APPENDIX 6.3: SCOPING REPORT

Scottish & Southern Electricity Networks

TRANSMISSION

Greens Substation

Environmental Impact Assessment

Scoping Report

June 2024

Scottish & Southern Electricity Networks

TRANSMISSION

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Scottish & Southern Electricity Networks
TRANSMISSION

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Glossary

Term	Definition
Air-Insulated Switchgear (AIS)	The apparatus used for controlling, regulating and switching on or off the electrical circuit in the electrical power system. Air Insulated Switchgear (AIS) adopts the air as the insulation media. An AIS substation is constructed with switchgear which relies on open air components, which can require large clearance areas for operation and safety, which takes up a larger area of land than Gas Insulated Switchgear (GIS).
Air Quality Management Areas (AQMA)	Geographical areas where air pollution levels are, or are likely to, exceed national air quality objectives.
Alignment	A centre line of an overhead line (OHL), along with location of key angle structures.
Ambient Noise	The all-encompassing noise level measured in LAeq,T (total equivalent noise level over measurement period). The Ambient Noise Level incorporates background sounds as well as the industrial source noise under consideration.
Amenity	The natural environment, cultural heritage, landscape and visual quality. Also includes the impact of SSEN Transmission's works on communities, such as the effects of noise and disturbance from construction activities.
Annual Average Daily Flow (AADF)	The average over a full year of the number of vehicles passing a point [in/on] the road network each day.
Applicant	A person who makes a formal application for something, in this case, SSEN Transmission.
Biodiversity Net Gain (BNG)	A way to contribute to the recovery of nature while developing land. It is making sure the habitat for wildlife is in a better state than it was before development.
Biodiversity Units (BU)	A unit of account. Metrics assign all habitats a unit value according to their relative biodiversity value. The scores assigned to habitats vary between the different metrics.
Birds of Conservation Concern (BoCC)	Birds of Conservation Concern (BoCC) provides the status of all regularly occurring birds in the UK, Channel Islands and Isle of Man. The current version is BoCC 5. Birds of highest conservation concern will appear on the Red List.
British Geological Survey (BGS)	UK's main provider of objective and authoritative scientific data, information and knowledge to help society understand the Earth.
Construction Environmental Management Plan (CEMP)	A document to address how potentially adverse impacts associated with the Proposed Development will be managed during construction.
Consultation	The dynamic process of dialogue between individuals or groups, based on a genuine exchange of views and, normally, with the objective of influencing decisions, policies or programmes of action.
Drinking Water Protected Area (DWPA)	DWPA's are where water is abstracted to provide water for human consumption and includes surface water (from rivers or reservoirs) and groundwater.
Effect	The direct or indirect physical consequence(s) of the Proposed Development on receptors, under each of the various topic headings.
Engagement	The establishment of effective relationships with individuals or groups.
Environmental Impact Assessment (EIA)	A formal process set down in Town & Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017 used to systematically identify, predict and assess the likely significant environmental impacts of a proposed project or development.
Flood Risk Assessment (FRA)	Document that reviews the risk of flooding from a development.
Gardens and Designed Landscapes (GDLs)	The Inventory of Gardens and Designed Landscapes lists those gardens or designed landscapes which are considered by a panel of experts to be of national importance.

Term	Definition
General Environmental Management Plan (GEMP)	A series of documents to address how potentially adverse impacts associated with the Proposed Development will be managed to mitigate negative environmental effects and ensure compliance with relevant regulations.
Groundwater Dependant Terrestrial Ecosystem (GWDTE)	Groundwater Dependent Terrestrial Ecosystems (GWDTE) are wetlands which critically depend on groundwater flows or chemistries. They are safeguarded by the Water Framework Directive (WFD) and are sensitive to hydrological and ecological changes caused by developments.
Habitat	Term most accurately meaning the place in which a species lives, but also used to describe plant communities or agglomerations of plant communities.
Historic Environment Record (HER)	Sources of, and signposts to, information relating to landscapes, buildings, monuments, sites, places, areas and archaeological finds spanning more than 700,000 years. Based in mainly local authorities, they are used for planning and development control but also fulfil an educational role.
Historic Environment Scotland (HES)	Organisation responsible for investigating, caring for and promoting Scotland's historic environment.
Kilovolt (kV)	One thousand volts.
Land Capable of Agriculture (LCA)	The classification of land and its associated capability to support types of crops based on environmental and soil characteristics.
Landscape Character Type (LCT)	A landscape type that is characterised by its distinct, recognisable and consistent pattern of elements that makes one landscape different from another.
Listed Building	Building included on the list of buildings of special architectural or historic interest and afforded statutory protection under the 'Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997' and other planning legislation. Classified categories A – C.
Local Development Plan (LDP)	LDP's are usually prepared by the Local Planning Authority and set out the proposals for future development and use of land in their area.
Marine Protected Area (MPA)	MPAs are areas of the ocean established to protect habitats, species, and processes essential for healthy, functioning marine ecosystems.
Mitigation	Term used to indicate avoidance, remediation or alleviation of adverse impacts.
National Planning Framework 4 (NPF4)	The national spatial strategy for Scotland. It sets out the spatial principles, regional priorities, national developments and national planning policy. It replaces NPF3 and Scottish Planning Policy.
Noise Sensitive Receptors (NSR)	Noise sensitive receptors are defined as receptors which are potentially sensitive to noise and vibration. Examples include dwellings, hospitals, schools, community facilities.
Ordnance Survey (OS)	Great Britain's national mapping agency.
Overhead line (OHL)	An electric line installed above ground, usually supported by lattice steel structures or poles.
Preferred Site Option	The Site Option that is the preferred choice during Stage 2 – Detailed Site Selection based on environmental, engineering and cost perspectives.
Prime agricultural land	Agricultural land identified as being Class 1, 2 or 3.1 in the land capability classification for agriculture developed by Macaulay Land Use Research Institute (now the James Hutton Institute).
Private Water Supply (PWS)	A supply of water which does not come from a licensed water supplier.
Proposed Development	Refers collectively to all elements required to construct and operate the proposed 400 kV substation.

Term	Definition
Public Road Improvement (PRI)	Works required to improve public roads to enable appropriate access.
Ramsar	A wetland site designated to be of international importance under the Ramsar Convention.
Scheduled Monument	A monument which has been scheduled by the Scottish Ministers as being of national importance under the terms of the 'Ancient Monuments and Archaeological Areas Act 1979'.
Scottish Environment Protection Agency (SEPA)	Scotland's principal environmental regulator, protecting and improving Scotland's environment.
Site of Special Scientific Interest (SSSI)	A statutory designation made by NatureScot under the Nature Conservation (Scotland) Act 2004. Areas of land and water that are considered to best represent natural heritage in terms of their flora (i.e. plants), fauna (i.e. animals), and geology (i.e. rocks) and geomorphology (i.e. landform).
Site Options	Collective term for sites identified for consideration in the site selection process.
Special Area of Conservation (SAC)	An area designated under the EC Habitats Directive to ensure that rare, endangered or vulnerable habitats or species of community interest are either maintained at or restored to a favourable conservation status.
Special Landscape Areas (SLA)	Regionally valuable landscapes identified to protect and enhance landscape qualities and promote their enjoyment.
Special Protection Area (SPA)	An area designated under the Wild Birds Directive (Directive 79/409/EEC) to protect important bird habitats. Implemented under the Wildlife and Countryside Act 1981.
SSEN Transmission	Scottish and Southern Electricity Networks Transmission.
Stakeholders	Organisations and individuals who can affect or are affected by SSEN Transmission works.
Substation	A node on the network to allow safe control of the electricity network. This could include convergence of multiple circuits, transformation of voltage or other functions to maintain and operate the electricity network.
Super Grid Transformer (SGT)	A transformer which steps the voltage between different levels on the transmission network.
Synchronous Condenser	A component used to stabilise power networks during faults, through voltage recovery, and to provide short-circuit power and inertia by adjusting conditions on the grid.
UK Habitat Classification (UKHab)	Unified and comprehensive approach to classifying habitats.
Underground Cable (UGC)	An electric wire installed underground.
Volts	The international unit of electric potential and electromotive force.
Water Framework Directive (WFD)	The main aims of the Water Framework Directive (WFD) are to: prevent deterioration and enhance status of aquatic ecosystems, including groundwater, promote sustainable water use, reduce pollution, and contribute to the mitigation of floods and droughts.
Works	Constructing new transmission infrastructure such as substations, overhead lines, underground cables; major refurbishment of these; the dismantling and removal of any parts of the system; and ancillary works, which may include formation of access tracks, bridge and road improvements, tree cutting, drainage etc.
Zone of Influence (ZoI)	The maximum area in which disturbance from the Proposed Development can be expected.

Term	Definition
Zone of Theoretical Visibility (ZTV)	The area from which the Proposed Development is anticipated to be visible, in the absence of mitigation.

Executive Summary

This Scoping Report has been prepared by WSP UK Ltd on behalf of Scottish Hydro Electric Transmission plc (the Applicant) who, operating and known as Scottish and Southern Electricity Networks Transmission (SSEN Transmission), owns, operates and maintains the electricity transmission network across the north of Scotland and remote islands. In this Scoping Report, the Applicant and SSEN Transmission are used interchangeably unless the context requires otherwise.

The Applicant is proposing to submit an application for full planning permission under the Town and Country Planning (Scotland) Act 1997 (as amended)[1] for consent to construct and operate a new substation, which is referred to in this document as 'the Proposed Development'.

The Proposed Development would be located in Aberdeenshire, approximately 5 km to the west of New Deer, and 2.5 km to the south of Cuminestown (National Grid Reference NJ 819 476), and adjacent to Mains of Greens close to the B9170to the east.

The Proposed Development would cover an area of approximately 115 hectares (ha) and involve the installation of the 400 kV Substation, including temporary space for construction.

The Proposed Development is part of SSEN Transmission's Pathway to 2030 projects. These projects are part of a proposed major upgrade of the electricity transmission network across Great Britain to help deliver United Kingdom (UK) and Scottish Government climate change and energy security targets. These projects would connect UK based low carbon renewable electricity generation to areas of demand across the country, with the aim of building a cleaner, more secure and affordable energy system for homes and businesses across Great Britain.

Applications made under the Town and Country Planning (Scotland) Act 1997 (as amended) are subject to The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017[2] (hereafter referred to as the EIA Regulations). Although not of a type listed within Schedule 1 or Schedule 2 of the EIA Regulations, given the size and nature of the Proposed Development and its close association with other SSEN Transmission network projects, including the Beauly to Peterhead 400 kV Overhead Line, the Applicant has decided to undertake an Environmental Impact Assessment (EIA). The EIA will be supported by appropriately scoped surveys and specialist assessments, the results of which will be presented within an EIA Report. This will form part of an application to Aberdeenshire Council as a National Development under the Town and Country Planning (Hierarchy of Developments) (Scotland) Regulations 2009 (as amended).

This Scoping Report is provided to support a formal request under the EIA Regulations by the Applicant for a Scoping Opinion to determine the information to be provided within the EIA Report.

