Scottish & Southern Electricity Networks

East Coast 275kV Substation

Consultation Document

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GLOSSARY

Term	Definition
Alternating Current (AC)	Electrical current where the direction of flow periodically reverses.
Amenity	The natural environment, cultural heritage, landscape, and visual quality, including impacts on communities such as noise and disturbance.
Ancient Woodland Inventory (AWI)	A dataset identifying areas of ancient woodland, typically continuously wooded since at least 1750.
Biodiversity Net Gain (BNG)	An approach to development that aims to leave biodiversity in a measurably better state than before.
Birds of Conservation Concern (BoCC)	A UK classification system used to assess the conservation status of bird species.
Consultation	A process of engaging with stakeholders through exchange of views to inform decisions.
Construction Environmental Management Plan (CEMP)	A document outlining how environmental effects will be managed and mitigated during construction.
Distribution Network	The system that delivers electricity from the transmission network to end users such as homes and businesses.
Distribution Network Operator (DNO)	A licensed company responsible for operating and maintaining the electricity distribution network.
Drinking Water Protection Area (DWPA)	An area designated to protect sources of drinking water from pollution.
Environmental Impact Assessment (EIA)	A formal process for assessing the potential environmental effects of a proposed development.
European Protected Species (EPS)	Species protected under the EU Habitats Directive and UK legislation.
Gigawatt (GW)	A unit of electrical power equal to one billion watts.
Groundwater Dependent Terrestrial Ecosystems (GWDTE)	Ecosystems that rely on groundwater to maintain their ecological function.
Habitat	The natural environment in which a species or community of plants and animals lives.
Hectare (ha)	A metric unit of area equal to 10,000 square metres.
High Voltage Direct Current (HVDC)	A form of electricity transmission using direct current at high voltage for efficient long-distance power transfer.
Kilovolt (kV)	A unit of electrical potential equal to one thousand volts.
Landscape Character Type (LCT)	A category used to classify landscapes based on distinct physical and visual characteristics.
Listed Building	A building of special architectural or historic interest that is legally protected.
Long-Established Plantation Origin (LEPO) Woodland	Woodland that has developed from long-established plantations and is recognised for ecological value.
Megawatt (MW)	A unit of electrical power equal to one million watts.
Multi-Criteria Analysis (MCA)	A method of appraising options against a range of environmental, technical, and economic criteria.
National Grid Reference (NGR)	A coordinate system used in the UK to identify precise geographic locations.

Term	Definition
National Planning Framework 4 (NPF4)	Scotland's national spatial development strategy and planning policy framework.
Overhead Line (OHL)	An electricity transmission line installed above ground and supported by towers or poles.
Preferred Site	The selected site following detailed assessment, balancing environmental, technical, and cost considerations.
Ramsar Site	A wetland designated as being of international importance under the Ramsar Convention.
Red, Amber, Green (RAG)	A rating system used to indicate levels of risk, constraint, or performance.
Scheduled Monument	A nationally important archaeological site or historic monument protected by law.
Scottish and Southern Electricity Networks (SSEN)	The organisation responsible for operating and developing the electricity transmission network in the north of Scotland.
Sites of Special Scientific Interest (SSSI)	Protected areas designated for their ecological or geological importance.
Special Area of Conservation (SAC)	A protected site designated under the Habitats Directive to conserve habitats and species.
Special Protection Area (SPA)	A site designated under the Birds Directive to protect bird species and habitats.
Stakeholders	Individuals or organisations that can affect or are affected by a project.
Substation	A facility used to transform, control, and distribute electricity within the network.
Sustainable Drainage System (SuDS)	Infrastructure designed to manage surface water runoff sustainably.
Transmission Network	The high-voltage system used to transmit electricity over long distances.
United Kingdom Biodiversity Action Plan (UKBAP)	A programme aimed at conserving and enhancing biodiversity in the UK.
Water Framework Directive (WFD)	Legislation aimed at protecting and improving water environments across Europe.
Watts	The standard unit of power, representing the rate of energy transfer.
Works	Activities related to the construction, modification, or removal of transmission infrastructure and associated elements.

1 INTRODUCTION

1.1 Purpose of Document

This document has been prepared by Scottish and Southern Electricity Networks (SSEN) Transmission. SSEN Transmission, operating under licence held by Scottish Hydro Electric Transmission plc., owns, operates and develops the high voltage electricity transmission system in the north of Scotland and remote islands. This document invites comments from all interested parties on the proposed sites for a 275 kilovolt (kV) substation and associated infrastructure in Angus (the 'Proposed Development') and the proposed routes of the overhead line (OHL) required for the connection from the Proposed Development to the existing transmission network.

This document outlines the proposed sites and route options, and describes the appraisal undertaken. Comments are now sought from statutory authorities, key stakeholders, elected representatives and the public. All comments received will inform further consideration of the preferred sites and route.

This document supports the information made available to the public and statutory authorities as part of ongoing consultation. This Consultation Document along with project details is available online at the project website:

East Coast 275 kV Substation - SSEN Transmission

1.2 Document Structure

This report is comprised of nine sections as follows:

1. Introduction – sets out the purpose of the Consultation Document and document structure.
2. Project Background and Need – describes the need for the proposals.
3. Project Overview – sets out a description of the overall project as well as a description of the substation and OHL design.
4. Description of Substation Site Options – provides a description of the proposed substation sites considered at Stage 2.
5. Description of Route Options – provides a description of the proposed routes of the OHL considered at Routeing Stage.
6. Option Selection Process - sets out the site selection process and methodology that has been applied to date.
7. Substation Site Options Assessment – comparative analysis of the sites from an environmental, technical and economic perspective.
8. Routeing Options Assessment - comparative analysis of the route options from an environmental, technical and economic perspective.
9. Summary and Next Steps – invites comments on the assessment process and proposed site and route options.

The main body of this document is supported by a series of figures which are included in Appendix A: Figures.

1.3 Next Steps

As part of the consultation exercise, comments are sought from members of the public, statutory consultees and other key stakeholders on the potential substation sites and route options put forward in this report.

A Report on Consultation will be produced which will document the consultations received, and the decisions made in light of these responses.

Following the identification of a proposed alignment, further technical and environmental surveys will be undertaken to inform the detailed design of the development.

2 PROJECT BACKGROUND AND NEED

2.1 The Need for the Project

SSEN Transmission holds a license under the Electricity Act 1989 (the Electricity Act) for the transmission of electricity in the north of Scotland and has a statutory duty under Schedule 9 of the Electricity Act to develop and maintain an efficient, co-ordinated and economical electrical transmission system in its licence area. Where there is a requirement to extend, upgrade or reinforce its transmission network, SSEN's aim is to provide an environmentally aware, technically feasible and economically viable solution which would cause the least disturbance to the environment and to people who use it.

As we deliver a network for net zero and deliver on our Reliable Energy goal, we must deliver strategic network investments at the right time to reduce investment regret and to continue to operate our safe, secure, and reliable network.

The proposed 275 kV East Coast Substation is required to allow future generation to connect into the East Coast network. There are currently over 540 megawatts (MW) of contracted low carbon generators (over 1300 MW including battery connections) within our East Coast area which cannot contribute to the UK and Scottish Governments' commitments to achieve net zero emissions by 2050 and 2045 respectively without completion of our East Coast network investment strategy.

2.2 National Planning Policy

Scotland's fourth National Planning Framework (NPF4) was published by the Scottish Government on 13th February 2023. NPF4 is a long-term strategy for Scotland (to 2045) that guides spatial development, sets out national planning policies, designates national developments and highlights regional spatial priorities. Alongside adopted local development plans, NPF4 now forms part of the statutory development plan for decision making in Scotland. In NPF4, transmission infrastructure is identified as a National Development under National Development 3 'Strategic Renewable Electricity Generation and Transmission Infrastructure' and supported by Policy 11 Energy, however proposals are required to be assessed against all relevant development plan policies.

The Proposed Development would form a vital element to deliver the network and grid infrastructure required to deliver the UK and Scottish Government's legally binding targets for net zero emissions and renewable energy electricity generation objectives.

3 PROJECT OVERVIEW

3.1 Introduction

This proposed East Coast Substation project involves the construction of a new 275 kV substation strategically located within the vicinity of Brechin and connected to the existing Kintore to Tealing 275 kV OHL through newly constructed tie-ins.

3.2 Substation Design

The substation design requires provision for a minimum nine bay 275 kV substation.. Land would include for landscaping and screening, Sustainable Drainage System (SuDS) and for habitat enhancement to achieve Biodiversity Net Gain (BNG) at the site.

An additional area of approximately 200 m x 80 m would also be required for temporary welfare and laydown areas during construction, located in close proximity to the site. This area would be restored following construction.

The following components would be included in the design:

- Large, levelled platform area, sized approximately 500 m x 500 m;
- Control building:
- 2 x bus couplers;
- 2 x bus sections;
- 4 x Feeder Bays to enable connections for the new 275 kV XT1/XT2 Circuits between Kintore and Tealing;
- 4 x Future Feeder Bays;
- Perimeter fence, potentially up to 4.0 m height, including energised top section;
- Permanent earthworks and site drainage provisions, including SuDS basins;
- New and upgraded permanent access to / from the proposed Substation Site; and
- Hard and soft landscaping for screening and biodiversity requirements.

For the purpose of the site selection process, an indicative substation layout was assumed with a footprint area of approximately 25 hectares (ha) and a wider site footprint of approximately 100 ha to provide space for additional land requirements, such as construction compounds and laydown areas, SuDS, landscaping features and BNG requirements.

