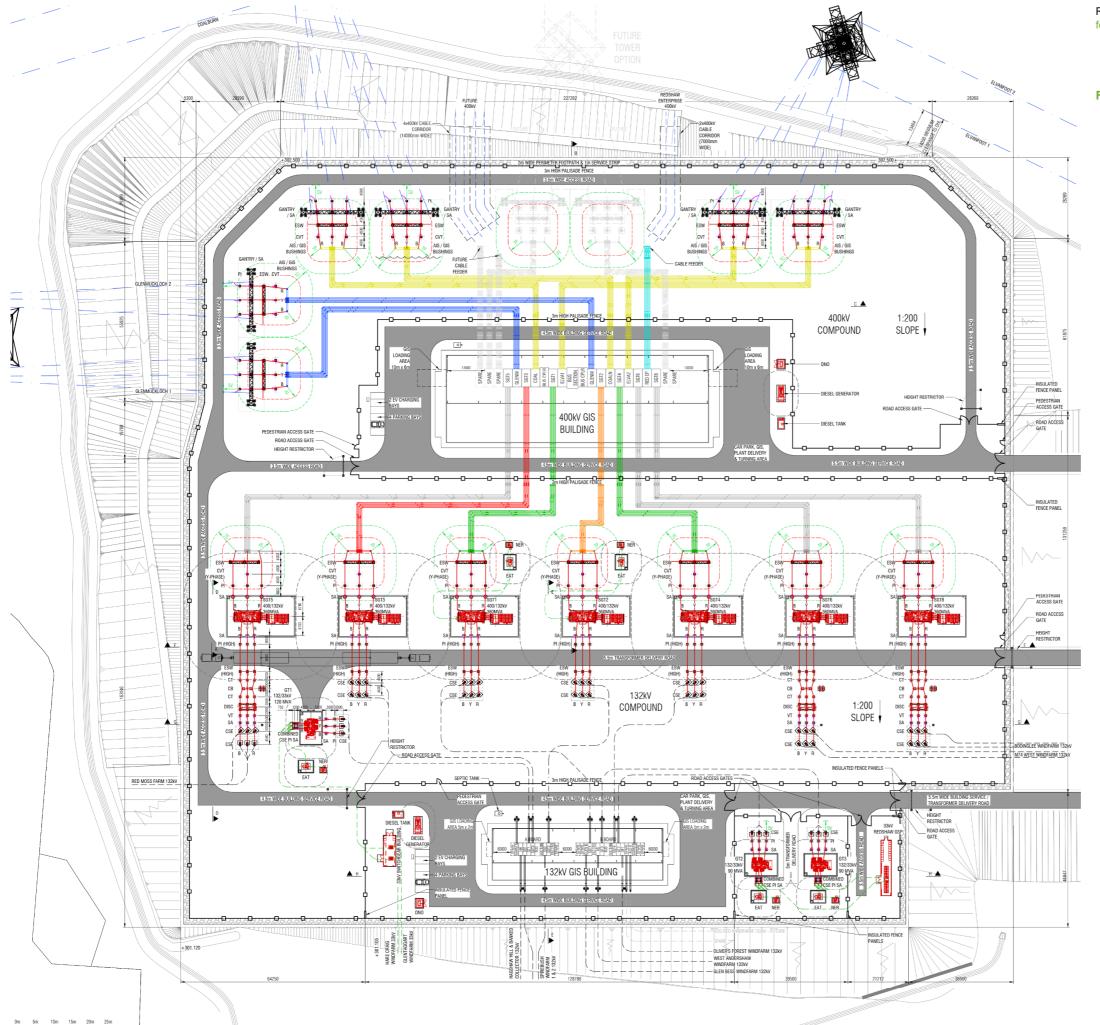