The Applicant invites consultees to comment on the following:

- What environmental information do you hold or are aware of that will assist in the EIA described here for the Proposed Development?
- Do you agree with the proposed approach for collection of baseline data, and that the range of surveys across particular topics is sufficient and appropriate to inform the assessment of environmental effects?
- Is there any other relevant existing baseline data that should be taken into account?
- Are there any key issues or possible effects which have been omitted?
- Do you agree with the list of issues to be scoped out, and the rationale behind the decision?

Responses to this Scoping Report should be directed to Aberdeenshire Council.

[1] Town and Country Planning (Scotland) Act 1997. Available at: https://www.legislation.gov.uk/ukpga/1997/8/section/46 [Accessed: August 2023].
[2] Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017 Available at: https://www.legislation.gov.uk/ssi/2017/102/contents/made [Accessed: August 2023].

When submitting a response to the Scoping Report, the Applicant would be grateful if you could also send a copy of your response to the address below:

Email to: chris.gardner@sse.com

OR

For the Attention of Chris Gardner

Consents & Environment Manager (East and Argyll Region)
Scottish Hydro Electric Transmission Plc
Inveralmond House, 200 Dunkeld Road, Perth, PH1 3AQ

1 Overview

1.1 Introduction

1.1.1 Scottish Hydro Electric Transmission plc (the Applicant) is a wholly owned subsidiary of the SSE plc group of companies, who, operating and known as Scottish and Southern Electricity Networks Transmission (SSEN Transmission), owns and maintains the electricity transmission network across the north of Scotland and remote islands. It holds a licence under the Electricity Act 1989 to develop and maintain an efficient, co-ordinated and economical system of electricity transmission. In this Scoping Report the Applicant and SSEN Transmission are used interchangeably unless the context requires otherwise.

1.1.2 The Applicant is proposing to submit an application for full planning permission under the Town and Country Planning (Scotland) Act 1997[3] (as amended) for consent to construct and operate "Greens Substation" in Aberdeenshire, Scotland, hereafter referred to as 'the Proposed Development'. An overview of the Proposed Development is shown on **Figure 1.1**. An overview of environmental features and designations in relation to the Site is shown on **Figure 1.2**.

1.1.3 The Proposed Development is part of SSEN Transmission's Pathway to 2030[4] projects. The Pathway to 2030, published by National Grid ESO, sets the blueprint for the electricity transmission network infrastructure required to enable the forecasted growth in renewable electricity across Great Britain. These projects are part of a proposed major upgrade of the electricity transmission network across Great Britain to help deliver United Kingdom (UK) and Scottish Government climate change and energy security targets. They would connect UK based low carbon renewable electricity generation to areas of demand across the country, with the aim of building a cleaner, more secure and affordable energy system for homes and businesses across Great Britain. Further details on the Pathway to 2030 projects is provided in **Appendix 1.1.**

1.2 Overview of the Proposed Development

1.2.1 The key elements of the Proposed Development subject to consent under the Town and Country Planning (Scotland) Act 1997 (as amended) would comprise a 400 kV Substation. The connection to the new 400 kV Overhead Line (OHL) between Beauly, Blackhillock, New Deer and Peterhead forms part of the proposals for the Beauly to Peterhead OHL which is being taken forward in a separate application and is subject to its own EIA. The potential for cumulative effects is considered when determining the scope of the EIA Report, where relevant.

1.2.2 In addition, the Proposed Development would require lighting, permanent access, access roads, drainage, earthworks, landscaping/screening mitigation and biodiversity enhancement. Sufficient space for temporary construction activities will also be required.

1.2.3 Dependant on the access strategy for the Proposed Development, potential public road improvements (PRI), such as road widening, bridge reinforcements or installation of new junctions, may also be required. These PRI works would be subject to a separate consenting process with Aberdeenshire Council, and, if appropriate, the potential for any cumulative effects considered within the EIA Report.

1.3 The EIA Regulations

1.3.1 The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017[5], hereafter referred to as the EIA Regulations, contain two schedules. Schedule 1 lists projects where Environmental Impact Assessment (EIA) is mandatory. Schedule 2 lists projects where EIA may be required '*where proposed*

[3] Town and Country Planning (Scotland Act) 1997. Available at: https://www.legislation.gov.uk/ukpga/1997/8/contents [Accessed: August 2023].
[4] Projects delivering a Network for Net Zero - Pathway to 2030 - SSEN Transmission (ssen-transmission.co.uk)
[5] Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017. Available at: https://www.legislation.gov.uk/ssi/2017/102/contents/made [Accessed: August 2023].

development is considered likely to give rise to significant effects on the environment by virtue of factors such as its nature, size or location'.

1.3.2 The Proposed Development is not of a type listed within Schedule 1 of the EIA Regulations. The Proposed Development is also not directly identified within Schedule 2 of the relevant EIA Regulations; however, the Applicant has decided to undertake an EIA for the Proposed Development given its size and nature, and its close association with other SSEN Transmission network projects, including the proposed Beauly to Peterhead Overhead Line.

1.3.3 The Proposed Development would be a National Development under the Town and Country Planning (Hierarchy of Developments) Regulations 2009 (as amended)[6] as the Site is greater than 2 ha and the development is of a type that would fall within National Development 3 – Strategic Renewable Electricity Generation and Transmission Infrastructure, in National Planning Framework 4 (NPF4)[7].

1.4 Purpose of the EIA Scoping Report

1.4.1 The purpose of this EIA Scoping Report is to ensure that the subsequent EIA is focused on the key impacts likely to give rise to significant environmental effects. As well as identifying issues to be considered in the EIA, this document also identifies those issues that are not considered necessary to assess further.

1.4.2 In accordance with the EIA Regulations, this EIA Scoping Report contains:

- a plan sufficient to identify the location of the Proposed Development;
- a brief description of the nature and purpose of the Proposed Development and its possible effects on the environment; and
- information and representations from the Applicant on the aspects of the Proposed Development or existing environment including those that are not considered necessary to assess further in the EIA Report.

1.5 Scoping Report Methodology

1.5.1 This report provides information on the individual factors that require consideration under Regulation 4(3) of the EIA Regulations. This EIA Scoping Report presents the findings of an initial appraisal of the likely significant environmental effects of the Proposed Development on the receiving environment. It provides an overview of the baseline conditions as understood at the time of writing and the likely potential effects as a result of the Proposed Development. Where site survey and further assessment are deemed necessary, the approach and methodologies are outlined. Environmental topics considered with an initial assessment in this EIA Scoping Report are:

- Landscape and Visual Impact;
- Ecology, Nature Conservation and Ornithology;
- Cultural Heritage;
- Hydrology, Hydrogeology, Geology and Soils;
- Noise and Vibration;
- Forestry; and
- Traffic and Transport.

[6] Town and Country Planning (Hierarchy of Developments) Regulations 2009. Available at: https://www.legislation.gov.uk/sdsi/2009/9780111001714/contents [Accessed: September 2023].
[7] The Scottish Government (2023). National Planning Framework 4. Available at: https://www.gov.scot/publications/national-planning-framework-4/ [Accessed: August 2023].

1.5.2 For each topic, an overall description of the baseline environment is provided relevant to that topic. This is followed by a summary of the potential effects associated with each environmental topic listed above, and the proposed scope of survey and assessment work relevant to that topic to determine effects and identify appropriate mitigation measures. Issues to be scoped out of the assessment are also provided.

1.5.3 The environmental topics and issues scoped out of the EIA are listed below and the justification for scoping out is summarised in **Chapter 12**:

- Population and Human Health[8];
- Major Accidents and Disasters;
- Air Quality and Climate;
- Land Use and Agriculture;
- Material Assets and Waste; and
- Electro Magnetic Fields.

1.6 Consultation

Site Selection Stage

1.6.1 The selection of a Preferred Site for the Proposed Development has been undertaken through multi-criteria analysis (MCA) of environmental, engineering and cost considerations for each Site Option. The site selection process and MCA has been undertaken in accordance with internal SSEN Transmission guidance PR-NET-ENV-502 (Substation Site Selection Procedures for Voltages at or above 132kV)[9].

1.6.2 Fourteen potential site options were identified and considered in 2023 at Stage 1 (Initial Site Screening). Following the completion of Stage 1, a short list of six site options was taken forward to Stage 2 (Detailed Site Selection) where they were assessed to identify the most technically feasible, economically viable and environmentally acceptable option within the defined area. During March and April 2023, consultation was undertaken to seek comments from stakeholders and members of the public on the site option studies undertaken, and the rationale for, and approach to, the selection of the preferred site, which was Site 13.

1.6.3 A summary of the consultation undertaken to date is provided below:

- two public consultation events took place in March and April 2023, to provide face-to-face public engagement (including a mail drop advertising the events);
- postcards were sent to 4,439 homes and businesses within communities potentially impacted by the Proposed Development;
- the publication of a Site Selection Consultation Document (April 2023) which described the site selection process followed, site options identified, the appraisal undertaken, the alternatives considered and the suggestion for a Preferred Site. This was available online and at the in-person events and was presented to statutory consultees;
- Community Councillors and Local Elected Members were emailed in advance with information they could share within their local area;
- an email was sent out to the Beauly to Blackhillock to New Deer to Peterhead 400 kV project mailing list with details of the New Deer 2 event in March 2023;
- the consultation events were also advertised in the Press & Journal and Strathspey Herald newspapers, on SSEN Transmission social media channels and the dedicated project webpage;
- a statutory consultee meeting (April 2023) to discuss the Substation Site Selection process;

[8] Socioeconomics, Tourism and Recreation are covered by this topic heading.
[9] SSEN Transmission (July 2022), Substation Site Selection Guidelines for Voltages at or above 132kV

- pre-application public consultation events (March and May 2024); and
- pre-application consultation meetings with Aberdeenshire Council (April 2024).

1.6.4 The consultation process and feedback received during the site selection process has been documented in a Report on Consultation (which was published December 2023) and a consultation register remains a live document and will be updated on receipt of any further consultation comments.

1.6.5 Members of the public and other interested stakeholders will be invited to attend further consultation events as part of the statutory Pre-application Consultation process for the Proposed Development, and the local community, community councils, elected representatives, statutory and non-statutory stakeholders will continue to be engaged as the Proposed Development progresses.

Proposal of Application Notice

1.6.6 A Proposal of Application Notice (PAN) was submitted on 30 January 2024 (Ref. ENQ/2024/0139) to notify Aberdeenshire Council and other key stakeholders of the Applicant's intention to submit a National application and provide details of the proposed pre-application consultation process to be undertaken.

Pre-Application Consultation with Aberdeenshire Council

1.6.7 A pre-application consultation exercise was undertaken with Aberdeenshire Council in April 2024, providing the Applicant an opportunity to present the proposals to the Council, and seek advice on the acceptability of the Proposed Development, and likely requirements and expectations for a future application. A formal pre-application response is awaited from Aberdeenshire Council, detailing their understanding of the Proposed Development, and setting out relevant planning policy and environmental considerations that would need to be addressed as part of the application supporting documents.

Pre-Application Consultation Events

1.6.8 Three face-to-face Pre-Application Consultation (PAC) events took place in March 2024 (PAC1), with a further three face-to-face events in May 2024 (PAC2), with a mail drop advertising the events. Consultation Booklets and Proposals Plans were prepared for both rounds of public consultation events, providing a summary of the site selection process and the next steps for application process.