3.3 Overhead Line (OHL) Design

The OHL design comprises the tie-in and tie-out routes connecting the proposed East Coast Substation into the existing Kintore-Tealing 275kV network via two sections of new 275kV OHL between 2 km and 7 km in length.

Construction activities are anticipated to consist of the following:

- Alterations to the existing transmission and distribution networks;
- Enabling work (forestry clearance and establishment of temporary construction compound(s);
- Erection of support structures;
- Conductor stringing (including construction of temporary scaffolding);
- Inspections and OHL commissioning; and
- Removal of temporary works and site reinstatement.
- Demolition of part of the existing OHL infrastructure
- Clearance of vegetation
- Establishment of suitable laydown areas for material and installation of temporary track solutions and drainage as necessary;
- Delivery of structures and materials to site;
- Construction of foundations and installation of new lattice towers and lines

- Excavation and construction of joint bays;
- Remedial works to reinstate the immediate vicinity of the works and any ground disturbed, to pre-existing use; and
- Temporary welfare units/compound.

3.4 Construction Environmental Management Plan (CEMP)

All construction activities will be undertaken in accordance with a CEMP which will define specific methods for environmental survey, monitoring and management throughout construction. A CEMP will be produced by the Principal Contractor and agreed with statutory stakeholders prior to the commencement of construction.

3.5 Programme

It is anticipated that construction of the project would take place over an approximately 2-3 year period following the granting of consents, although detailed programming of the works would be the responsibility of the Principal Contractor in agreement with SSEN Transmission.

4 DESCRIPTION OF SUBSTATION SITE OPTIONS

This section provides a high-level description of each substation site options considered at Stage 2. Section 6 below sets out the details of the sites considered throughout the site selection process.

Please also refer to the figures in Appendix A for additional information.

4.1 Site 1

Site 1 is located approximately 6.65 km northeast of Brechin at National Grid Reference (NGR) NO 56°46'30"N 2°33'06". The site comprises agricultural land with the River North Esk approximately 190 m to the north of the site boundary and the Gallery Burn approximately 823 m to the east of the site boundary. The land is identified as prime agricultural land. There are scattered agricultural and residential buildings within the surrounding area. The settlement of Marykirk is located 1 km northeast. Access from the A90 is via an unnamed road that borders the River North Esk.

4.2 Site 2

Site 2 is located approximately 4.42 km northeast of Brechin at NGR 56°45'49"N 2°34'59"W. The site comprises agricultural land with an area of ancient woodland located within the site and along the southwestern and northwestern boundary of the site. The land is identified as prime agricultural land. There are scattered agricultural and residential buildings within the surrounding area. Additionally, a single wind turbine is located approximately 200 m northwest of the site boundary, however this is separated from the site via a road and hedged boundary. Stracathro Hospital is located 1.5 km northeast. Stracathro Estates (commercial sports/hunting facility including salmon fishing, shooting and roe stalking) is located approximately 60 m north of the site boundary. Access from the A90 is via an unnamed road.

4.3 Site 16

Site 16 is located approximately 7.86 km northeast of Brechin at NGR NO 56°48'32"N 2°38'54"W. The site is the former RAF Edzell airfield and comprises a mix of previously developed hardstanding / industrial buildings and vacant greenspace. The northeastern corner of the site is identified as prime agricultural land. There are scattered agricultural and residential buildings within the surrounding area. An area of Woodland (Cleary Wood) is located within the site boundary towards the southern section of the site. The Black Burn watercourse runs through the southeastern portion of the site boundary. Access is via Lang Stracht Road.

5 DESCRIPTION OF ROUTE OPTIONS

Following the site selection process detailed further in Section 6, which discounted Site 1, a systematic routing process was carried out for Site 2 and Site 16 to identify a connection route that meets technical requirements, is cost effective, causes the least impact on the environment, and least disturbance to those living, working or visiting the area.

This section provides a high-level description of each route option that have been identified for Sites 2 and 6. Please also refer to the figures in Appendix A for additional information including the transmission network within the wider area.

5.1 Site 2 Route Options

This section describes the Tie-in and Tie-out Route Options which connect to Site 2.

5.1.1 Tie-In Route Options

All Tie-in Routes will travel northeast from the proposed substation before connecting with the existing transmission network where it travels parallel to the A90. The three Tie-in Route Options are identified:

- Tie-in 1 (TN1) – Approximately 3.5 km in length
- Tie-in 2 (TN2) – Approximately 5 km in length
- Tie-in 3 (TN3) – Approximately 2.5 km in length

The majority of the Tie-in Routes are located within Angus Council in eastern Scotland with the northernmost extents of the Tie-in Routes within Aberdeenshire.

The area is predominantly rural, comprising agricultural land interspersed with scattered residential properties and small settlements such as Gallery, Logie Pert, Pert, North Water Bridge and Stracathro. All Tie-in Routes are located across prime agricultural land and cross the River North Esk. There are scattered areas of woodland to the northeastern extents of TN1 and TN2.

The Tie-in Routes intersect local road networks which provide connectivity between the surrounding communities. TN3 also crosses a section of the A90 to the east of Stracathro Services.

5.1.2 Tie-Out Route Options

All Tie-out Routes will travel west from the proposed substation before connecting with the existing transmission network where it travels parallel to the A90. The three Tie-out Route Options are identified:

- Tie-Out 1 (TO1) – Approximately 7 km in length
- Tie-Out 2 (TO2) – Approximately 3 km in length
- Tie-Out 3 (TO3) – Approximately 2 km in length

All Tie-out Routes are located within Angus Council in eastern Scotland. The area is predominantly rural, comprising agricultural land interspersed with scattered residential properties and small settlements such as Templewood, Trinity and Brechin. All Tie-out Routes are located across prime agricultural land with areas of woodland. TO1 crosses southwest to the north of Brechin and including Brechin Golf Course within the boundary of the Route corridor.

The Tie-out Routes intersect local road networks which provide connectivity between the surrounding communities. TO1 also crosses sections of the B966 and A90.

5.2 Site 16 Route Options

This section describes the Tie-in and Tie-out Route Options which connect to Site 16.

5.2.1 Tie-In Route Options

All Tie-in Routes will travel southeast from the proposed substation before connecting with the existing transmission network where it travels parallel to the A90. The two Tie-in Route Options are identified:

- Tie-in A (TNA) – Approximately 4 km in length
- Tie-in B (TNB) – Approximately 3 km in length

TNA and the majority of TNB are located within Aberdeenshire Council area with southernmost extents of TNB within Angus Council. The area is predominantly rural, comprising agricultural land interspersed with scattered residential properties and small settlements such as Luthermuir, Inglismaldie and North Water Bridge. All Tie-in Routes are located across prime agricultural land. There are scattered areas of woodland across TNA and TNB.

The Tie-in Routes intersect local road networks which provide connectivity between the surrounding communities. Both TNA and TNB directly cross the A90.

5.2.2 Tie-Out Route Options

All Tie-out Routes will travel southwest from the proposed substation before connecting with the existing transmission network where it travels parallel to the A90. The two Tie-out Route Options are identified:

- Tie-Out C (TOC) – Approximately 6.5 km in length
- Tie-Out D (TOD) – Approximately 7 km in length

The majority of both Tie-out Routes are located within the Aberdeenshire Council area with the westernmost extents within Angus Council. The area is predominantly rural, comprising agricultural land interspersed with scattered residential properties and small settlements such as Stracathro, Inchbare and Edzell Woods. All Tie-out Routes are located across prime agricultural land with scattered areas of woodland.

The Tie-out Routes intersect local road networks which provide connectivity between the surrounding communities. Both TOC and TOD directly cross the B966.

6 OPTION SELECTION PROCESS

6.1 Overview

The options selection process has followed formal SSEN Transmission internal guidance to enable a consistent and rigorous selection of routes and sites for new substations, switching stations and converter stations.

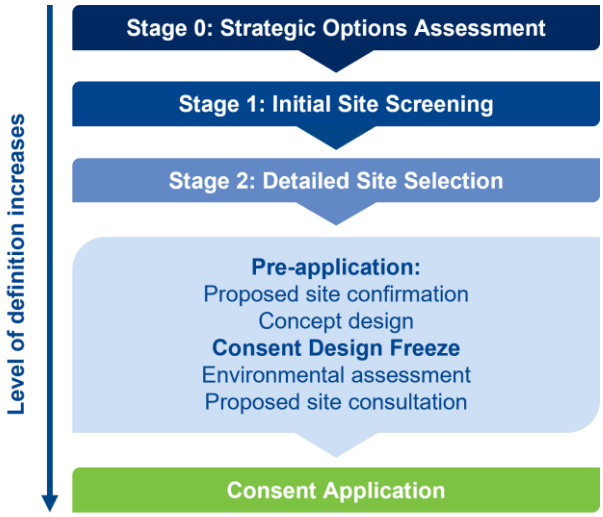
The site selection process has three key stages, each increasing in detail and definition. Technical, environmental, and cost considerations are brought together in a way which seeks the best balance in accordance with SSEN Transmission's Network Operator's Licence and the Electricity Act. This staged process leads to the identification of a finalised proposed substation site, which will be taken forward for planning.