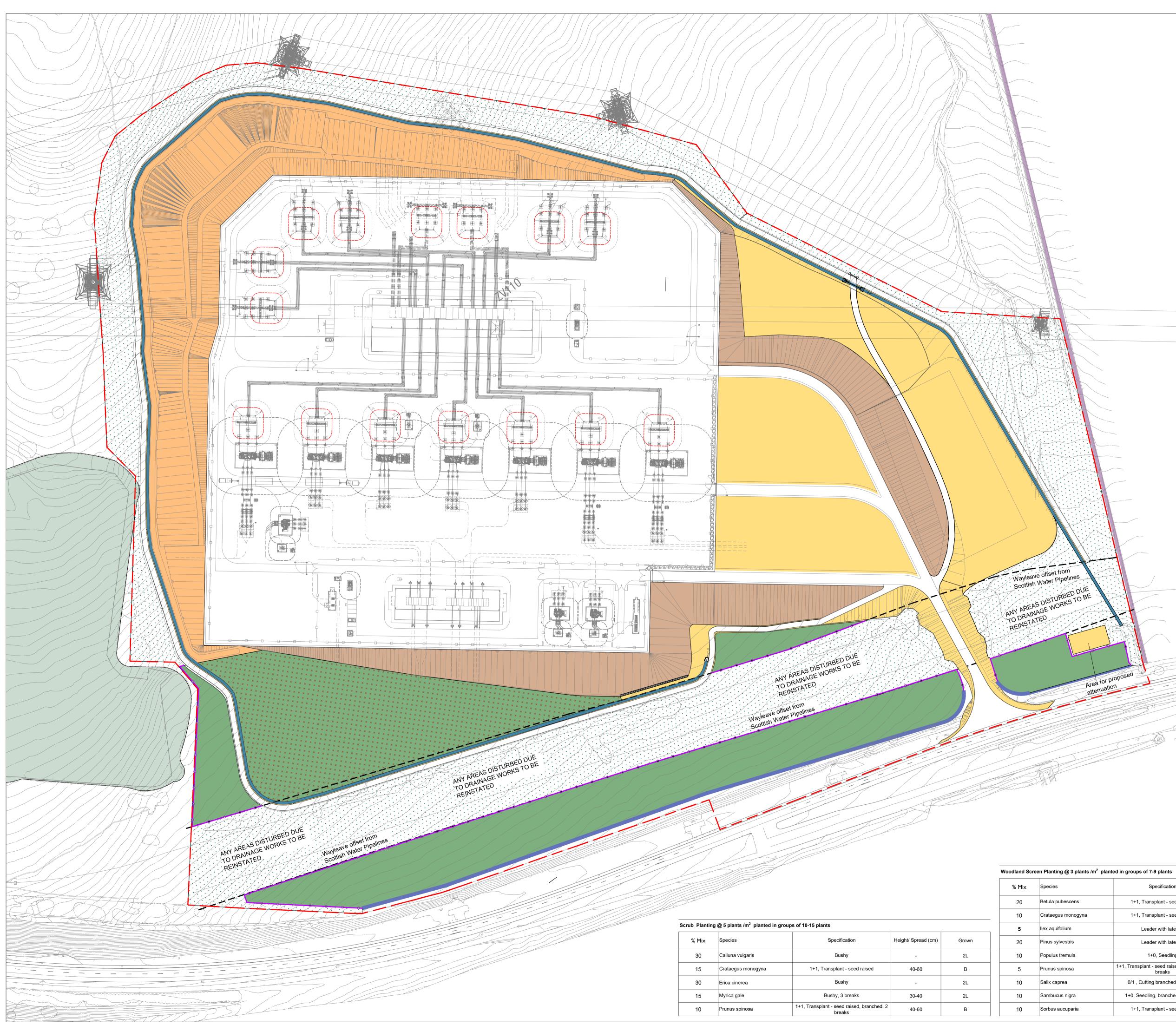