1.6.9 The local community, community councils, elected representatives, statutory and non-statutory stakeholders will continue to be engaged with as the project progresses.

2 Description of the Proposed Development

2.1 Introduction

2.1.1 This Chapter describes the elements that constitute the Proposed Development. It provides a description of the key components and information regarding the construction, operation, and maintenance of the Proposed Development.

2.2 Description of the Site

2.2.1 The Proposed Development would be located in Aberdeenshire, approximately 5 km to the west of New Deer, and 2.5 km to the south of Cuminestown (National Grid Reference NJ 819 476). The Proposed Development Site ("the Site") covers an area of approximately 115 hectares (ha) and has a favourable topography with a reasonably flat Site and the B9170 close-by to the north east.

2.2.2 The Site is located on agricultural land that is primarily used for pasture and/or arable farming, with a predominantly rural character. There is an area of commercial forestry within the north west of the Site. There are a number of neighbouring residential areas, private properties and farms within close proximity to the Site.

2.3 Proposed Development Components

2.3.1 The Proposed Development comprises an Air Insulated Switchgear (AIS) substation, formed using switchgear which relies on open air components. As such, there is only a limited requirement for buildings to be constructed as part of the development. Where required, such buildings would likely comprise a steel portal frame with metal cladding and roof and be designed to minimise visual and noise impact and increase security of supply.

2.3.2 The elements described below are to be included as part of the Proposed Development. Access tracks, drainage, landscaping, construction compounds and temporary laydown areas etc. will also all be included within the Site Boundary.

400 kV Substation

2.3.3 The 400 kV substation will comprise two 400/132 kV Super Grid Transformer (SGTs), outdoor AIS and associated air insulated isolators/earth switches. The SGTs will be enclosed to protect from the weather and reduce the noise impact. The substation layout is composed of a series of bays (27 bays) that will provide the necessary gantry connections for current and future OHL & underground cable (UGC) connections requirements that will come in and out of the substation. In addition, there will be three buildings situated within the substation, with two housing the Synchronous Condensers required to support the substation and one smaller building to provide office, welfare and spare storage accommodation. The platform footprint, which also accommodates service roads, parking areas and circulation space for management and maintenance of the substation, measures approximately 375 m width and by 700 m length, lying at 130 m AOD. The highest structures on the Site will be the two Synchronous Condensers buildings with approximate height of 14.5 m height, with the bays / gantries lower at circa 12 m.

2.3.4 The proposed AIS substation offers a SF6 free technology solution, which is a key part of SSEN's commitments and responsibilities to the decarbonisation of the electricity network. However, this solution requires greater safe clearance distances between live conductors resulting in a larger overall footprint compared to the more traditional substations comprising internally housed Gas Insulated Switchgear (GIS).

Operational Infrastructure

2.3.5 Given the scale of the developments, a need for permanent facilities has been identified to support operational requirements.

- Control Building – this would consist of buildings for offices, training facilities, car parking and storage facilities for strategic spares. The approximate height of the control building is 7 m;
- Lighting – floodlights would be installed but would only be used in the event of a fault during the hours of darkness; during the over-run of planned works; or when sensor activated as security lighting for night-time access. The access roads would not be lit under normal operation. The perimeter fence would use infra-red lighting (this would only switch to white light if the fence alarm were activated to allow night-time cameras to work better). Sensor activated lighting would also be provided permanently at access gates;
- Security fencing – a 4.1 m high palisade fence would be installed around platforms, in addition a standard stock proof perimeter fence would be installed around the Site Boundary; and
- Underground connectors to the buildings.

Access During Construction

2.3.6 It is anticipated that an access for construction of the Proposed Development would principally be formed from the existing minor public road leading to the Site from the B9170. The new access / haul roads within the site would become the permanent access to the Site following completion of construction.

Construction Compounds

2.3.7 Temporary site compounds and laydown areas would be required during construction, located within the Site. These would provide office and welfare facilities for site staff, parking, laydown areas and holding and servicing space for construction plant.

Delivery of Structures and Materials

2.3.8 All materials would be delivered to the construction compounds. Concrete would be delivered to the Site pre-mixed or would be batched onsite. Hardcore and earthworks materials for the construction of the Proposed Development would be a combination between Site won materials (through cutting of the existing surface to construct the platforms) and locally imported materials. Site won materials would be prioritised over imported materials to reduce the impact on the local roads and the environment.

Programme and Hours of Working

2.3.9 It is anticipated that construction of the Proposed Development would take approximately three years and commence in late 2025, although detailed programming of the works would be the responsibility of the Principal Contractor in agreement with SSEN Transmission.

2.3.10 Construction activities would in general be undertaken during daytime periods. Working hours are currently anticipated between approximately 07:00 to 19:00 in the summer and 07:30 to 17:30 (or within daylight hours) in the winter, Monday to Friday. Weekend working would also be proposed with slightly reduced working hours. Working hour assumptions would be set out within the EIA Report and agreed with Aberdeenshire Council.

2.3.11 During the commissioning phase of the Proposed Development, there may be a requirement for 24 hours a day, seven days a week working hours. If required, this would be agreed in advance with Aberdeenshire Council.

Construction Environmental Management

2.3.12 The initial scoping assessment and the assessment in the EIA Report will be carried out on the basis that standard mitigation measures will be implemented during the construction work, including compliance with both project wide and site-specific environmental management procedures, with reference to SSEN Transmission General Environmental Management Plans (GEMPs) and Species Protection Plans (SPPs).

2.3.13 A Construction Environment Management Plan (CEMP) will be developed for the Proposed Development and adopted by the appointed Principal Contractor during the construction phase. The principal objective of the CEMP is to provide information on the proposed infrastructure and to aid in avoiding, minimising, and controlling adverse environmental impacts associated with the Proposed Development. Furthermore, this document will aim to define good practice as well as specific actions required to implement mitigation identified in the EIA Report, the planning process and / or other licencing or consenting processes. It is not proposed to submit an Outline CEMP alongside the EIA Report, instead the mitigation measures and management procedures outlined in the SSEN Transmission GEMPS and SPPs will be referred to, with a specific mitigation detailed within the EIA Report Schedule of Mitigation.

Residues and Emissions

2.3.1 During construction, residues and emissions are anticipated to consist primarily of construction noise and any potential fuels/oils/waste generated during construction works. These are considered in **Chapter 8: Hydrology, Hydrogeology, Geology and Soils** and **Chapter 9: Noise and Vibration**.

2.3.2 Due to the nature of the Proposed Development, no significant production of residues or emissions are anticipated during the operational phase beyond small amounts of waste e.g. packaging materials and the potential for small spillages of fuel and oils during routine maintenance and repair of the electrical infrastructure and housing. Some operational noise is anticipated from the substation which is detailed in **Chapter 9: Noise and Vibration**.

Reinstatement

2.3.3 Following commissioning of the Proposed Development, all temporary construction areas will be reinstated. Reinstatement will form part of the contract obligations for the Principal Contractor and will include the removal of all temporary access tracks and work sites.

2.3.4 The following principles will inform the approach to reinstatement of all sites:

- best practice will be followed for reinstatement of all sites; and
- reinstatement principles are detailed in the SSEN Transmission Restoration GEMP TG-NET-ENV-522.

2.3.5 The construction compound site will be made good at the end of the construction with all buildings and materials removed and soils appropriately reinstated.

Landscape Mitigation Measures and Biodiversity Enhancement

2.3.6 Landscape mitigation measures will be considered to provide partial visual screening and help assimilate the Proposed Development into the surrounding landscape. Such measures would also seek to provide 10% net gain for biodiversity and opportunities for habitat enhancement.

2.3.7 Further details on landscape mitigation measures would be provided in the EIA Report.

Future Maintenance

2.3.8 Regular inspections of equipment will be undertaken to identify any deterioration of components, and these parts will be replaced or repaired where needed.

Decommissioning

2.3.9 Should the Proposed Development be decommissioned the Site would be restored as follows:

- the Proposed Development infrastructure would be removed;
- where removal of infrastructure such as foundations would result in more damage than leaving them in place, they would be left in-situ; and
- disturbed ground would be reinstated.

2.3.10 Full details of the decommissioning plan would be agreed with the appropriate authorities and the landowners prior to any decommissioning works commencing.

3 EIA APPROACH AND METHODOLOGY

3.1 Introduction

3.1.1 The EIA Report will be prepared in accordance with the EIA Regulations. Consideration will also be given to advice contained in Planning Advice Note1/2013[10] and Circular 1/2017[11] (Environmental Impact Assessment), and other good practice guidance documents where relevant.

3.1.2 The EIA work will comprise a series of specialist environmental studies which will be targeted to assess the predicted significant effects which the Proposed Development would be likely to have on the environment. Each topic included in the EIA Report will be incorporated as a separate Chapter in the main body of the EIA Report or included as an appendix if the assessment of the subject matter requires to be more detailed.

3.1.3 On receipt and consideration of this Scoping Report, Aberdeenshire Council, following input by statutory and non-statutory consultees, will issue their Scoping Opinion confirming the scope of the EIA Report. Throughout the EIA Report, where an issue raised in the Scoping Opinion is addressed, this will be clearly referenced in the relevant Chapter. A scoping matrix will also be included in the EIA Report which will detail all relevant consultation responses received during the scoping and EIA process, with a reference to where these responses have been addressed in the EIA Report. A schedule of mitigation measures will also be included as an appendix and cross-referenced in the relevant assessment work.

3.2 Structure of the EIA Report

3.2.1 It is proposed to structure the EIA Report as follows:

- Volume 1 – Main Report. Describing the Proposed Development, the alternatives considered, the EIA process, and an assessment undertaken for each of the environmental topics scoped into the EIA which will identify the likely significant effects (LSE) from the development and recommend suitable mitigation measures to reduce such effects;
- Volume 2 – Figures. This volume would provide supporting figures (primarily A3 size) to the assessments carried out as part of Volume 1. This would include visualisations of the Proposed Development undertaken from agreed viewpoint locations;
- Volume 3 – Technical Appendices. This volume would provide supporting technical appendices to the assessments carried out as part of Volume 1; and
- A Non-Technical Summary would form part of the EIA Report, summarising the Proposed Development and its LSE.

3.2.2 The description of the LSE will cover direct effects and indirect (including secondary) effects. The description of effects will identify the effect duration (short-term, medium-term and long-term), whether effects are permanent or temporary, and if effects can be categorised as adverse or beneficial.

[10] Scottish Government (2013). Planning Advice Note: Environmental Impact Assessment. Available at: https://www.gov.scot/publications/planning-advice-note-1-2013-environmental-impact-assessment/documents/ [Accessed: August 2023].
[11] Scottish Government (2017). Planning Circular: The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017. Available at: https://www.gov.scot/publications/planning-circular-1-2017-environmental-impact-assessment-regulations-2017/documents/ [Accessed: August 2023].