For the OHL route, separate SSEN Transmission internal guidance has been followed to provide a consistent approach to routeing. The principal objective of the routeing process is to balance technical and cost considerations with environmental considerations, to select a proposed alignment which is economically viable, technically feasible, minimises impacts on important resources or features of the environment and reduces disturbance to those living in it, working in it, visiting it or using it for recreational purposes.

6.2 Substation Site Selection Process

An overview of the Substation Site Selection Process is provided in Error! Reference source not found..

Image 1 Overview of the Optioneering Process



Stage 0: Strategic Options Assessment: The starting point in all substation site selection projects is to establish the need for the project and to select potential engineering options that can deliver this need. This process will be triggered by the preparation of several internal assessments and documents.

Stage 1: Initial Site Screening: This stage seeks to identify technically feasible, economically viable and environmentally acceptable site options within a defined area. The search area may vary depending on terrain, other infrastructure, designated areas and features and connection options. The aim is to identify several potential sites which are initially assessed for suitability and to identify which of the identified sites can be shortlisted for further assessment.

Stage 2 Detailed Site Selection: This stage seeks to identify a potential substation site, which avoids where possible physical, environmental and amenity constraints, is likely to be acceptable to stakeholders and is economically viable, taking into account engineering and connection requirements.

6.3 OHL Route Selection Process

The route selection process follows similar principles to the site selection process. The guidance splits a project into the following principal routeing stages:

- Stage 0: Routeing Strategy Development.

- Stage 1: Corridor Selection.
- Stage 2: Route Selection.
- Stage 3: Alignment Selection.

The stages that are carried out can vary depending on the type, nature of and size of a project and consultation is carried out at each stage of the process.

Stage 0: Routeing Strategy Development: The routeing strategy development stage seeks to set out the overall approach to the routeing study, the methods which will be adopted to identify, appraise and select options at each stage, and the overall consultation strategy. It will also highlight any departures from the Routeing Guidelines that are required.

Stage 1: Corridor Selection: The corridor selection stage seeks to identify a series of linear areas (corridors) capable of providing a continuous connection between the defined connection points and delivering the required transmission connection. Due to the close proximity of the two connection locations, this project did not undertake Stage 1 – Corridor Selection, rather went straight to Stage 2 – Route Selection.

Stage 2: Route Selection: The route selection stage seeks to identify a preferred route within the wider corridor area.

Stage 3: Alignment Selection: The alignment selection will seek to identify an alignment within the chosen preferred route and to define the access arrangements adapted in terms of, for example, the nature and extent of temporary and/or permanent tracks and road improvements. This stage will be subject to further study and consultation.

6.4 Appraisal Methodology

Appraisal of Site and Route Options has involved systematic consideration against the following environmental, technical and economic topic areas, as specified in the SSEN Transmission guidance:

Environmental

- Natural Heritage (Designations, Protected Species, Habitats, Ornithology and Geology, Hydrogeology and Hydrology);
- Cultural Heritage (Designations and Cultural Heritage Assets);
- People (Proximity to Settlements, Visual and Physical Effects);
- Landscape and Visual (Designations, Character and Visual Impact); and
- Land Use (Agriculture, Forestry and Recreation).

Technical

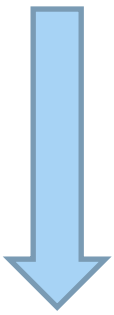
- Environmental Design (e.g. altitude, route complexity, length);
- Topography (e.g. terrain, waterbodies, slope);
- Ground Conditions (e.g. peat, rock and potential for flooding);
- Access and Existing Infrastructure (e.g. existing road network and access tracks);
- Existing Network (e.g. connectivity and outages); and
- Operational (e.g. maintenance, flexibility for future development, and faults).

Cost

- Construction;
- Diversions;
- Public Road Improvements;
- Felling; and
- Land Assembly.

A Red, Amber, Green 'RAG' rating has been applied to each subject area indicating potential effects. This rating is based on a four-point scale shown in Image 2 below.

Image 2 RAG Ratings

Performance	Appraisal
Most Preferred  Least Preferred	No potential for the infrastructure design development to be constrained
	Low potential for the infrastructure design development to be constrained
	Moderate potential for the infrastructure design development to be constrained
	High potential for the infrastructure design development to be constrained

The overall objective throughout the appraisal has been to take full consideration of all environmental, engineering and economic factors to minimise any potential adverse impacts on the environment whilst taking into account technical and cost considerations.

7 SUBSTATION SITE OPTIONS ASSESSMENT

7.1 Stage 0: Strategic Options Assessment

Following the establishment of the need for the proposed development as detailed in Section 2 above, the following criteria was developed to inform the identification of sites at Stage 0:

- A site, on predominantly flat ground (with a gradient of no more than 15%), large enough to accommodate a site substation platform of notionally (500m x 500m), with additional land (approx. 200m x 80m) to accommodate sustainable drainage, landscaping structures and features, land for BNG, internal access, and land for construction activities (site compounds, materials storage, equipment laydown).
- A site capable of being accessed by technically feasible, economically viable and environmentally acceptable future connection options. (see Section 2.3 below).
- A site which is within 10 km of the existing Brechin 132kV substation.
- A site which avoids areas of "high amenity value" interpreted as being sites designated for their natural or cultural heritage value at international and national levels.
- A site which avoids impacting existing and future planned infrastructure (other transmission projects, roads, railways, communications, wind farms and pipelines) (in the case of underground pipelines, allowing for a buffer of no less than 100 m from any existing assets).
- A site which can mitigate where possible hazards, neighbouring hazardous land uses, and potential soil contamination or pollution.
- A site which is not vulnerable to flood risk (climate adjusted 1:200, as defined by Scottish Environment Protection Agency) or subsidence.
- A site which avoids residential and other properties, and which is capable of being substantially screened from view by properties in the vicinity and locations which are used by the local community.
- A site which is capable of being accessed from local roads allowing for local road improvements.

The outcome of the strategic options assessment informed the identification of sites to take forward as part of the Stage 1: Initial Site Screening Stage.

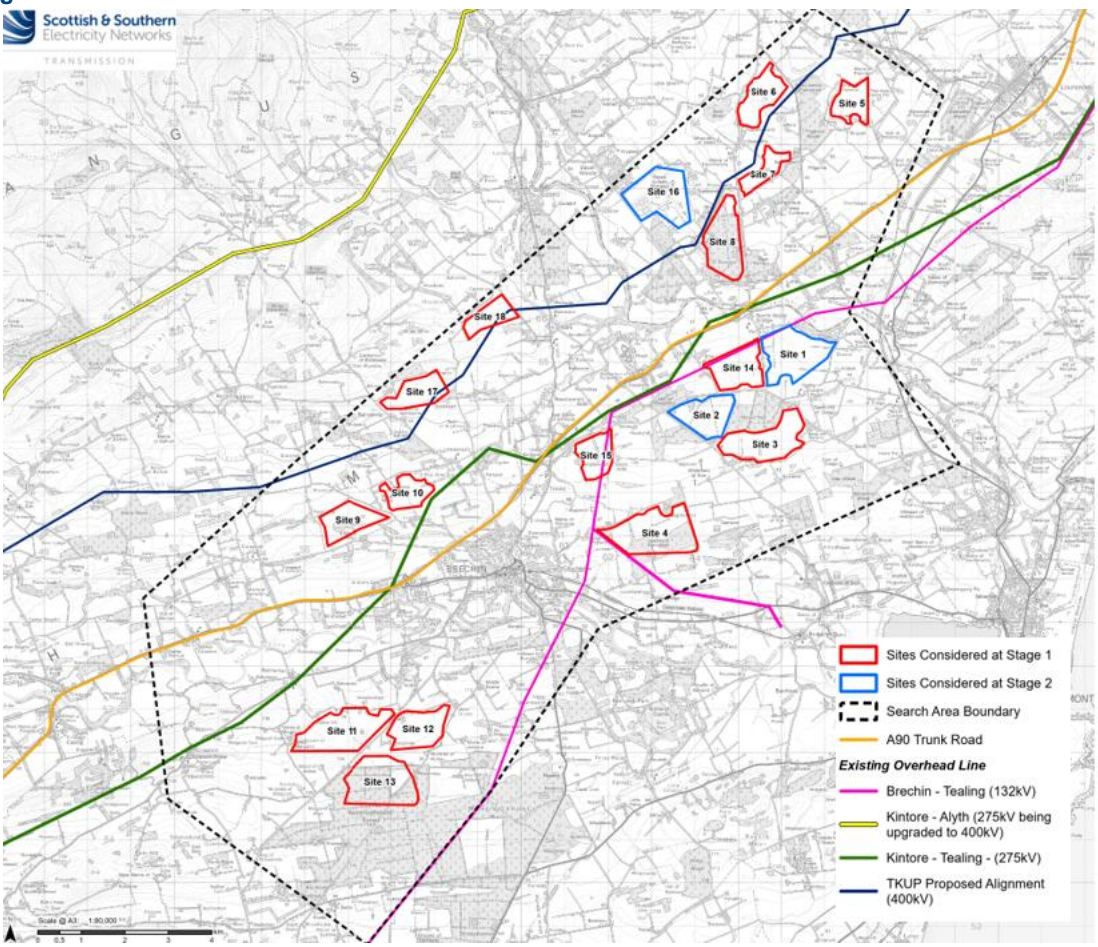
7.2 Stage 1: Initial Site Screening

A search area was applied to the existing Brechin 132kV Substation, as shown by the dashed line in Image 3 below, which corresponds to the likely economic maximum length for a direct connection between the proposed new substation and existing infrastructure in this area. High-level Suitability Multi-Criteria Analysis (MCA) and Geographic Information System (GIS) tools were applied to the Area of Search, and eighteen site options were initially identified.