Figure 2.4: Electrical Layout





% Mix	Species	Specification	Height/ Spread (cm)	Grown
30	Calluna vulgaris	Bushy	-	2L
15	Crataegus monogyna	1+1, Transplant - seed raised	40-60	В
30	Erica cinerea	Bushy	-	2L
15	Myrica gale	Bushy, 3 breaks	30-40	2L
10	Prunus spinosa	1+1, Transplant - seed raised, branched, 2 breaks	40-60	В

% Mix	Species	Specification	Height/ Spread (cm)	Grown
20	Betula pubescens	1+1, Transplant - seed raised	80-100	В
10	Crataegus monogyna	1+1, Transplant - seed raised	40-60	В
5	llex aquifolium	Leader with laterals	40-60	2L
20	Pinus sylvestris	Leader with laterals	40-60	2L
10	Populus tremula	1+0, Seedling	40-60	В
5	Prunus spinosa	1+1, Transplant - seed raised, branched, 2 breaks	40-60	В
10	Salix caprea	0/1 , Cutting branched, 2 breaks	60-80	В
10	Sambucus nigra	1+0, Seedling, branched, 2 breaks	40-60	В
10	Sorbus aucuparia	1+1, Transplant - seed raised	60-80	В

% Mix	Species			
Wildflowers (20%)				
2 Achillea ptarmica				
2.25	Centaurea nigra			
0.1	Cirsium palustre			
2.5	Filipendula ulmaria			
0.5	Geranium pratense			
0.5	Geum rivale			
0.5	Hypericum tetrapterum			
0.5	Hypochaeris radicata			
1	Iris pseudacorus			
1.5	Leucanthemum vulgare			
0.1	Lotus uliginosus			
1.5	Plantago lanceolata			
1	Prunella vulgaris			
1	Ranunculus acris			
1	Rhinanthus minor			
1	Rumex acetosa			
1	Scorzoneroides autumnalis			
1.5	Silene flos-cuculi			
0.5	Succisa pratensis			
Grasses and sedges (80%)				
10	Agrostis capillaris			
5	Alopecurus pratensis			
0.05	Carex ovalis			
7.6	Deschampsia caespitosa			
36.5	Festuca rubra commutata			
20.9	Poa pratensis			

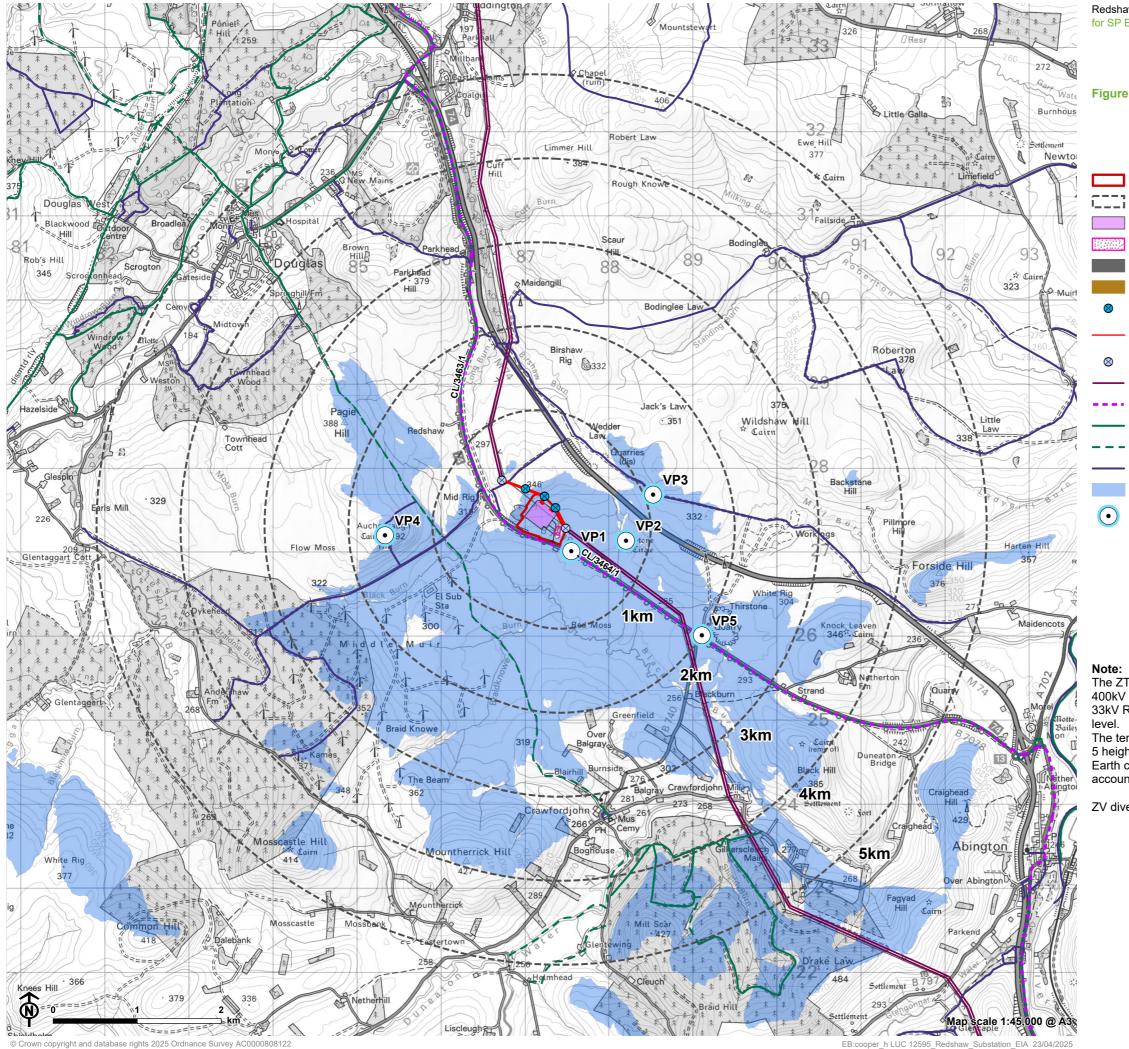
## Biodiversity Enchancements: Highland Grassland Mix, by Scotia Seeds, 3g/m2 (Total Area: 177.21m<sup>2</sup>)