3.2.3 Consideration would also be given to the potential for cumulative effects, where the assessment would describe the additional effect associated with the Proposed Development, when considered in combination with other reasonably foreseeable projects of a similar type (defined as those which are the subject of a valid consent or application for consent). The basis for this is that only these developments have the potential to result in significant cumulative effects in combination with those arising from the Proposed Development. The final list of developments to be considered in the cumulative effects assessment would be finalised three months prior to publication to allow sufficient time to compile the EIA Report. At the time of preparing this EIA Scoping Report, this is anticipated to include the following electricity transmission projects identified as part of the wider SSEN Transmission's Pathway to 2030 projects:

- The standalone, but not mutually exclusive, proposed underground cable connection between the proposed substation and the existing New Deer Substation, approximately 2 km to the south;
- Eastern Green Link 3 UGC;
- Spittal to Peterhead UGC;
- OHL diversion of the existing North Eastern 400 kV OHL located to the south, into and out of the Hub with demolition of the existing section of line;
- Potential UGC by developers of onshore windfarms and offshore windfarms which require a connection into the electricity transmission grid, as yet unknown at time of writing; and
- Beauly to Peterhead 400 kV OHL. All overhead lines entering this Proposed Development would have terminal towers and potentially sealing end compounds.

3.2.4 The EIA report will also consider the potential for intra-project effects of combined or synergistic effects on a particular receptor (taking into consideration effects at the Site preparation and earthworks, construction and operational phases), which may collectively cause a more significant effect than individually. A theoretical example is the culmination of disturbance from dust, noise, vibration, artificial light, human presence and visual intrusion on sensitive fauna (e.g. certain bat species) adjacent to a construction site.

3.2.5 It is considered that there would be no potential for transboundary effects associated with the Proposed Development, and therefore no further assessment of transboundary effects is proposed.

3.2.6 A more detailed overview of the guidance and methodology adopted for each technical study is provided in **Chapters 5** to **11** of this EIA Scoping Report.

3.3 Mitigation

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

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

3.4 Supporting Documents

3.4.1 The pre-application process will confirm the supporting documents to be provided as part of the application. At this stage it is anticipated that the following documents would be provided in addition to the EIA Report:

- Planning Statement
- Design and Access Statement;
- Biodiversity Net Gain (BNG) Summary of Assessment;
- Noise Impact Assessment;

- Flood Risk Assessment (FRA);
- Drainage Impact Assessment (DIA);
- Transport Statement; and
- Pre-Application Consultation Report.

3.5 Scoping Methodology

3.5.1 The following chapters of this Scoping Report aim to provide sufficient detail to characterise the potential interactions between the Proposed Development and the environmental receptors identified. In presenting a rationale for the proposed scope of environmental assessment, this report has taken the sensitivity of the current state of the environment into account, based on an understanding of the baseline conditions. The Scoping Report considers the typical construction and operational activities, physical characteristics and potential emissions/residues associated with the Proposed Development.

3.5.2 Where there is sufficient evidence to support scoping a topic out of the EIA process, this is presented. Otherwise, where it is considered that there is the potential forLSE, the EIA Scoping Report provides details of the proposed scope or detailed impact assessment, including the approach to further baseline data collection and brief details of the proposed methodology for impact assessment that would be employed for each topic.

4 Planning Policy

4.1 National Policy

4.1.1 National Planning Framework 4[12] (NPF4) was adopted by the Scottish Government in February 2023 and is a long-term plan looking to 2045 that guides spatial development, sets out national planning policies, designates national developments and highlights national and regional spatial priorities.

4.1.2 In contrast to previous National Planning Frameworks, NPF4 places National Policy at the heart of planning decision making as it is part of the statutory Development Plan along with Local Development Plans. Following the adoption of NPF4 in February 2023, NPF3, Scottish Planning Policy and all Strategic Development Plans ceased to have any relevance to planning decision making in Scotland. NPF4 combines the National Planning Framework and National Planning Policy in the same document for the first time.

4.1.3 NPF4 identifies a number of National Developments which are significant developments of national importance that will help to deliver the spatial strategy. Statements of need are set out in NPF4 that describe the development to be considered as a national development for consent handling purposes. Amongst the national developments identified is National Development 3: Strategic Renewable Electricity Generation and Transmission Infrastructure which includes:

"New and/or upgraded Infrastructure directly supporting on and offshore high voltage electricity lines, cables and interconnectors including converter stations, switching stations and substations."

4.1.4 As stated above, NPF4 contains National Planning Policies and these policy positions are to be taken into account in land use planning decision making. The NPF4 policies that are of the most relevance to the Proposed Development are:

- Policy 1 – Tackling the Climate and Nature Crises. The intent is to encourage, promote and facilitate development that addresses the global climate emergency and nature crisis.
- Policy 2 – Climate Mitigation and Adaptation. Development proposals will be sited and designed to minimise lifecycle greenhouse gas emissions as far as possible and adapt to current and future risks from climate change.
- Policy 3 – Biodiversity. Development proposals need to contribute to the enhancement of biodiversity and integrate nature based solutions. Proposals requiring an EIA will only be supported where it can be demonstrated that the proposal will conserve, restore and enhance biodiversity. Any potential adverse impacts, including cumulative impacts, of development proposals on biodiversity, nature networks and the natural environment will be minimised through careful planning and design.
- Policy 4 – Natural Places. Development proposals which by virtue of type, location or scale will have an unacceptable impact on the natural environment will not be supported. Development Proposals that are likely to have a significant effect on an existing or proposed European Site and are not directly connected with or necessary to their conservation management, are required to be subject to an appropriate assessment of the implications to conservation objectives. Development proposals will only be supported where they will not compromise the designation status/overall integrity of a National Park, National Scenic Area, Site of Special Scientific Interest (SSSI), Natural Nature Reserve, local conservation site or local landscape area. Development proposals that are likely to have an adverse effect on species protected by legislation will only be supported where the proposal meets the relevant statutory tests. If there is reasonable evidence to suggest that a protected species is present on a site or may be affected by a proposed development, steps must be taken to establish its

[12] The Scottish Government (2023). National Planning Framework 4. Available at: National Planning Framework 4 - gov.scot (www.gov.scot).

presence. Development proposals in areas identified as wild land in the Nature Scot Wild Land Areas map will only be supported where the proposal will support meeting renewable energy targets.

- Policy 5 – Soils. Development will only be supported if designed and constructed in accordance with mitigation hierarchy, and in a manner that protects soil from damage. Development proposals on prime agricultural land, or land of lesser quality that is culturally or locally important for primary use (as identified by the LDP), peatland, carbon-rich soils, and priority peatland habitat, will only be supported where it is for essential infrastructure and there is a specific locational need and no other suitable site. Where development on peatland, carbon-rich soils or priority peatland habitat is proposed, a detailed site specific assessment will be required.
- Policy 6 – Forestry, Woodland and Trees. Development proposals that enhance, expand and improve woodland and tree cover will be supported. Development proposals will not be supported where they will result in any loss of ancient woodlands, ancient and veteran trees, or adverse impact on their ecological condition, native woodlands, hedgerows, individual trees of high diversity value, or identified for protection. Fragmenting or severing woodland habitat without appropriate mitigation will also not be supported. Development proposals involving woodland removal will only be supported where they will achieve significant and clearly defined additional public benefits in accordance with relevant Scottish Government policy on woodland removal. Where woodland is removed, compensatory planting will most likely be expected to be delivered. Development proposals on sites which include an area of existing woodland or land identified in the Forestry and Woodland Strategy as being suitable for woodland creation will only be supported where the enhancement and improvement of woodlands and the planting of new trees on the site (in accordance with the Forestry and Woodland Strategy) are integrated into the design.
- Policy 11 – Energy. To encourage, promote and facilitate all forms of renewable energy development onshore and offshore.
- Policy 12 – Zero Waste. Development proposals will seek to reduce, reuse, or recycle materials in line with the waste hierarchy.
- Policy 13 – Sustainable transport. Development proposals should facilitate a transition towards more sustainable, lower emissions travel including active travel and public transport.
- Policy 14 – Design, quality and place. Development proposals will be designed to improve the quality of an area whether in urban or rural locations and regardless of scale. Development proposals will be supported where they are consistent with the six qualities of successful places and development proposals that are poorly designed, detrimental to the amenity of the surrounding area or inconsistent with the six qualities of successful places, will not be supported.
- Policy 18 – Infrastructure First. To encourage, promote and facilitate an infrastructure first approach to land use planning, which puts infrastructure considerations at the heart of placemaking.
- Policy 20 – Blue and green Infrastructure. Development proposals that result in fragmentation or net loss of existing blue and green infrastructure will only be supported where it can be demonstrated that the proposal would not result in or exacerbate a deficit in blue or green infrastructure provision, and the overall integrity of the network will be maintained. Development proposals for or incorporating new or enhanced blue and/or green infrastructure will be supported.
- Policy 22 – Flood Risk and Water Management. Development at risk of flooding or in a flood risk area will only be supported if they are for essential infrastructure. Developments will not increase the risk of surface water flooding, manage rain and surface water through Sustainable Urban Drainage Systems (SUDS), and seek to minimise the area of impermeable surface. Development proposals will be supported if they can be connected to the public water mains. Development proposals which create, expand or enhance opportunities for natural flood risk management, including blue and green infrastructure, will be supported.

- Policy 23 – Health & Safety. Development proposals will not be supported where significant adverse effects on health, air quality and noise are likely. Where necessary, Health Impact Assessment, air quality assessment and Noise Impact Assessment may be required to ensure that proposals protect people and places from environmental harm.
- Policy 25 – Community wealth benefits –development proposals which contribute to the regional community wealth building strategies and are consistent with local economic priorities will be supported. Development proposals linked to community ownership and management of land will be supported.
- Policy 29 – Rural Development. Development proposals in rural areas should be suitably scaled, sited and designed to be in keeping with the character of the area. They should also consider how the development will contribute towards local living and take into account the transport needs of the development as appropriate for the rural location. Development proposals in remote rural areas, where new development can often help to sustain fragile communities, will be supported where the proposal can lead to local employment, and is suitable in terms of location, access, siting, design and environmental impact.
- Policy 33 – Minerals - Development proposals that seek to explore, develop, and produce fossil fuels (excluding unconventional oil and gas) will not be supported other than in exceptional circumstances.

4.2 Local Planning Policy

4.2.1 Local Development Plans cover all planning authority areas and provide detailed and site-specific planning policy for an area. The current development plan for the Aberdeenshire administrative area is the Aberdeenshire Local Development Plan, January 2023[13] (referred to as the LDP hereafter). The LDP lays out detailed policies which are used as a basis for determining planning applications on a local scale. As indicated above, NPF4 now forms a part of the Development Plan and has replaced a number of predecessor planning policy documents at various levels including Strategic Development Plans. Although a relatively recently adopted LDP, the Aberdeenshire LDP 2023 predates the adoption of NPF4 and has been formulated to interpret and implement the policy positions stated in the now superseded Aberdeen City and Shire Strategic Development Plan and as such some policy positions stated may be inconsistent with those contained in NPF4. The Town and Country Planning (Scotland) Act 1997 (as amended) makes it clear that if there is an inconsistency between the provisions of NPF4 and an LDP, whichever of them is the later in date is to prevail. There are several policies that may be relevant in consideration of this proposal. These include:

- R2 Development Proposals Elsewhere in the Countryside – Permits development at appropriate locations in the countryside where there is a national requirement, and no suitable alternative site is available. Prefers brownfield redevelopment over greenfield development.
- P2 Open Space and Access in New Development – All new developments must be accompanied by adequate public open space appropriate to the standards shown in the Aberdeenshire Parks and Open Spaces Strategy and should facilitate public access as appropriate. However, it is not appropriate in relation to the Proposed Development as public access will not be granted due to Health and Safety concerns.
- P4 Hazardous and Potentially Polluting Developments and Contaminated Land – In determining planning applications for development within the consultation zones for hazardous installations (including oil and gas pipelines), the council will consult with, and take full account of advice from the Health and Safety Executive (HSE), the Competent Authority (in the case of Control of Major Accident

[13] Aberdeenshire Council (2023). Aberdeenshire Local Development Plan. Available at: https://www.aberdeenshire.gov.uk/planning/plans-and-policies/ldp-2023/ [Accessed: November 2023].