The eighteen initial sites were assessed for suitability via site walkovers and desk studies, and early Red, Amber, Green (RAG) matrix scoring was undertaken for the site options, scoring for technical, environmental and economic aspects. This led to ten site options being brought forward for assessment at Stage 1: Sites 1, 2, 3, 4, 9, 14, 15, 16, 17 and 18.

Image 3 below shows the initial eighteen sites identified at Stage 1 along with the existing and proposed transmission network. The preferred substation sites take forward for assessment at Stage 2 (Sites 1, 2 and 16) are identified as blue sites.

Image 3 Initial sites identified



7.3 Stage 2: Detailed Site Selection

The site selection appraisal conducted in Stage 1, identified that Sites 1, 2 and 16 were recommended to be taken forwards into the detailed assessment in Stage 2.

A summary outlining the key findings of the detailed constraints assessment of each of option is set out below. Please also refer to the figures in Appendix A for additional information.

7.3.1 Site 1

Natural Heritage

- Site 1 is located within 5km of the Montrose Basin, which is designated as a Ramsar site, Special Protection Area (SPA), Special Area of Conservation (SAC) and Site of Special Scientific Interest (SSSI). The site is designated for its bird species and habitats.
- Site 1 is the most ecologically sensitive due to the habitats and potential for protected species within the site. There is potential for bat roost suitability in the mature trees across Site 1, there are hedgerows associated with ditches throughout the site which offer potential wildlife corridors, and it is possible that otter commute along ditches.
- There is the potential for European Protected Species (EPS) and UK Biodiversity Action Plan (UKBAP) protected species within the site.
- Site 1 may impact habitats used by Schedule 1 birds for roosting and foraging. The risk that the project could compromise the conservation status and population size of these species cannot be ruled out without further survey.
- There are no named watercourses within the boundary of Site 1; however, the River North Esk is approximately 150m to the northeast. Site 1 is located within a Drinking Water Protection Area and over a moderately productive aquifer.

Cultural Heritage

- There are no designated heritage sites within the site boundary; however, there are three scheduled monuments within 2 km of Site 1: Marykirk Church (SM5936); Church of Pert (SM2989); and, Brae of Pert (SM6378). There is one non-designated heritage asset within the site boundary.
- There is a class C listed West Gates Gallery (LB11169) building, approximately 60 m from the northern boundary of Site 1. A Class A listed building, 'gallery' (LB11165), is approx. 140m to the northeast.

Landscape and Visual

- There are no nationally or regionally designated landscape sites or parks within Site 1.
- The following Landscape Character Types (LCT) are within the Site 1 boundary: LCT 384: Broad Valley Lowlands – Tayside, and LCT 387: Dipslope Farmland. While the substation would occupy a relatively small footprint in relation to the wider extent of these LCTs, its visibility and contrast with the surrounding landscape could result in localised effects on landscape character. In addition, there is potential for cross-boundary effects between the two LCTs.
- There are multiple agricultural/residential (mixed use) buildings scattered around the Site 1 boundary, with the closest settlement being Marykirk, approximately 1km northeast. The A90 is situated approximately 750m to the northwest. There are no recreational routes near or within the Site.

Land Use

- Site 1 is within an area containing prime agricultural land including a classification of up to Class 2: 'Land capable of producing a wide range of crops' and the land is primarily used for agricultural purposes.
- Site 1 is within an area identified as Class F2: 'Land with very good flexibility for the growth and management of tree crops' forestry; however, there is no evidence of commercial forestry from aerial imagery.
- There are no public footpaths or national cycle routes within or nearby Site 1. The site lies close to the banks of the River North Esk, located approximately 550 m to the north, which supports recognised salmon fishing.

Planning

- The substations would be considered part of a National Development under the NPF4's National Spatial Strategy for Scotland's classifications of Strategic Renewable Electricity Generation and Transmission Infrastructure. There are no national or local planning policies identified which would be contravened by Site 1.
- There are no planning applications which would be inconsistent with the development of Site 1.

RAG Matrix Summary

Table 7.1 below provides an overview of the environmental appraisal of the route options.

Table 7.1 Site 1 - Environmental RAG Rating Summary Table

		Site 1
Natural Heritage	Designation	
	Protected Species	
	Habitats	
	Ornithology	
	Hydrology/ Geology	
Cultural Heritage	Designations	
	Cultural Heritage Assets	
Landscape and Visual	Designation	
	Landscape Character	
	Visual	
Land Use	Agriculture	
	Woodland/ Forestry	
	Recreation	
Planning	Policy	
	Proposals	

7.3.2 Site 2

Natural Heritage

- Site 2 is located within 5km of the Montrose Basin, which is designated as a Ramsar site, SPA, SAC and SSSI. The site is designated for its bird species and habitats. There are areas of long-establish plantation origin (LEPO) woodland within the site boundary as designated within the 1860 Ancient Woodland Inventory (AWI).
- It was noted during the site walkover that Site 2 was previously used as a runway, and the habitats are evidently highly disturbed within the site.
- There is the potential for EPS and UKBAP protected species within the site.
- Site 2 may impact habitats used by Schedule 1 birds for roosting and foraging. The risk that the project could compromise the conservation status and population size of these species cannot be ruled out without further survey.
- There are no named watercourses within the boundary of Site 2. Site 2 is located within a Drinking Water Protection Area and over a moderately productive aquifer.

Cultural Heritage

- There are no designated heritage sites within the site boundary; however, there are three scheduled monuments within 2 km of Site 2: Roman Camp (SM2303); Cairn (SM6364); and, Brae of Pert (SM6378). There are two non-designated heritage assets within the site boundary.
- There are no listed buildings or conservation areas within 2 km of Site 2.

Landscape and Visual

- There are no nationally or regionally designated landscape sites or parks within Site 2.
- The following LCT are within the Site 2 boundary: LCT 387: Dipslope Farmland. While the substation would occupy a relatively small footprint in relation to the wider extent of these LCTs, its visibility and contrast with the surrounding landscape could result in localised effects on landscape character.
- There are agricultural/ residential (mixed use) buildings to the north and south of the site boundary. Stracathro services and the A90 are approximately 1km to the northwest, with Stracathro Hospital approximately 1.5km in the same direction. There are no recreational routes near or within the site.

Land Use

- Site 2 is within an area containing prime agricultural land including a classification of up to Class 3.1: 'Land capable of producing consistently high yields of a narrow range of crops and/ or moderate yields of a wider range. Short grass leys are common' and the land is primarily used for agricultural purposes.
- Site 2 is within an area identified as Class F2: 'Land with very good flexibility for the growth and management of tree crops' forestry; however, there is no evidence of commercial forestry from aerial imagery.
- There are no public footpaths or national cycle routes within or nearby Site 2 and there are no known areas used for commercial highland sports within the site. northeast. Stracathro Estates, used for commercial sports/hunting facility including salmon fishing, shooting and roe stalking, is located approximately 60 m north of the site boundary.

Planning

- The substations would be considered part of a National Development under the NPF4's National Spatial Strategy for Scotland's classifications of Strategic Renewable Electricity Generation and Transmission Infrastructure. There are no national or local planning policies identified which would be contravened by Site 2. While there is an area of LEPO within the site, it is not semi-natural ancient woodland (category 1a or 2a of the AWI). In addition, NPF4 identifies ancient woodland as "continuous woodland habitat since at least 1750" (page 144) and therefore Policy 6 (b) (i) does not apply.
- There is approved planning consent for the construction of four new houses directly to the south of Site 2 at Clouds Cottage (24/00260/FULL) as well as an approved section 36 consent for a battery energy storage development approximately 350m southwest of the site.

RAG Matrix Summary

Table 7.2 below provides an overview of the environmental appraisal of the route options.

Table 7.2 Site 2 - Environmental RAG Rating Summary Table

		Site 2
Natural Heritage	Designation	
	Protected Species	
	Habitats	
	Ornithology	
	Hydrology/ Geology	
Cultural Heritage	Designations	
	Cultural Heritage Assets	
Landscape and Visual	Designation	
	Landscape Character	
	Visual	
Land Use	Agriculture	
	Woodland/ Forestry	
	Recreation	
Planning	Policy	
	Proposals	

7.3.3 Site 16

Natural Heritage

- Site 16 is located within 5km of the Eslie Moss SSSI (designated for wetlands) and the Gannochy Gorge SSSI (designated for invertebrates and non-vascular plants). There are areas of LEPO woodland within the site boundary as designated within the 1860 AWI.
- Site 16 was previously under use as RAF Edzell with a majority of the site still hardstanding with industrial use with any potential habitats also being highly disturbed. Site 1 may impact habitats used by Schedule 1 birds

for roosting and foraging. The risk that the project could compromise the conservation status and population size of these species cannot be ruled out without further survey.

- There is the potential for EPS and UKBAP protected species within the site.
- Site 16 may impact habitats used by Schedule 1 birds for roosting and foraging. The risk that the project could compromise the conservation status and population size of these species cannot be ruled out without further survey.
- The Black Burn runs through the southeast section of Site 16, heading northwest then turning northeast for approximately 680m. The Black Burn is heavily modified and has been undergrounded through a large section of the site. Another unnamed burn comes within approximately 40m of the site boundary directly to the south. Site 16 is located within a Drinking Water Protection Area and over a moderately productive aquifer.