% Mix	Species				
	Wildflowers (20%)				
2.5	Achillea millefolium				
I	Alchemilla alpina				
2	Calluna vulgaris				
1.8	Erica cinerea				
0.1	Galium saxatile				
1.6	Galium verum				
0.2	Luzula multiflora				
2	Plantago lanceolata				
0.1	Potentilla erecta				
2.7	Prunella vulgaris				
2.7	Ranunculus acris				
1	Rumex acetosella				
0.2	Stellaria graminea				
0.5	Succisa pratensis				
1.1	Trifolium repens				
0.1	Veronica chamaedrys				
0.3	Veronica officinalis				
0.2	Viola riviniana				
	Grasses and sedges (80%)				
8	Agrostis capillaris				
6	Agrostis vinealis				
2	Anthoxanthum odoratum				
6.3	Deschampsia flexuosa				
28.5	Festuca ovina				
28	Festuca rubra ssp commutata				
1	Molinia caerulea				
0.2	Nardus stricta				

	Hedger	v Seeding for areas of Woodland Screening: ow Meadow Mix, by Scotia Seeds, 3g/m2 Area: 408.57m <sup>2</sup> )		
	% Mix	Species		
	Wildflowers (20%)			
	2	Alliaria petiolata		
	0.2	Campanula latifolia		
	2	Centaurea nigra		
	0.5	Cruciata laevipes		
	I	Digitalis purpurea*		
-	2	Geraniumsylvaticum		
0	2	Geum urbanum		
	0.5	Hypericum perforatum		
_	1	Knautia arvensis		
_	_1	Leucanthemum vulgare		
	0.2	Primula vulgaris		
_	1	Rhinanthus minor		
_	2	Silene flos-cuculi		
	1	Stachys sylvatica		
	0.1	Stellaria holostea		
/	1	Teucrium scorodinia		
	1.5	Torilis japonica		
	1	Vicia sepium		
	Grasses, rushes and sedges (80%)			
	10	Agrostis capillaris		
	10	Cynosurus cristatus		
	25	Festuca rubra ssp commutata		
	10	Poa nemoralis		
	25	Poa pratensis		
	0.3	Phalaris arundinacea		

LEGEND	
	Site Boundary
	Existing Woodland Ancient Woodland Inventory Long Established of Plantation Origin (LEPO) - Currently comprising predominantly by Sitka/ Norway Spruce
	Proposed Woodland Screening Mixed broadleaf and coniferous trees planted within existing grass land
	Proposed Woodland Screening Mixed broadleaf and coniferous trees under seeded with meadow
	Proposed Biodiversity Enhancement Wildflower / Native plant mix
	Proposed Biodiversity Enhancement Wildflower / Native plant mix to areas of embankment with soil medium
	Proposed Scrubland Low-level scrub vegetation
	Existing Vegetation Retained Any disturbed areas to be seeded with wildflower
	Proposed Ditch Seeded with wet habitat meadow
	Existing Stone Dyke Wall Repair and restore existing stone dyke along site boundary
	Proposed Stone Dyke Wall Proposed stone wall to tie in with existing and create formal entrance to primary access road
oo	Proposed Deer / Rabbit Proof Fence

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P01		First Issue			HF	DW	DW
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Figure 4.9 Outline Landscape Mitigation and Biodiversity Enhancement Plan (OLMBEP)							
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#### Figure 3.1: Visual baseline - ZTV and visual receptors

- Site boundary
- 1km interval from site boundary
- Proposed Redshaw Substation
- Proposed temporary compound
- Proposed access road
- Proposed farmer's access track
- Proposed ZV diversion tower (pending determination)
- Proposed 400kV Overhead Line (OHL) ZV diversion (pending determination)
- Existing tower
- Existing 400kV Overhead Line (OHL) ZV route
- National Cycle Network (Route 74)
  - Core path
  - Aspirational core path
  - Wider network
  - Zone of theoretical visibility
  - Viewpoint
  - VP1: B7078 Core Path/NCN 74
  - VP2: Thirstone stone circle
  - VP3: Wider path network, east of M74 (Outer Law)
  - VP4: Auchensaugh Hill
  - VP5: B740/B7078 junction

The ZTV is calculated to a height of 13.1m for the gantry, 12.1m for the 400kV GIS building, 10.8m for the 132kV GIS building, 5m from the 33kV Redshaw GSP and from a viewing height of 2m above ground

The terrain model assumes bare ground and is derived from OS Terrain 5 height data and platform earthworks for the development. Earth curvature and atmospheric refraction have been taken into account. The ZTV was calculated using ArcPro 3.4.0.

ZV diversion subject to a separate consenting process.