Hazardous sites) and the facility's owners and operators, and will seek to ensure that any risk to public safety is not increased.

- E1 Natural Heritage - Generally protective towards sites designated for nature conservation interests at European, National, and local levels. Will not permit development where integrity of a protected site will be compromised. Development must seek to avoid any unacceptable detrimental impact on protected species. A Protected Species Survey to inform the assessment of impacts will be required where there is reason to believe protected species may exist on or adjacent to the site. The submission of Species Protection Plans detailing appropriate avoidance and mitigation measures may be required.
- E2 Landscape – states presumption against development that causes unacceptable effects through its scale, location or design on key characteristics, natural landscape elements, features or the composition or quality of the landscape character as defined in the Landscape Character Assessments produced by NatureScot whether impacts are alone or cumulatively with other recent developments.
- E3 Forestry and Woodland – Generally protective towards woodland and the protection and enhancement of trees and woodlands in the planning and construction of built development.
- PR1 – Protecting Important Resources - presumes against developments that have a negative effect on important environmental resources associated with air quality, the water environment, important mineral deposits, prime agricultural land, peat and other carbon rich soils, open space, and important trees and woodland.
- C4 Flooding – Requires Flood Risk Appraisals (FRAs) to be undertaken in appropriate circumstances, requires climate change to be taken into account and presumes against development that increases flood risk vulnerability although does permit essential infrastructure in vulnerable locations if required to be located there for operational reasons where no alternatives are available.
- RD1 Providing Suitable Services – Outlines developer responsibilities in relation to location and design of development that takes advantage of services that will support it. Covers transport, water/wastewater management and supply etc.

5 Landscape and Visual Impact

5.1 Introduction

5.1.1 This Chapter considers the potential landscape and visual effects of the Proposed Development. It provides a brief overview of the baseline conditions, highlights potentially significant effects in relation to landscape character and visual amenity, and sets out the scope and methodology of the assessment to be undertaken.

5.2 Baseline Conditions

5.2.1 The following section sets out the baseline conditions for the area potentially affected by the Proposed Development (within 5 km of the Site Boundary, see **Section 5.5**), briefly describing the landscape and landscape-related designations, the landscape character, and key visual receptors present. Reference should be made to **Figure 5.1 Viewpoint Location Plan** and **Figure 5.2 Zone of Theoretical Visibility**.

5.2.2 Consideration of the baseline conditions has been informed through desk-based research and by site visits in 2023 as part of the site selection process and early stages of design to develop embedded mitigation.

5.2.3 When identifying the baseline conditions to inform the scoping process, the following information has been taken into consideration:

- Google maps[14];
- NatureScot National Landscape Character Assessment, 2019[15];
- NatureScot Landscape Character Assessment. Landscape Character Types, 2019[16];
- NatureScot Landscape Character Assessment: Aberdeenshire - Landscape Evolution and Influences, 2019[17]; and
- Aberdeenshire Special Landscape Areas, 2017[18].

Designated Landscapes

5.2.4 There are no landscape designations or landscape-related designations located within the Site Boundary, or within the study area. The nearest designation is the Deveron Valley Special Landscape Area[19] (SLA) approximately 9 km to the west of the Proposed Development.

5.2.5 Gardens and Designed Landscapes (GDLs) identified on the Historic Environment Scotland inventory are addressed in the **Chapter 7: Cultural Heritage**.

Landscape Character

5.2.6 The Proposed Development is located within a relatively broad landscape that is predominantly farmed, more sparsely wooded than the landscape further west, and containing large fields, allowing for wider, more extensive views through the landscape. The landscape is well settled with a number of small settlements and

[14] Google Map data 2023. Available at https://www.google.com/. [Accessed December 2023]

[15] NatureScot (2019). Scottish Landscape Character Types Map and Descriptions. Available at https://www.nature.scot/professional-advice/landscape/landscape-character-assessment/scottish-landscape-character-types-map-and-descriptions [Accessed: December 2023].

[16] NatureScot. SNH National Landscape Character Assessment, Landscape Character Type 20 Undulating Agricultural Heartland- Aberdeenshire. Available at https://www.nature.scot/sites/default/files/LCA/LCT%20020%20-%20Undulating%20Agricultural%20Heartland%20-%20Final%20pdf.pdf [Accessed: December 2023].

[17] NatureScot Landscape Character Assessment: Aberdeenshire - Landscape Evolution and Influences, 2019. Available at https://www.nature.scot/sites/default/files/2021-08/NatureScot%20LCA%20Review%20-%20ABERDEENSHIRE%20-%20LANDSCAPE%20EVOLUTION%20AND%20INFLUENCES%20-%20pdf%20-%20July%202021%20%28A3509458%29.pdf [Accessed: December 2023].

[18] Aberdeenshire Special Landscape Areas. . Aberdeenshire Local Development Plan Supplementary Guidance, 2017. Available at https://www.aberdeenshire.gov.uk/media/20071/9-special-landscape-areas-part-1.pdf [Accessed December 2023].

[19] Local Landscape Area (LLA), following Scottish Government policy and as defined by NatureScot, is the name used for local landscape designations that identify areas of local/regional importance for their scenic qualities. Many councils already use or are consulting on adopting the term LLA, however Aberdeenshire Council is understood to still use SLA designations.

regularly dispersed farmsteads. It is located in gently undulating farmland, within the north-eastern corner of Aberdeenshire.

5.2.7 The landscapes in Scotland have been characterised by Scottish Natural Heritage (SNH - now NatureScot) in their Landscapes of Scotland map[20] and broken down into landscape character types (LCTs)[21] . LCTs are defined by NatureScot in their national map and database[22], and the Proposed Development, and almost the entirety of the study area, are located within LCT 20: *Undulating Agricultural Heartland*.

5.2.8 LCT 20 is characterised by its ''*gently undulating rolling landform, of low hills and ridges with broad shallow valleys. The area offers expansive views to landmark hills, due to the areas absence of large woodland blocks. The smoothly rounded terrain is accentuated by large scale fields, divided by fences. Occasional beech and thorn hedges add diversity in places, with stone dykes more characteristic in the north near Strichen. Mixed policy woodlands are present within the den of Craigston Castle to the north, and around Cuminestown, where a strong framework of beach shelterbelts is a feature. The LCT includes a number of small settlements and large villages, most of which are 18th century planned fermtouns. In addition to the 18th century planned fermtouns, notable historic features include 16th – 19th century grand castles in designated landscapes at Delgaite, Craigston, and Hatton.*''

5.2.9 The Culsh Monument, approximately 5 km to the east of the Proposed Development, is a key landmark feature identified within the LCT and offers wide panoramic views over the subtly rolling and expansive farmland of this landscape. Small single wind turbines are associated with many farms, along with single and small groups of commercial scale turbines infrequently located on low ridges and local hills.

5.2.10 To the far south-east of the study area is the northern extent of LCT 25 *Farmed Strath*. LCT 25 is characterised by its undulating landform centred around the shallow strath of the Ythan River which bisects the landscape: "*The area displays a diverse land cover, small fields of pasture alternate with scrubby areas of gorse and broom, the latter often occurring along roadsides. Wet hollows support moss and small coniferous woodlands are dotted over the landscape. The fields, bounded by sturdy stone dykes, are often strewn with rocks. This gives an upland feel to the landscape. The areas less fertile soils have escaped the intensification and improvements of surrounding farmland found in the heart of Aberdeenshire, thus retains a more traditional pattern. The area is quite sparsely settled with the village of Methlick being the only settlement.*"

5.2.11 Due to the scale of LCT 25, and its distance from the Site, it is not considered likely that any significant effects would occur as a result of the Proposed Development, and it is therefore excluded from the Landscape and Visual Impact Assessment (LVIA). However, the LVIA will consider the effect of the Proposed Development on LCT 20. Due to its scale and the subtle differences within it, the assessment will also consider landscape character at a finer and more local grain in a series of Local Landscape Character Areas, to be defined as part of the assessment.

Visual Amenity Receptors

5.2.1 The potential for visual effects has been informed by site visits and desk-based reviews, including production of a Zone of Theoretical Visibility (ZTV) plan. The ZTV illustrates the potential areas from where the Proposed Development may be visible, based solely on topography (i.e. taking no account of vegetation or built form). The ZTV is shown in **Figure 5.2** and demonstrates that views are predominantly to the south of the Site, with views to the north, east and west being screened by the natural topography, including notable ridgelines and hill summits that screen longer range views.

[20] Scottish Natural Heritage (2012) Landscapes of Scotland Map. available at: https://www.nature.scot/landscapes-scotland-map
[21] NatureScot. SNH National Landscape Character Assessment, Available at https://www.nature.scot/sites/default/files/LCA/LCT%20017%20-%20Coastal%20Agricultural%20Plain%20-%20Aberdeenshire%20-%20Final%20pdf.pdf.
[22] NatureScot Scottish Landscape Character Types Map and Descriptions. Available at: https://www.nature.scot/professional-advice/landscape/landscape-character-assessment/scottish-landscape-character-types-map-and-descriptions Accessed October 2023

5.2.2 Potential visual receptors are to be found throughout the study area, including frequently occurring farms, farmsteads, and isolated rural properties, residents within local villages and hamlets, users of the local transport network and recreational users.

5.2.3 Potential visual receptors will include:

- residential receptors: views from nearby residential properties;
- recreational and tourist receptors: visitors to nearby local attractions and users of public spaces, paths, and trails; and
- transport receptors: users of the local road network.

Residential Visual receptors

5.2.4 The area immediately around the Proposed Development is sparsely settled, with scattered farms and farmstead to the north, east, south, and west, including:

- farms and farmsteads at Green (directly abutting RLB to the south east);
- farm and farmsteads at Burnside (1 km south);
- farm and farmsteads at Maryhill (0.8 km south);
- farm and farmsteads at Muirtack (1 km south west);
- farm and farmsteads at Middlehill (1.5 km north east);
- farms and farmsteads at Slacks of Cairnbanno (2.2 km east);
- farm and farmsteads at Cairnbanno Ho (2.6 km south east);
- farm and farmsteads at Howe of Tuechar (2 km south west);
- farm and farmsteads at South Redbriggs (2.7 km south west) ;
- residential properties in Cuminestown 2.8 km north west;
- residential properties along Main Street Garmond (4.5 km north west); and
- residential properties along High Street and Main Street at New Deer village (5 km east).