Cultural Heritage

- There are no designated heritage sites within the site boundary; however, there are two scheduled monuments within 2 km of Site 16: Barrow (SM4444); and, Cairn (SM4823). There are multiple non-designated heritage asset within the site boundary associated with the historic use of the site.
- There are no listed buildings or conservation areas within 2 km of Site 16.

Landscape and Visual

- There are no nationally or regionally designated landscape sites or parks within Site 16.
- The following LCT are within the Site 16 boundary: LCT 22: Broad Valley Lowlands – Aberdeenshire. While the substation would occupy a relatively small footprint in relation to the wider extent of these LCTs, its visibility and contrast with the surrounding landscape could result in localised effects on landscape character.
- There are agricultural/ residential (mixed use) buildings to the north and south of the site boundary. The A90 is approximately 2 km to the south. There are no recreational routes near or within the site.

Land Use

- Site 16 is not within an area containing prime agricultural land. The land within Site 16 is classified as Class 3.2: 'Land capable of average production though high yields of barley, oats and grass can be obtained. Grass leys are common'; however, the land is used for industrial and agricultural purposes.
- Site 16 is within an area identified as Class F2: 'Land with very good flexibility for the growth and management of tree crops' forestry; however, there is no evidence of commercial forestry from aerial imagery.
- There are no public footpaths or national cycle routes within or nearby Site 16 and there are no known areas used for commercial highland sports.

Planning

- The substations would be considered part of a National Development under the NPF4's National Spatial Strategy for Scotland's classifications of Strategic Renewable Electricity Generation and Transmission Infrastructure. There are no national or local planning policies identified which would be contravened by Site 16. While there is an area of LEPO within the site, it is not semi-natural ancient woodland (category 1a or 2a of the AWI). In addition, NPF4 identifies ancient woodland as "continuous woodland habitat since at least 1750" (page 144) and therefore Policy 6 (b) (i) does not apply.
- There are no planning applications which would be inconsistent with the development of Site 16.

RAG Matrix Summary

Table 7.3 below provides an overview of the environmental appraisal of the route options.

Table 7.3 Site 16 - Environmental RAG Rating Summary Table

		Site 16
Natural Heritage	Designation	
	Protected Species	
	Habitats	
	Ornithology	
	Hydrology/ Geology	
Cultural Heritage	Designations	
	Cultural Heritage Assets	
Landscape and Visual	Designation	
	Landscape Character	
	Visual	
Land Use	Agriculture	
	Woodland/ Forestry	
	Recreation	
Planning	Policy	
	Proposals	

8 ROUTEING OPTIONS ASSESSMENT

8.1 Stage 0: Routeing Strategy Development

The routeing strategy development stage seeks to set out the overall approach to the routeing study, the methods which will be adopted to identify, appraise and select options at each stage, and the overall consultation strategy. It will also highlight any departures from the Routeing Guidelines that are required.

The following key requirements were identified for the identification of the route options:

- Connectivity between the existing transmission network and substation sites.
- Avoiding key settlements.
- Avoiding designated ecological and geological sites.

As Site 1 was discounted during the Stage 2 Site Selection process routes were identified only for Site 2 and Site 16. Three tie-in and tie-out route options were identified for Site 2, six routes in total, and two for Site 16, four routes in total. Overall, ten routes were assessed to connect the existing transmission network with the proposed substation sites.

The outcome of the strategic options assessment informed the identification of routes to take forward as part of the Stage 2: Route Selection.

8.2 Stage 1: Corridor Selection

Due to the close proximity of the two connection locations, this project did not undertake Stage 1 – Corridor Selection, rather went straight to Stage 2 – Route Selection.

8.3 Stage 2: Route Selection

A summary outlining the key findings of the detailed constraints assessment of each of option is set out below. Please also refer to the figures in Appendix A for additional information.

8.3.1 Site 2 Tie-ins

Natural Heritage

Ecology

No SPAs, SACs, SSSIs or Ramsar sites lie within any Tie-In Routes. All Tie-in Routes are less than 5 km from the Montrose Basin SPA, SSSI and Ramsar Site and approximately 5 km from the River South Esk SAC. Although no direct interaction is anticipated, this proximity warrants consideration during option refinement.

There are areas of LEPO woodland as designated within the AWI within both TN1 and TN3. Multiple blocks of ancient woodland are presents within TN1 and TN3, increasing the risk of habitat fragmentation.

Each Tie-in Route crosses multiple watercourses, including the River North Esk, which is Water Framework Directive (WFD) classified as having Poor ecological status and supports a recognised Atlantic Salmon fishery. Adverse effects on riparian habitats and fish populations are possible without mitigation.

Ornithology

Habitats suitable for several EPS and priority UK BAP bird species are, however, present within the Tie-in Routes. These include areas of semi-natural woodland and hedgerows that may support breeding populations of varied species.

Annex I woodland habitat has also been recorded locally, indicating a need for targeted ornithological survey to refine impact assessments and mitigation requirements.

Geology and Hydrology

Tie-in Routes overlie Class 2B moderately productive aquifers and lie within the Laurencekirk Drinking Water Protection Area (DWPA), indicating a moderate level of hydrogeological sensitivity.

Each Tie-in Routes crosses the River North Esk and associated tributaries. These crossings introduce a high potential for hydrological constraint.

Potential groundwater-dependent terrestrial ecosystems (GWDTE) are expected to occur within the study area; their extent and sensitivity will be confirmed as further data become available.

Cultural Heritage

Designations

There are no World Heritage Sites, Garden and Designed Landscapes or Inventory Battlefields within the proposed Tie-in Routes.

Brae of Pert, a schedule monument (SM6378) is located within both TN2 and TN3. The Church of Pert, scheduled monument (SM2989), is also located within TN3.

TN1 does not contain any scheduled monuments; however, the Brae of Pert and the Church of Pert are located within 1 km of the Route Option and therefore may have their settings compromised.

Cultural Heritage Assets

Hatton Dovecot (LB16284), which is a Category B listed building, is located within TN1 and the following listed buildings are located within 100m of the route boundary:

- Balmakewan House (LB16285), Category B
- Balmakewan House Dovecot (LB16286), Category B
- Gallery, West Gates (LB11169), Category C

There are no listed buildings within TN2; however, the following listed buildings are located within 100m of the route boundary:

- Balmakewan House (LB16285), Category B
- Balmakewan House Dovecot (LB16286), Category B
- Smithy And Smithy House, North Water Bridge (LB13738), Category C
- Upper North Water Bridge over the North Esk River, near Bridgend (LB13892), Category A
- North Water Bridge Post Office (LB11171), Category B
- Tollhouse, Pert Cottage, North Water Bridge (LB11172), Category C

The following listed buildings are located within TN3:

- Dubton Farmhouse (LB11187), Category C
- North Water Bridge Post Office (LB11171), Category B
- Tollhouse, Pert Cottage, North Water Bridge (LB11172), Category C

The following listed buildings are located within 100m of the route boundary of TN3:

- Smithy And Smithy House, North Water Bridge (LB13738), Category C
- Upper North Water Bridge over the North Esk River, near Bridgend (LB13892), Category A

There are 15 non-designated heritage assets within TN1, 13 within TN2 and 22 within TN3. Therefore, there is potential for previously recorded archaeological remains to survive within all Tie-In Routes. These remains could potentially be impacted during ground works, including the addition of the new OHL towers and associated ancillary works.

There are no Conservation Areas within the proposed Tie-in Routes.

Landscape and Visual

Designations

All Tie-in Routes are located within rural areas and do not intersect any nationally, regionally, or locally designated landscape sites. There are no national, regional, or country parks within the Tie-in Routes.

Landscape Character

The nearest village to the Tie-in Routes is Marykirk village, located approximately 0.25 km east of TN1 and 1.06 km east of TN2. Each tie-in passes through the following LCTs: LCT 387 – Dipslope Farmland; LCT 384 – Valleys/ Straths/ Glens/ Voes; and LCT 22 – Lowlands

These LCTs are sensitive to above-ground infrastructure, particularly within open or rolling landscapes where visibility is heightened. Localised blocks of woodland and undulating topography may provide partial screening opportunities, helping to limit the extent of wider impacts. However, the introduction of poles and conductors is likely to result in localised changes to the character of these areas.

Visual

TN1 encapsulates the settlement of Logie Pert within the route, with TN2 being within 1 km of Logie Pert from the eastern boundary. TN3 is within 1 km of Rosehill at its western boundary. Tie-in Routes are separated from Marykirk via the adjacent railway.

The Tie-in Routes are likely to result in the local intensification of electrical infrastructure in views from the A90 and local road network. However, impacts are likely to be very localised and affect only a short part of the longer journey in which a range of more notable developments are visible.

Land Use

All Tie-in Routes are located within prime agricultural land, with equal risk of constraint.

Tie-in Routes avoid any impacts on areas of commercial forestry with active permission for felling, but land is identified as having high capability for forestry (Classes F1 and F2).

There are no core paths within the Tie-in Routes, however all Tie-Ins cross the River North Esk which is utilised for recreational salmon fishing.

Planning

Adherence to National, Regional and Local planning policy will depend on avoiding or minimising potential constraints noted, particularly in relation to potential impacts on the natural environment given the presence of designated sites. The Tie-out Routes are unlikely to interact with other consented projects or active applications and is also unlikely to have significant impacts on any Local Development Plan allocations.

All Tie-in Routes fall under the classification of National Development within the NPF4 as part of Scotland's National Spatial Strategy for Strategic Renewable Electricity Generation. There are no relevant planning applications on or adjacent to any of the route options.

8.3.2 Site 2 Tie-Outs

Natural Heritage

Ecology

No SPAs, SACs, SSSIs or Ramsar sites lie within any Tie-out Routes. All Tie-out Routes are less than 3.5 km from the Montrose Basin SPA, SSSI and Ramsar Site. TO1 is 1.3 km, TO2 is 3.5 km and TO3 is 5.5km from the River South Esk SAC.

There are areas of LEPO woodland as designated within the AWI within all Tie-out Routes. Multiple blocks of ancient woodland are presents across the routes increasing the risk of habitat fragmentation.

TO1 crosses the Keithock Burn which is a tributary of the River North Esk. Adverse effects on riparian habitats and fish populations are possible without mitigation.

Ornithology

Habitats suitable for several EPS and priority UK BAP bird species are, however, present within the Tie-out Routes. These include areas of semi-natural woodland and hedgerows that may support breeding populations of varied species.

Annex I woodland habitat has also been recorded locally, indicating a need for targeted ornithological survey to refine impact assessments and mitigation requirements.

Geology and Hydrology

TO1 crosses the Keithock Burn which is a tributary of the River North Esk.

All three Tie-out Routes overlie Class 2B moderately productive aquifers and lie within the Laurencekirk DWPA, indicating a moderate level of hydrogeological sensitivity.

Potential GWDTE are expected to occur within the study area; their extent and sensitivity will be confirmed as further data become available.

Cultural Heritage

Designations

There are no World Heritage Sites, Garden and Designed Landscapes or Inventory Battlefields within the proposed Tie-out Routes.

Templewood Cairn, a scheduled monument (SM6364), is located within TO2 and within 1 km of the other Tie-out Routes. TO1 and TO3 do not contain any scheduled monuments; however, Brae of Pert (SM6378) is also located within 1 km of all of the Tie-out Routes.

Broomfield Prehistoric Enclosure (SM6365) is within 1 km of TO1, and Keithock Roman camp (SM2303) is located within 1 km of both TO2 and TO3

While there is no scheduled monument within TO1 and TO3, there is three scheduled monuments within 1km which may have their settings compromised.

Cultural Heritage Assets

Brechin Reservoir Commemorative Pedestal (LB5029) is a Category B listed building within TO1. There are no listed buildings within TO2 and TO3

There are two listed buildings within 200m of TO2:

- Templewood House (LB5047), Category B
- Templewood House, Stables (LB5048), Category B

There are two listed buildings within 500m of TO3:

- Stratcathro House Gate Piers (LB1707), Category B
- Dubton House (LB11187), Category C

There are nine non-designated heritage assets within TO1, four within TO2 and six within TO3. Therefore, there is potential for previously recorded archaeological remains to survive within all Tie-Out Routes. These remains could potentially be impacted during ground works, including the addition of the new OHL towers and associated ancillary works.

There are no Conservation Areas within the proposed Tie-out Routes.

Landscape and Visual

Designations

All Tie-out Routes are located within rural areas and do not intersect any nationally, regionally, or locally designated landscape sites. There are no national, regional, or country parks within the Tie-out Routes.

Landscape Character

The nearest settlements to the Tie-out Routes are Rosehill village, located approximately 2.11 km northeast of TO3, and Brechin village, located approximately 2.38 km southwest of TO2. TO1 overlaps the settlement boundary of Brechin village.

While the physical footprint of the proposed infrastructure is limited to poles and fittings, above-ground structures such as conductors are likely to influence views and visual amenity within the study area.

Each Tie-out passes through the following LCTs: LCT 387 – Dipslope Farmland and LCT 384 – Valleys/Straths/Glens/Voes.

These LCTs are sensitive to above-ground infrastructure, particularly within open or rolling landscapes where visibility is heightened. Localised blocks of woodland and undulating topography may provide partial screening opportunities, helping to limit the extent of wider impacts. However, the introduction of poles and conductors is likely to result in localised changes to the character of these areas.

Visual

The Tie-out Routes are in proximity to scattered residential properties, with TO2 and TO3 being in proximity to Marykirk village and Rosehill. TO1 encroaches on the Brechin village settlement boundary.

The Tie-out Routes are likely to result in the local intensification of electrical infrastructure in views from the A90 and local road network. However, impacts are likely to be very localised and affect only a short part of the longer journey in which a range of more notable developments are visible.

Land Use

All Tie-out Routes are located within prime agricultural land, with equal risk of constraint.

The Tie-out Routes avoid any impacts on areas of commercial forestry with active permission for felling, but land capability is identified as having high capability for forestry (Class F2).

There are multiple Core Paths intersecting TO1. There are no core paths within the TO1 and TO2, and no tie-outs intersect on any locations of commercial or highland recreation/sports.

Planning

Adherence to National, Regional and Local planning policy will depend on avoiding or minimising potential constraints noted, particularly in relation to potential impacts on the natural environment given the presence of designated sites. The Tie-out Routes are unlikely to interact with other consented projects or active applications and is also unlikely to have significant impacts on any Local Development Plan allocations.

All Tie-out Routes fall under the classification of National Development within the NPF4 as part of Scotland's National Spatial Strategy for Strategic Renewable Electricity Generation. There are no relevant planning applications on or adjacent to any of the route options.

Appraisal Summary

Table 8.1 below provides an overview of the environmental appraisal of the route options.

Table 8.1 Site 2 Routes - Environmental RAG Rating Summary Table

		Tie-In Routes			Tie-out Routes		
		TN1	TN 2	TN3	TO1	TO2	TO3
Natural Heritage	Designation						
	Protected Species						
	Habitats						
	Ornithology						
	Hydrology/ Geology						
Cultural Heritage	Designation						
	Cultural Heritage Assets						
People	Proximity to Dwellings						
Landscape and Visual	Designation						
	Landscape Character						
	Visual						

		Tie-In Routes			Tie-out Routes		
		TN1	TN 2	TN3	TO1	TO2	TO3
Land Use	Agriculture						
	Forestry						
	Recreation						
Planning	Policy						
	Proposals						

8.3.3 Site 16 Tie-Ins

Natural Heritage

Ecology

No SPAs, SACs or Ramsar sites lie within any Tie-in Routes. All Tie-in Routes are approximately 5 km from the Montrose Basin SPA, SSSI and Ramsar Site and 5 km from the River South Esk SAC. Although no direct interaction is anticipated, this proximity warrants consideration during option refinement.

The North Esk and West Water Palaeochannels SSSI is 260m from TNA and 1 km from TNB. As a geological SSSI direct impacts on the local geology associated with the designation should be avoided.

There are areas of LEPO woodland as designated within the AWI within both TNA and TNB. The multiple blocks of ancient woodland located within the Route Options increases the risk of habitat fragmentation. There is 74 hectares of LEPO as described within the 1750 Inventory located within TNA at Rosehill.

TNA crosses the Black Burn and the Luther water and TNB crosses the River North Esk and the Black Burn. The River North Esk and the Luther Water are identified as classified as having Poor ecological status while the Black Burn has a moderate status. Adverse effects on riparian habitats and fish populations are possible without mitigation.

Ornithology

Habitats suitable for several EPS and priority UK BAP bird species are, however, present within the Tie-in Routes. These include areas of semi-natural woodland and hedgerows that may support breeding populations of varied species.

Annex I woodland habitat has also been recorded locally, indicating a need for targeted ornithological survey to refine impact assessments and mitigation requirements.

Geology and Hydrology

Tie-in Routes overlie Class 2B moderately productive aquifers and lie within the Laurencekirk DWPA, indicating a moderate level of hydrogeological sensitivity.

Each Tie-in Route crosses or is adjacent to the River North Esk and associated tributaries. These crossings introduce a high potential for hydrological constraint.

Potential GWDTE are expected to occur within the study area; their extent and sensitivity will be confirmed as further data become available.

Cultural Heritage

Designations

There are no World Heritage Sites, Garden and Designed Landscapes or Inventory Battlefields within the proposed Tie-in Routes.

Witch Hillock, a schedule monument (SM4823) is located within TNA and Capo Plantation long barrow (SM4444) is located within TNB.

Cultural Heritage Assets

The following listed buildings are located within TNA:

- Hatton Mains House, Garden Walls and Garden Building and Steading (LB16281, LB16282 and LB16283), Category B
- Inglismaldie Castle (LB16287, Category B) and Garden Walls (LB16288, Category C)
- Luthermuir Main Street Telephone Box (LB18981), Category B
- Muirton House, Manse and Chapel (LB16290 and LB16291), Category C

Capo Farmhouse (LB9502, Category B) is located within TNB.

There are 37 non-designated heritage assets within TNA and 24 within TNB. Therefore, there is potential for previously recorded archaeological remains to survive within all Tie-In Routes. These remains could potentially be impacted during ground works, including the addition of the new OHL towers and associated ancillary works.

There are no Conservation Areas within the proposed Tie-in Routes.

Landscape and Visual

Designations

All Tie-in Routes are located within rural areas and do not intersect any nationally, regionally, or locally designated landscape sites. There are no national, regional, or country parks within the Tie-in Routes.

Landscape Character

The nearest village to the Tie-in Routes is Luthermuir which is within TNA and Edzell Woods which is approximately 250 m north of TNB.