Recreational Visual receptors

5.2.5 There are a small number of core paths surrounding the Proposed Development. Further east they are well connected to the coastline whilst elsewhere they are frequent but isolated. The main Core paths within the study area include:

- Aberdeen core path Route National Cycle Network (NCN) 1d, located approximately 2.5 km north of the Proposed Development at its nearest point, shown in **Figure 1.2**. In this section it runs north of the Site between Maud in the east to Cuminestown in the north and then on to Turriff in the west; and
- proposed core path starting from the centre of Cuminestown, heading north for approximately 1.5 km. This core path is approximately 3 km north of the Proposed Development.

5.2.6 East Balthangie Caravan & Camping Park lies approximately 4.5 km northeast of the Proposed Development.

5.2.7 The Culsh Monument is an important feature in the local landscape, offering panoramic views across the wider countryside. Whilst it is at the limit of the study area extent at approximately 5 km to the east, its location on higher ground at the top of Culsh Hill may enable longer range views towards the Proposed Development.

Transport Visual receptors

5.2.8 Users of the local minor road network in the area, including:

- users of local road Mains of Green along the southern boundary of the Proposed Development;
- users of the B9170 west and east;

- users of the B9027 north;
- users of minor roads immediately surrounding the Proposed Development; and
- users of minor roads in the wider study area.

5.3 Potentially Significant Effects

Landscape Effects

5.3.1 The Proposed Development would introduce noticeable and intrusive man-made elements into the landscape, modifying the way in which the existing rural landscape is perceived. Changes would include the provision of the main substation itself (including the highest structures on the Site being two Synchronous Condensers buildings at c 14.5 m height) with a platform size of 700 m x 375 m, access roads, sustainable drainage features, realigned watercourses and clearance of a large area of forestry within the north western corner. Due to the site topography, the western section of the site would require earthworks to be predominantly in cutting, whereas to the east, the majority of the works would result in fill, with the majority of the access road being raised on embankment. Additional earthworks are proposed around the periphery of the substation building, associated with the inclusion of landscaped earth bunds, in order to reduce the visual prominence of the substation itself.

5.3.2 Construction works would require the temporary provision of welfare facilities, material storage areas, and temporary changes to the road network for traffic management and significant earth-moving operations. This would require the introduction of large-scale machinery and equipment, resulting in permanent change to the local drainage pattern and landform. The Proposed Development would also permanently change the land use of the Site from agricultural to industrial, with permanent impacts from construction including tree / hedgerow clearance, regraded earthworks, permanent access points and road modifications.

5.3.3 The effect of any development on the landscape depends on the scale at which the landscape character is considered. The Proposed Development does have the potential to significantly affect the character of the landscape when considered at the scale of the NatureScot LCT 20, although it is a large-scale LCT. However, the Proposed Development would certainly significantly affect the more local landscape character. It would lie on agricultural land used for mixed farming of crop production and grazing, within a rural setting, resulting in a major change to the local landscape character. The impact of the Proposed Development on the perception of the landscape is likely to reduce with distance and as such, significant effects are anticipated to reduce beyond 2 km with no significant effects present beyond the 5 km study area.

Visual Effects

5.3.4 The Proposed Development is located in close proximity to a number of residential receptors as well as users of the local road network, as outlined in **Section 5.2**. The potential for significant adverse effects on visual receptors arises primarily from the presence of new, industrial-scale buildings, which may form an intrusive element in views where such features were not previously visible. The potential also exists for visual effects, arising where trees or hedgerows are removed to accommodate the Proposed Development, which may open up views or alter local visual amenity.

5.3.5 The ZTV, shown in **Figure 5.2**, indicates that the Proposed Development would be discernible within views from areas of higher ground beyond the 5 km study area extents. Whilst views of the Proposed Development may be discernible from these locations, the increased distance in separation is unlikely to result in significant effects. Viewpoints have therefore been selected from locations within 5 km of the Site as representative of the visual receptors in the study area. Viewpoint locations are shown on **Figure 5.1.**

5.3.6 The Proposed Development, during construction and subsequent operation, is expected to affect visual amenity in the following ways:

- Temporary impacts as a result of the movement of materials and vehicles, uncharacteristic activity, plant and heavy vehicles, including movement of work crews; any undergrounding works, or similar during enabling and construction work;
- Permanent impacts from construction including tree and hedgerow clearance affecting views in and out of the Site; and
- The introduction of a discordant element of an industrial nature into views, in both close proximity and across longer distance views, permanently disrupting the existing visual amenity.

5.3.7 Whilst longer distance views from higher ground may give rise to significant effects (such as from the Culsh Monument), most significant visual effects are likely to be localised and within 2 km of the Site. Effects of temporary construction noise and uncharacteristic vehicle, plant, and work crew movements are more likely to be perceived as intrusive features within the local vicinity, along with the intrusiveness of the operational Proposed Development. Beyond 2 km, views have a greater potential to be screened by intervening features such as buildings, topography or vegetation.

Cumulative Landscape and Visual Effects

5.3.8 The assessment of cumulative effects would consider other developments within the study area. An indicative list of other developments that are anticipated to be considered is in **Section 3.2**.

5.4 Mitigation

5.4.1 The site selection process considers, and is influenced by, the nine principles of the Horlock Rules[23]. Landscape and visual amenity issues also formed a key input into the site selection process and, recognising the scale of development proposed, an important element in the decision-making process was the potential for large-scale landscape mitigation at the selected site.

5.4.2 The design for the site is being developed with input from the landscape team such that the design to be assessed will include a degree of embedded landscape and visual mitigation. This includes landform design to site the buildings most appropriately in the landscape, and provision of landscape mitigation screen planting to help screen the Proposed Development in views from the surrounding area, as well as providing new and improved habitat for biodiversity net gain (BNG).

5.4.3 The landscape mitigation strategy for the site will include the provision of appropriate planting to reduce the visual prominence of the substation within views, as well as replacement planting as part of the wider BNG proposals to help mitigate against those habitats lost to the Proposed Development. The landscape team will work closely with the project ecologist to ensure that while the needs of BNG are meet, they are designed in a manner that is appropriate to the landscape scale and provides landscape integration with the adjoining environment. This includes consideration of the scale and setting of the proposed landscape bunds. Where required to accommodate a specific habitat/planting type, gradients of engineered slopes may need to be revised.

5.4.4 Through the EIA process, the LVIA will seek to inform any further refinements to the Proposed Development and to consider how and where the landscape mitigation measures may be developed to further reduce potential adverse landscape and visual effects.

5.5 Proposed Scope of Assessment

5.5.1 The landscape and visual assessment will be undertaken in accordance with best practice guidance, in particular the 3rd Edition of the Landscape Institute and Institute of Environmental Management and

[23] The National Grid Company (2009). *NGC Substations and the Environment: Guidelines on Siting and Design.* The National Grid Company 2009. The Horlock Rules are available at https://www.nationalgrid.com/sites/default/files/documents/13796-The%20Horlock%20Rules.pdf

Assessment (IEMA) Guidelines for Landscape and Visual Impact Assessment[24] (GLVIA3) and Landscape Institute guidance on assessing landscape value[25].

5.5.2 The landscape and visual impact assessment will include:

- an illustrated statement on the impact of the Proposed Development on the landscape character and value of the area. The statement will include a description of the methodology used to assess character and the criteria to determine value; and
- an illustrated description of the visual impact of the Proposed Development on properties and locations to which the public have access.

5.5.3 The LVIA will consider effects on landscape and visual receptors within the study area during construction and operation.

5.5.4 From experience of other developments involving large buildings in a low-lying open rural landscape[26] as well as production of the ZTV (**Figure 5.2**), site visits and desk-top review, it is anticipated that significant effects are unlikely beyond 3 km from the Proposed Development, however, there may be areas of higher ground with panoramic, scenic vistas that could become significantly affected. As a result, an initial study area limit of 5 km from the Site Boundary is proposed, to be tested in the early stages of the assessment and reduced if appropriate to ensure a focus on potentially significant effects. The study area for the visual assessment will be the area covered by the ZTV (as by definition visual effects can only occur where the development is visible), cut off at 5 km, whilst the initial study area for the landscape assessment will be the entirety of the area within 5 km.

5.5.5 The initial stage of the process is the identification of the existing landscape and visual conditions of the study area (the baseline conditions). This would be informed by desktop research and field survey. The field work will consider both potential impacts on landscape character and potential impacts on the visual amenity of receptors within the study area the latter considering both static locations and transient views from people when travelling. Following consultation with the Aberdeenshire Council, site visits will be made to the agreed viewpoint locations.

5.5.6 The landscape character baseline will predominantly be informed by the NatureScot National Landscape Character Assessment, LCT 20: *Undulating Agricultural Heartland*. However, as LCT 20 covers a wide area, a finer scale of local landscape character assessment in the study area will be completed. The key features of the existing landscape character will be identified to establish the immediate and wider context of the Site, prior to establishing the landscape sensitivity of both LCT 20 and the locally-derived landscape character areas to the type of development proposed.

5.5.7 Baseline reporting in the LVIA Chapter will include the identification of relevant landscape planning policy at a national and regional level. Reference will be made to the following documentation:

- National Planning Framework 4 (NPF4, 2023)[27]; and
- Aberdeenshire Council, Aberdeenshire Local Development Plan 2023[28].

5.5.8 As part of the design of the landscape mitigation, consideration will be given to the following:

[24] Landscape Institute and IEMA (Third edition, 2013). Guidelines for Landscape and Visual Impact Assessment.
[25] Landscape Institute (2021). Technical Guidance Note TGN 02-21 Assessing landscape value outside national designations.
[26] For example, Spittal Converter Station, Caithness, Noss Head Switching Station, Caithness.
[27] Scottish Government 2023 [online], available at: https://www.gov.scot/binaries/content/documents/govscot/publications/strategy-plan/2023/02/national-planning-framework-4/documents/national-planning-framework-4-revised-draft/national-planning-framework-4-revised-draft/govscot%3Adocument/national-planning-framework-4.pdf. Accessed: December 2023.
[28] Aberdeen Local Development Plan 2023 [online], available at: https://www.aberdeencity.gov.uk/services/planning-and-building-standards/local-development-plan/aberdeen-local-development-plan

- Aberdeenshire Council, Aberdeenshire Local Development Plan, Appendix 8, Successful Placemaking Design Guidance[29];
- SSEN Guidance PR-NET-ENV-502: Substation Site Selection Guidelines for Voltages at or above 132kV[9];and
- National Grid, Horlock Rules – NGC Substations and the environment: guidelines on Siting and Design (2009)[30].

5.5.9 Following the initial site surveys and assessment of potential impacts on sensitive receptors during the construction and operation phases, a landscape analysis of the Proposed Development would be completed, and a Landscape Strategy derived to mitigate potential impacts to reduce the likelihood of potential significant effects. Consideration will be given in the landscape design process to geotechnical, flood risk, sustainable drainage design, acoustics, ecology, and BNG. This process aligns with SSEN Transmission's responsibilities under the Section 38 and Section 9 of the Electricity Act relating to the preservation of amenity.

5.5.10 The assessment of residual effects on Landscape Character and Visual Amenity during the construction phase and operation phases at Year 1 and Year 15 would be completed. The potential level of significance will then be finalised.