TNA is located within LCT 22 – Lowlands and TNB crosses from LCT 22 through LCT 384- Valleys/ Straths/ Glens/ Voes.

These LCTs are sensitive to above-ground infrastructure, particularly within open or rolling landscapes where visibility is heightened. Localised blocks of woodland and undulating topography may provide partial screening opportunities, helping to limit the extent of wider impacts. However, the introduction of poles and conductors is likely to result in localised changes to the character of these areas.

Visual

TNA encapsulates Luthermuir within the route as well as Rosehill. TNB contains one residential property within the route but is located within 500 m of Stracathro and Edzell Woods.

The Tie-in Routes are likely to result in the local intensification of electrical infrastructure in views from the A90 and local road network. However, impacts are likely to be very localised and affect only a short part of the longer journey in which a range of more notable developments are visible.

Land Use

All Tie-in Routes are located within prime agricultural land, with equal risk of constraint.

Tie-in Routes avoid any impacts on areas of commercial forestry with active permission for felling, but land is identified as having high capability for forestry (Classes F1 and F2).

There are several core paths within the village of Luthermuir within TNA. In addition, the River North Esk which is crossed by TNB is utilised for recreational salmon fishing.

Planning

Adherence to National, Regional and Local planning policy will depend on avoiding or minimising potential constraints noted, particularly in relation to potential impacts on the natural environment given the presence of designated sites. The Tie-out Routes are unlikely to interact with other consented projects or active applications and is also unlikely to have significant impacts on any Local Development Plan allocations.

All Tie-in Routes fall under the classification of National Development within the NPF4 as part of Scotland's National Spatial Strategy for Strategic Renewable Electricity Generation. There are no relevant planning applications on or adjacent to any of the route options.

8.3.4 Site 16 Tie-Outs

Natural Heritage

Ecology

No SPAs, SACs or Ramsar sites lie within any Tie-out Routes. All Tie-out Routes are approximately 5 km from the Montrose Basin SPA, SSSI and Ramsar Site and 3 km from the River South Esk SAC. Although no direct interaction is anticipated, this proximity warrants consideration during option refinement.

The North Esk and West Water Palaeochannels SSSI is located within TOC and TOD. As a geological SSSI direct impacts on the local geology associated with the designation should be avoided.

There are areas of LEPO woodland as designated within the AWI within both TOC and TOD. The multiple blocks of ancient woodland located within the Route Options increases the risk of habitat fragmentation.

TOC and TOD cross the River North Esk, the Cruick Water, the West Water and the Whishop Burn and the tributaries. TOC also crosses the Keithock Burn. The Luther Water and River North Esk are classified as having poor ecological status while the Cruick and West Waters are of good condition. Adverse effects on riparian habitats and fish populations are possible without mitigation.

Ornithology

Habitats suitable for several EPS and priority UK BAP bird species are, however, present within the Tie-out Routes. These include areas of semi-natural woodland and hedgerows that may support breeding populations of varied species.

Annex I woodland habitat has also been recorded locally, indicating a need for targeted ornithological survey to refine impact assessments and mitigation requirements.

Geology and Hydrology

Tie-out Routes overlie Class 2B moderately productive aquifers and lie within the Laurencekirk DWPA, indicating a moderate level of hydrogeological sensitivity.

Each Tie-out Route crosses the River North Esk and associated tributaries. These crossings introduce a high potential for hydrological constraint.

Potential GWDTE are expected to occur within the study area; their extent and sensitivity will be confirmed as further data become available.

Cultural Heritage

Designations

There are no World Heritage Sites, Garden and Designed Landscapes or Inventory Battlefields within the proposed Tie-out Routes.

The following scheduled monuments are located within TOC:

- Capo Plantation long barrow (SM4444)
- Stracathro Roman fort and camp (SM2829)
- Westside unenclosed settlement (SM6368)
- Inchbare cursus/bank barrow (SM6373/ SM6374)
- Ballownie mound (SM6376)
- Keithock Roman camp (SM2303)

The following scheduled monuments are located within TOD:

- Gallows Knap barrow (SM6366)
- Westside barrows (SM6367)

Cultural Heritage Assets

The following listed buildings are located within TOC:

- Capo Farmhouse (LB9502), Category B
- Millden (LB17794, Category B) and Millden Bridge (LB17795), Category C
- Stracathro Parish Church and Churchyard (LB19826 and LB17790), Category C
- Stracathro Parish Mance, Outbuildings and Gates (LB17791, LB17792 and LB17793), Category C
- Newtonmill House (LB17808 and 12 other listed buildings), Category B to C
- Keithock House (LB5055, Categpry B), ornamental bridge and laundry (LB5051 and LB5056), Category C

The following listed buildings are located within TOD:

- Auchenreoch House (LB17798), Category B
- Arnhall House Garden And Retaining Walls (LB9494), Category C

There are 78 non-designated heritage assets within TNA and 24 within TNB. Therefore, there is potential for previously recorded archaeological remains to survive within all Tie-out Routes. These remains could potentially be impacted during ground works, including the addition of the new OHL towers and associated ancillary works.

There are no Conservation Areas within the proposed Tie-out Routes.

Landscape and Visual

Designations

All Tie-out Routes are located within rural areas and do not intersect any nationally, regionally, or locally designated landscape sites. There are no national, regional, or country parks within the Tie-out Routes.

Landscape Character

The nearest villages to the Tie-out Routes are Stracathro, Newtonmill and Inchbare which are located within TOC and Edzell Woods which is within TOD. The village of Edzell is located 100 m north of TOD.

TOC and TOD are located across LCT 22 LCT 22 – Lowlands and LCT 384- Valleys/ Straths/ Glens/ Voes. These LCTs are sensitive to above-ground infrastructure, particularly within open or rolling landscapes where visibility is heightened. Localised blocks of woodland and undulating topography may provide partial screening opportunities, helping to limit the extent of wider impacts. However, the introduction of poles and conductors is likely to result in localised changes to the character of these areas.

Visual

TOC encapsulates Stracathro, Newtonmill and Inchbare within the route and TOD covers the southern extents of Edzell Wood.

The Tie-in Routes are likely to result in the local intensification of electrical infrastructure in views from the A90 and local road network. However, impacts are likely to be very localised and affect only a short part of the longer journey in which a range of more notable developments are visible.

Land Use

All Tie-in Routes are located within prime agricultural land, with equal risk of constraint.

Tie-in Routes avoid any impacts on areas of commercial forestry with active permission for felling, but land is identified as having high capability for forestry (Classes F1 and F2).

There are several core paths within TOC and TOD. In addition, the River North Esk which is crossed by TOC and TOD is utilised for recreational salmon fishing.

Planning

Adherence to National, Regional and Local planning policy will depend on avoiding or minimising potential constraints noted, particularly in relation to potential impacts on the natural environment given the presence of

designated sites. The Tie-out Routes are unlikely to interact with other consented projects or active applications and is also unlikely to have significant impacts on any Local Development Plan allocations.

All Tie-out Routes fall under the classification of National Development within the NPF4 as part of Scotland's National Spatial Strategy for Strategic Renewable Electricity Generation. There are no relevant planning applications on or adjacent to any of the route options.

Appraisal Summary

Table 8.2 below provides an overview of the environmental appraisal of the route options.

Table 8.2 Site 16 Routes - Environmental RAG Rating Summary Table

		Tie-in Routes		Tie-out Routes	
		TNA	TNB	TOC	TOD
Natural Heritage	Designation				
	Protected Species				
	Habitats				
	Ornithology				
	Hydrology/ Geology				
Cultural Heritage	Designation				
	Cultural Heritage Assets				
People	Proximity to Dwellings				
Landscape and Visual	Designation				
	Landscape Character				
	Visual				
Land Use	Agriculture				
	Forestry				
	Recreation				
Planning	Policy				
	Proposals				

8.4 Stage 3: Alignment Selection

The alignment selection will seek to identify an alignment within the chosen preferred route and to define the access arrangements adapted in terms of, for example, the nature and extent of temporary and/or permanent tracks and road improvements. This stage will be subject to further study and consultation

9 NEXT STEPS

9.8 Public Consultation

A public consultation event is to take place to help inform the final selection of the proposed Substation Site and Route Options. The responses received from the consultation event, and those sought from statutory consultees and other key stakeholders will inform further consideration of the route options put forward, and the identification of a proposed alignment to take forward to detailed design.

A Report on Consultation will be produced which will document the consultations received, and the decisions made in light of these responses.

9.9 Questions for Consideration by Consultees

When providing your comments and feedback, SSEN Transmission would be grateful for your consideration of the questions below:

- Have you any comments regarding the location of the proposed substation sites and associated route options?
- Are there any additional factors or environmental features that you would like to bring to the attention of the project team?
- Is there anything specific you would like to raise in relation to the project which will impact on the development process to deliver this essential connection project to support Government net-zero targets?

9.10 Environmental Assessment and Submission

The outcome of the site selection and alignment process will be the development of a proposed new substation and OHL connection. This may be consented either wholly under the Town and Country Planning (Scotland) Act 1997 (the Planning Act), or through a split consenting approach, whereby the substation is consented under the Planning Act and the OHL under Section 37 of the Electricity Act 1989.

The application is likely to be subject to Environmental Impact Assessment (EIA) requirements under the Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017 or the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017. This may result in further design revisions to the Proposed Development to reflect the findings and outcomes of the EIA process.

Further public and stakeholder consultation will be undertaken to present our proposals ahead of submitting any necessary applications.