5.5.11 The assessment of effects on Landscape Character and Visual Amenity during the construction phase and operation phases at Year 1 and Year 15 would be completed, taking into consideration the proposed mitigation measures, and identifying both the magnitude of change for each identified receptor which, combined with the established sensitivity to change for each receptor, will help to determine the significance of the effects. The categories for magnitude, sensitivity and significance will be based on industry best practice guidance set out in GLVIA3 (2013) [31].

5.5.12 The significance of the effect of change on an attribute of a heritage asset is a function of the importance of the attribute and the scale of change. For this assessment, impacts of **Moderate** or greater significance are potentially significant in the context of the EIA regulations.

5.5.13 The assessment of cumulative effects with nearby development projects will also be completed.

Visualisation Methodology

5.5.14 To assist in illustrating the potential impacts of the Proposed Development on visual receptors, the visual assessment will be accompanied by photographs from a selection of key and representative viewpoints, to be agreed with Aberdeenshire Council through the LVIA process. An initial set of ten representative viewpoints have been identified through desk-based review and site visits but will be verified through further site visits and the production of a ZTV plan. The visualisations will be prepared in accordance with appropriate guidance (such as Landscape Institute Guidance on visualisation[32]) with five of them illustrated by photomontages (Type 3) and five as 3D wirelines (Type 2). The camera location would be surveyed on site using a handheld Global Positioning System (GPS).

5.5.15 Visualisation presentation will be determined in agreement with Aberdeenshire Council, such as an A3 single frame view or panorama, but will include the current view and the proposed view at Years 1 and 15 using the 3D model of the Proposed Development. It is assumed that photography will be completed in early 2024.

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[29] Aberdeen Local Development Plan 2023 [online], available at: https://www.aberdeencity.gov.uk/services/planning-and-building-standards/local-development-plan/aberdeen-local-development-plan

[30] The National Grid Company (2009). *NGC Substations and the Environment: Guidelines on Siting and Design.* The National Grid Company 2009. The Horlock Rules are available at https://www.nationalgrid.com/sites/default/files/documents/13796-The%20Horlock%20Rules.pdf [Accessed: November 2023].

[31] Landscape Institute and IEMA (Third edition, 2013). Guidelines for Landscape and Visual Impact Assessment.

[32] Landscape Institute (2019). Technical Guidance Note 06/19 Visual Representation of Development Proposals. Available at: [Accessed: November 2023].

5.5.16 Within the study area, it is anticipated that the potential key visual receptors are likely to be individual residential properties, residential properties on the edge of settlements, and users of the surrounding road networks. Reference will be made to the Aberdeenshire Council Core Paths network and visitors to the Culsh Monument.

5.5.17 The initial set of representative viewpoint locations proposed, along with agreement to show five as Landscape Institute (LI) Type 3 photomontages and five as LI Type 2 wireframes, were identified and agreed with Aberdeenshire Council. The proposed representative viewpoints are shown on **Figure 5.1** and listed in **Table 5-1** below. **Table 5-1** also contains an indication of the visualisation type for each viewpoint.

Table 5-1 Proposed Representative Viewpoints

Viewpoint	Description	Distance/Direction (approximate) from Proposed Development	Visualisation Type
1	View looking in a south westerly direction from Hill of Culsh, Culsh Monument. Representative of visitors to nearby local attractions	5 km north east	LI Type 2 wireframe
2	View looking south west from Northburn. Representative of views from residential property and users of local roads	0.4 km north east	LI Type 3 photomontage
3	View looking south west, from local road. Representative of views from local road, and nearby farmsteads, namely, Greenbrae and Whitebog	3.5 km north east	LI Type 2 wireframe
4	View looking south west from West Cairncake, from bus stop. Representative of views from nearby residential properties, and users of B9170	2 km north	LI Type 3 photomontage
5	Views looking south east from Thornhill Road. Representative of nearby settlement of Cuminestown, users of Thornhill Road, and nearby farmsteads, principally South Thornhill	1.8 km north west	LI Type 2 wireframe
6	View looking east, from local road. Representative of views from local road, and nearby farmsteads, namely, Berryhill, Northburnhill, and Upper Greenfield	0.5 km west	LI Type 3 photomontage
7	View looking north east, from Middletack. Representative of users of local roads and nearby residential receptors, Middletrack, Tall Trees, Mill of Muirtack	0.5 km south west	LI Type 3 photomontage
8	View looking north from a local road to the south of Moss of Sprottynook. Representative of nearby farmsteads at Sprottyneuk, Bridge Valley, and Little Swanford	1.5 km south	LI Type 2 wireframe
9	Views looking north west from Maryhill. Representative of users of local roads and nearby residential properties	1 km south east	LI Type 3 photomontage
10	View looking north west from local road. Representative of uses of local roads, and nearby residential properties, namely Slacks of Cairnbanno	2.5 km south east	LI Type 2 wireframe

5.6 Issues to be Scoped Out

5.6.1 Effects on receptors out with areas of visibility (as will be indicated by the ZTV analysis and verified via site visits) (see **Figure 5.2 Zone of Theoretical Visibility**) are scoped out of the assessment due to the lack of LSE. **Table 5-2** describes the elements of landscape character and visual amenity to be scoped out of the landscape and visual assessment.

Table 5-2 Issues Scoped Out

Issues Scoped out of Assessment	Justification
Landscape Character: National Parks, National Scenic Areas, Wild Land Areas	There are no Nationally designated landscapes within 10 km of the Proposed Development and they would therefore not experience any effects as a result of the Proposed Development.
Landscape Character: National Landscape Character Types	Due to the scale of LCT 25, and its distance from the Site, it is not considered likely that any significant effects would occur as a result of the Proposed Development, and it is therefore excluded from further assessment.
Landscape Character: Special Landscape Area (SLA)	The closest SLA to the site has been identified as the Deveron Valley, approximately 9 km to the west of the site. Distance and intervening topography, built form, and vegetation would prevent any significant effects occurring on the key characteristics or special qualities of the SLA.
Visual Receptors: Derelict Farmsteads	At the time of writing, some properties may be derelict and their future use and function unknown. These properties are therefore excluded from the scope of this assessment.
Visual Receptors: Recereational receptors at East Balthangie Caravan & Camping Park	East Balthangie Caravan & Camping Park is approximately 4.5 km northeast of the Proposed Development and unliklely to incur significant effects due to the distance from the Proposed Development and the undulating topography
Residential Visual Amenity Assessment (RVAA)	RVAA determines whether the impact of a development is of such a nature and / or magnitude that it potentially affects 'living conditions' or Residential Amenity. RVAA does not consider other components of Residential Amenity such as noise or air quality and therefore is only of value where residential properties in close proximity to the Proposed Development may be significantly impacted in relation to visual Residential Amenity. Effects on residential receptors are anticipated to be captured sufficiently and holistically within the LVIA to identify significant adverse effects (taking in to account perceptual qualities as well as visual changes on receptors) and therefore a separate RVAA is scoped out of this assessment.
Night time Assessment	Night time working is not anticipated and proposed buildings are not expected to be illuminated at night during normal operation. There would be emergency floodlights installed for health and safety purposes, but these would not be permanently lit. The access roads would also not be lit under normal operation. As such, there are no anticipated impacts from light pollution as a result of the Proposed Development and a night-time visual assessment has therefore been scoped out of this assessment.

5.7 Summary

5.7.1 The Proposed Development is considered to have the potential for significant effects on landscape character (LCTs) and visual amenity. An initial study area limit of 5 km from the Proposed Development is proposed for the landscape and visual assessment, although these limits will be tested in the early stages of the LVIA and may be amended for the EIA Report to ensure a focus on potentially significant effects.

5.7.2 A desk top assessment will be supported by a detailed field survey with the findings represented by photography using current professional guidance and recommendations. The potential impacts on the landscape character and visual amenity will be identified and the sensitivity of each type of receptor described.

5.7.3 The effects of the Proposed Development on landscape and visual assets will be assessed and mitigation measures proposed to prevent, reduce, or offset any likely significant adverse effects on the landscape or on visual amenity.

5.7.4 Cumulative effects from the Proposed Development in combination with other developments will also be considered.

6 Ecology, Nature Conservation and Ornithology

6.1 Introduction

6.1.1 This Chapter considers ecological baseline conditions, the potential effects associated with construction and operation of the Proposed Development and the proposed scope of assessment methodology to be considered in the EIA Report.

6.2 Baseline Conditions

6.2.1 A desk-based study to identify designated sites within and surrounding the land earmarked for the Proposed Development was undertaken during the Site selection stage. Statutory designated sites at European or International level were identified within a provisional search area of 10 km beyond the Site Boundary. This search area was extended to 20 km to account for the increased foraging range of certain goose species (greylag goose and pink-footed goose). National and local level designations were identified up to 2 km from the Site.

6.2.2 There are no statutory designated sites within the predefined search parameters. There are no non-statutory designations or nature conservation sites which overlap with the Site or are otherwise connected to the Site.

6.2.3 Field surveys which have been completed to date include those listed below. The Site Boundary has extended to the north and east since some of these surveys were undertaken. Additional surveys for each will be undertaken during a suitable season in 2024 with consistent methods, to capture a full baseline of the Site and surrounding area.

- UK Habitat Classification (UKHab) survey[33] and Habitat Condition Assessment following Natural England Biodiversity Metric V3.1[34] (methods available at the time of survey) – November 2022. An additional UKHab survey was undertaken at parts of the Site to inform the alignment studies of the associated grid connection in August 2023.
- Preliminary bat roost assessment of trees and buildings within the Site and wider 30 m area – following methods available at time of survey[35] and NatureScot standing advice[36] – October 2023.
- Automated detector monitoring for bat hibernation activity at buildings with moderate suitability – following latest methods[37] – monthly between November 2023 and March 2024.
- Badger survey within the Site and surrounding 100 m area following guidance from Scottish Badgers[38] and NatureScot standing advice[39] - October 2023.
- Pine marten survey of woodlands and boundary features within the Site and surrounding 250 m area following NatureScot standing advice[40] – October 2023.

[33] UK Habitat Classification (2020). The UK Habitat Classification User Manual. Version 1.1.
[34] Natural England (2022). Biodiversity Metric 3.1. Natural England Joint Publication JP039. Available at: (now archived) https://publications.naturalengland.org.uk/publication/5850908674228224 [Accessed: August 2023].
[35] Collins, J. (ed.) (2016). Bat Surveys for Professional Ecologists, Good Practice Guidelines (3rd Edition). The Bat Conservation Trust, London.
[36] NatureScot (online). Standing advice for planning consultations – bats. Available at: https://www.nature.scot/doc/standing-advice-planning-consultations-bats
[37] Collins, J. (ed.) (2023). Bat Surveys for Professional Ecologists, Good Practice Guidelines (4th Edition). The Bat Conservation Trust, London.
[38] Scottish Badgers (2018). Surveying for Badgers: Good Practice Guidelines. Version 1.
[39] NatureScot (online). Standing advice for planning consultations – badger. Available at: https://www.nature.scot/doc/standing-advice-planning-consultations-badgers
[40] NatureScot (online). Standing advice for planning consultations – pine marten. Available at: https://www.nature.scot/doc/standing-advice-planning-consultations-pine-martens

- Red squirrel survey of woodlands within the Site and surrounding 50 m area following NatureScot standing advice[41] – October 2023.
- Otter survey along watercourses and ditches within the Site and surrounding 200 m area following NatureScot standing advice[42] – October 2023.
- Water vole survey along watercourses and ditches within the Site and surrounding 100 m area[43] – October 2023.
- Fish habitat suitability assessment of watercourses and ditches within the Site and surrounding 250 m area following guidance from Scottish Fisheries Co-ordination Centre (SFCC)[44] – October 2023.
- Breeding bird survey within the Site and surrounding 100 m[45] area – four visits April to July 2023.
- Scarce breeding bird survey extending to 2 km beyond the Site[46] – four visits April to July 2023.