APPENDIX A: FIGURES

Scottish & Southern Electricity Networks

TRANSMISSION

Site 1
Site 2
Site 3
Site 4
Site 5
Site 6
Site 7
Site 8
Site 9
Site 10
Site 11
Site 12
Site 13
Site 14
Site 15
Site 16
Site 17
Site 18

Scale @ A3: 1:80,000

0 0.5 1 2 3 4 km

Legend

- Sites Considered at Stage 1
- Sites Considered at Stage 2
- Search Area Boundary
- A90 Trunk Road

Existing Overhead Line

- Brechin - Tealing (132kV)
- Kintore - Alyth (275kV being upgraded to 400kV)
- Kintore - Tealing - (275kV)
- TKUP Proposed Alignment (400kV)

Project No: LT542

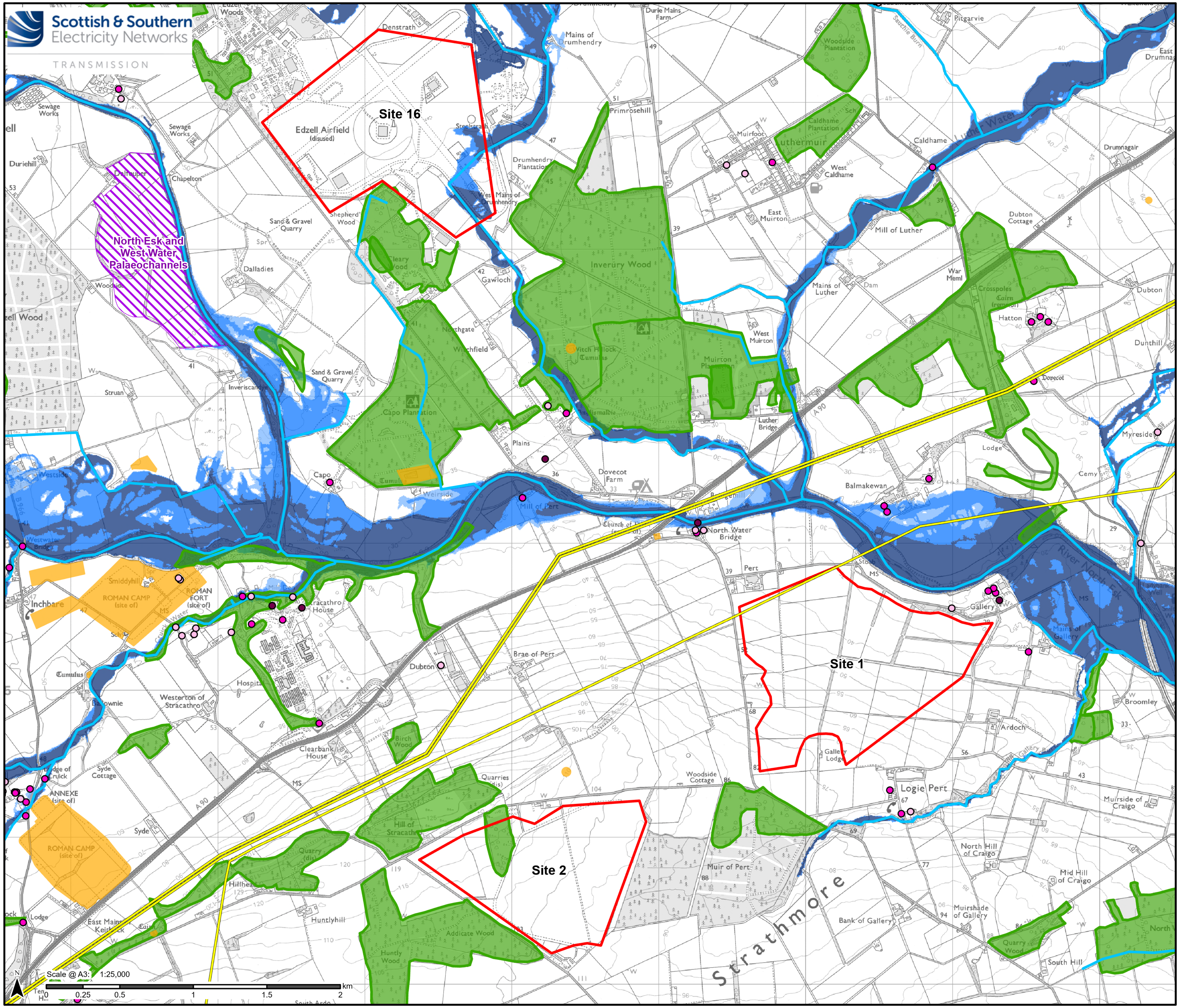
Project: SSEN East Coast 275kV

Title:

Substation Site Selection

Drawn by: CDICKSON Date: 06/05/2026

Drawing: Figure 1



Legend

- Site Option Boundary
- Ancient Woodland Inventory
- Scheduled Monument
- Site of Special Scientific Interest (SSSI)
- Watercourse
- Existing Overhead Line

Listed Building

- A
- B
- C

River Flooding

- High Likelihood
- Medium Likelihood
- Low Likelihood

Project No:

Project: SSEN East Coast 275kV

Title:

Consultation

Drawn by: CDICKSON Date: 30/04/2026

Drawing: Figure 2

Scottish & Southern Electricity Networks

TRANSMISSION

Site 2

Scale @ A3: 1:35,062

0 0.25 0.5 1 1.5 2 km

Legend

- Potential Site Boundary

Route Name

- Tie-In 1
- Tie-In 2
- Tie-In 3
- Tie-out 1
- Tie-out 2
- Tie-out 3

Existing Infrastructure

- A90 Trunk Road

Existing Overhead Line

- Brechin - Tealing (132kV)
- Kintore - Tealing - (275kV)
- TKUP Proposed Alignment (400kV)

Project No: LT542

Project: SSEN East Coast 275kV

Title: Potential Route Options [Site 2]

Drawn by: CDICKSON Date: 06/05/2026

Drawing: Figure 3

Scottish & Southern Electricity Networks

TRANSMISSION

Site 16

Scale @ A3: 1:35,000

0 0.25 0.5 1 1.5 2 km

Legend

Potential Site Boundary

Route Name

Tie-in A

Tie-in B

Tie-out C

Tie-out D

Existing Infrastructure

A90 Trunk Road

Existing Overhead Line

Brechin - Tealing (132kV)

Kintore - Alyth (275kV being upgraded to 400kV)

Kintore - Tealing - (275kV)

TKUP Proposed Alignment (400kV)

Project No: LT542

Project: SSEN East Coast 275kV

Title: Potential Route Options [Site 16]

Drawn by: CDICKSON Date: 06/05/2026

Drawing: Figure 4

Scottish & Southern Electricity Networks
TRANSMISSION

North Esk and West Water Palaeochannels SSSI

Site 2

Montrose Basin SPA

Dun's Dish SSSI

River South Esk SAC

Scale @ A3: 1:35,000

0 0.25 0.5 1 1.5 2 km

Legend

- Potential Site Boundary

Route Name

- Tie-In 1
- Tie-In 2
- Tie-In 3
- Tie-out 1
- Tie-out 2
- Tie-out 3

Constraints

- Watercourse
- A90 Trunk Road
- Core Paths

Existing Overhead Line

- Brechin - Tealing (132kV)
- Kintore - Tealing - (275kV)
- TKUP Proposed Alignment (400kV)
- Scheduled Monuments
- RAMSAR Wetlands of International Importance
- Special Protection Areas (SPA)
- Special Areas of Conservation (SAC)
- Sites of Special Scientific Interest (SSSI)

Ancient Woodland Inventory (AWI)

- Ancient (of semi-natural origin)
- Long-Established (of plantation origin)

Listed Buildings by Category

- A
- B
- C

Project No: LT542

Project: SSEN East Coast 275kV

Title: Environmental Constraints [Site 2]

Drawn by: CDICKSON Date: 06/05/2026

Drawing: Figure 5

Scottish & Southern Electricity Networks
TRANSMISSION

Site 16
Gannochy Gorge SSSI
Eslie Moss SSSI
North Esk and West Water Palaeochannels SSSI
North Esk and West Water Palaeochannels SSSI
Burn of Thornyhill
Black Burn
River North Esk
Whishop Burn
Garie Burn
West Water
Cruick Water
Keithock Burn
Sauchie Burn
Downie Burn
Luther Water
Gallery Burn
Burn of Balmakelly
Strathmore

Scale @ A3: 1:35,000
0 0.25 0.5 1 1.5 2 km

Legend

- Potential Site Boundary

Route Name

- Tie-in A
- Tie-in B
- Tie-out C
- Tie-out D

Constraints

- Watercourse
- A90 Trunk Road
- Core Paths

Existing Overhead Line

- Brechin - Tealing (132kV)
- Kintore - Alyth (275kV being upgraded to 400kV)
- Kintore - Tealing - (275kV)
- TKUP Proposed Alignment (400kV)

Heritage

- Scheduled Monuments

Designated Sites

- Sites of Special Scientific Interest (SSSI)

Ancient Woodland Inventory (AWI)

- Ancient (of semi-natural origin)
- Long-Established (of plantation origin)
- Other

Listed Buildings by Category

- A
- B
- C

Project No: LT542
Project: SSEN East Coast 275kV

Title: Environmental Constraints [Site 16]

Drawn by: CDICKSON Date: 06/05/2026

Drawing: Figure 6