Habitats

6.2.4 The preliminary UKHab survey was completed during a suboptimal botanical season (November 2022), but it was possible to map the broad habitat types based on their structure, remnant vegetation, and land use practices. A repeat site visit as part of studies to inform the alignment selection study of the grid connection was undertaken during a more optimal time of year (August 2023) and corroborated the UKHab mapping. Most of the area surveyed comprises cropland or modified grassland, with relatively smaller areas of other neutral grassland and damp rush pasture to the south-east, gorse scrub along the northern boundary and ditch, and hedgerows. A ditch runs from west to east through the Site with dense vegetation on the banksides, this feeds into the Burn of Greens in the east. The damp rush pasture appeared species-poor during survey in August 2023, with soft rush dominating and associated species marsh willowherb, common sorrel, Yorkshire fog, cuckooflower. No Annex 1, irreplaceable or important peat-forming habitats were identified.

6.2.5 Additional habitat surveys will be undertaken to provide a full baseline for the Site and surrounding area ahead of assessment.

Badger

6.2.6 Badgers are active in the area. Further information has not been disclosed due to their sensitivity to persecution but can be shared directly on request.

6.2.7 Additional surveys are under consideration to provide further context on the use of features at the Site, including camera trap monitoring and sett mapping over an extended area beyond 100m of the Site.

[41] NatureScot (online). Standing advice for planning consultations – red squirrel. Available at: https://www.nature.scot/doc/standing-advice-planning-consultations-red-squirrels
[42] NatureScot (online). Standing advice for planning consultations – otter. Available at: https://www.nature.scot/doc/standing-advice-planning-consultations-otters
[43] NatureScot (online). Standing advice for planning consultations – water vole. Available at: https://www.nature.scot/doc/standing-advice-planning-consultations-water-voles
[44] SFCC (2007). Habitat Surveys. Training Course Manual. Revised August 2007.
[45] Based on the Common Bird Census. Gilbert G., Gibbons DW, and Evans J. (1998). Bird Monitoring Methods. RSPB, Sandy.
[46] SNH (2017). Recommended bird survey methods to inform impact assessment of onshore windfarms. SNH Guidance. SNH, Battleby.

Bats

6.2.8 The preliminary bat roost assessment identified potential roost features within a private water supply building at the Site, a number of buildings at Mains of Greens, another property within the Site, and there appear to be two other private properties within the surrounding 30 m area. The buildings within the Site have potential roost features assessed to be of moderate or low suitability for roosting bats during the active season. A review of building suitability to support hibernating bats was undertaken concurrently, with preliminary findings ranging between negligible to moderate suitability depending on the characteristics of the features within each structure and surrounding habitat. No high-suitability features within buildings were recorded during the preliminary survey. Seven trees were recorded within the Site and the surrounding 30 m area have potential roost features.

6.2.9 Data analysis from the bat hibernation surveys is ongoing.

6.2.10 Further surveys to qualify the presence of summer and transitional roosting bats in buildings and trees with potential roost features will be undertaken following the prevailing good practice guidelines[37] during the relevant seasons in 2024.

Water vole

6.2.11 The ditch connected to a private water supply in the west, extending east between field boundaries towards Mains of Greens, which has been culverted under tracks, was of limited suitability for water vole because parts of the channel were dry at the time of survey (October 2023).

6.2.12 The Burn of Greens which extends across the east of the Site has suitability to support water vole with suitable foraging vegetation and slow running water. No signs of activity were recorded during the survey however the vegetation was dense and may have obscured burrows or droppings. Historical records of water vole in the catchment have been identified through a desk study.

6.2.13 An additional water vole survey will be undertaken in spring 2024 to identify any burrows or signs of activity.

Fish

6.2.14 Similar to water vole, the ditch connected to a private water supply in the west, extending east between field boundaries towards Mains of Greens, was considered to be of limited suitability for fish. It was very shaded at the time of survey with dense vegetation on either bankside. Dry parts of the channel limited its connectivity across the Site for fish and it has been culverted under tracks.

6.2.15 The ditch within the Site feeds into the Burn of Greens which extends across the east of the Site. Burn of Greens does have suitability to support fish species such as salmonids. Fish were observed within Burn of Greens during the survey, by the road bridge.

6.2.16 Electrofishing surveys will be undertaken along Burn of Greens in summer 2024 to assess the species present and population estimates.

Birds

6.2.17 Breeding bird surveys to date have found that the arable and grazing-dominated habitat within the Site and the wider area is generally of low value for ornithological interests. Species recorded have included a small number of yellowhammer territories and a single grey partridge territory. Both species are red listed on Birds of Conservation Concern 5 (BoCC5)[47].

[47] Stanbury, A., Eaton, M., Aebischer, N., Balmer, D., Brown, A., Douse, A., Lindley, P., McCulloch, N., Noble, D., and Win I. (2021). The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain. British Birds 114: 723-747.

6.2.18 The scarce breeding bird surveys covering a wide study area (up to 2 km beyond the Site) did not record any evidence of sensitive breeding species, e.g., Schedule 1 raptors, within the Proposed Development's potential zone of influence. However, note the incidental observation of a Schedule 1 species, barn owl, discussed below.

6.2.19 During bat surveys a barn owl was disturbed from a building along the eastern boundary of the Site. This indicates at the very least this is a roost site and could also be a breeding site. Presumably the same bird (having been disturbed) was then seen within the south-east of the Site in the main farm buildings. Additional surveys to qualify the presence of a roost/breeding site will be undertaken.

Other species

6.2.20 Surveys undertaken in October 2023 for pine marten, red squirrel, and otter did not reveal any conclusive evidence of these species. The ditch within the Site would not be suitable for otter and regular foraging, for similar reasons outlined above for fish; although Burn of Greens would be suitable. The conifer plantation in the north-west of the Site and surrounding area would be suitable for red squirrel and pine martens. This was too dense to properly inspect for dreys or den sites, however no observations of potential resting sites, foraging signs, scats or other evidence of their presence were made from the perimeter.

6.2.21 A review of the suitability of the habitats at the Site for other protected species identified limited habitat for invertebrates, amphibians, and reptiles. Common and widespread amphibians may use drainage ditches for breeding. Hedgerows may provide some refuge for common and widespread reptiles and amphibians. However, the habitats surrounding these are relatively managed and therefore the Site is unlikely to represent a key area for these species. The areas of damp neutral grassland at the Site and field margins may support common and widespread invertebrates.

Sensitive Receptors

6.2.22 Based on the information available to date and in the absence of final designs, associated infrastructure (e.g., access and connections), or construction methods, the sensitive ecological/ornithological receptors are likely to include:

- semi-natural habitats;
- bats;
- badgers;
- water vole;
- fish; and
- barn owl.

6.2.23 As surveys are ongoing to gather additional baseline information, it is possible that there may be changes to the above list. The EIA Report Chapter will include a full review of the baseline data and conservation status of each receptor to identify the Important Ecological Features (those within the Proposed Development's Ecological Zone of Influence and of Local level value or greater). The EIA Report Chapter will detail any receptors scoped out of further assessment and justification for this.

6.3 Potentially Significant Effects

Badgers

6.3.1 In the absence of ground-truthed habitat data for the full Site Boundary, it is possible there are semi-natural habitats to the west which may be lost or degraded. Although, aerial imagery suggests similar habitat types that have already been mapped are likely to extend across the wider area with similar land practices/use. A BNG assessment will be undertaken in parallel with the EIA to inform landscape designs. The BNG assessment will be documented within a standalone BNG Summary of Assessment. The Proposed Development will have a

target to achieve a 10 % net gain in Biodiversity Units (BUs). Habitat loss of semi-natural areas will therefore be accounted for through the BNG process.

6.3.2 The mitigation hierarchy will be applied through the ongoing design phase to retain badger setts and supporting habitat where possible. However, the loss of certain setts may be unavoidable due to the feasibility of the build and future connections coming into the Site; and it is likely that the Proposed Development will result in loss of foraging habitat to some extent. The largest sett identified had six well-used entrances. It has not been possible to reliably classify the type and use of this sett without context from the wider area; it has therefore been considered a candidate main sett and further surveys will be undertaken to understand how it is used and evaluate the importance of it to the social group. Habitat loss is likely to be mainly from cropland which is a 'secondary' foraging habitat for badgers[48]. There would also be loss of modified grassland, a 'primary' foraging habitat, but to relatively lesser extent. Based on the current data, there is potential for negative effects on badgers from foraging habitat loss, but these effects are unlikely to be significant for the local social group(s) as there is an abundance of 'primary' and 'secondary' foraging habitat in the surrounding area. Potential remains for significant effects arising from the unavoidable loss of setts, including a candidate main sett.

6.3.3 There is potential for construction related injury to or incidental killing of badgers – although good construction practices (e.g., securing work areas, safely storing materials, restricting vehicle speed limits) would suitably reduce this risk such that it would not have a significant effect.

6.3.4 It is not anticipated that the operational phase of the Proposed Development would significantly increase the mortality rate of badgers. The area is already bound by roads and vehicle movements within the Site will likely be restricted to reduced speed limits.

6.3.5 As surveys are ongoing, it is proposed that effects to badgers be considered further through EIA. This would be reviewed upon additional data collection. All works affecting badger setts would be subject to licensing. The unavoidable loss of any resting sites may require compensation. All mitigation and compensation will be described in the EIA Report.

Bats

6.3.6 The Proposed Development may affect bats through roost loss and/or disturbance if bats are identified to be using the potential roost features within buildings and trees within the Site and surrounding 30m area. If roosts are identified during ongoing hibernation surveys and activity surveys in 2024, the mitigation hierarchy will be applied to retain these where possible. If any roosts are present, these are likely to be used by common and widespread species in the north-east. With this in mind and the number of features within the Site with potential roost features, it is unlikely that there would be a significant effect on the local bat population.

6.3.7 Where buildings are retained and buffered from proposed construction works through design, potential disturbance is unlikely to result in a significant effect. The local bat population is unlikely to rely exclusively on habitats at the Site, and these features and their function are well represented across the wider landscape. The loss of habitats from the Site is therefore unlikely to have a significant effect on the local bat population.

6.3.8 As surveys are ongoing it is proposed that effects to bats be considered further through EIA. This would be reviewed upon additional data collection. All works affecting bat roosts would be subject to licensing. The unavoidable loss of any resting sites may require compensation. All mitigation and compensation will be described in the EIA Report.

[48] NatureScot (online). Managing land as a foraging resource for badgers. Available at: https://www.nature.scot/sites/default/files/2018-04/Guidance-Managing-land-as-a-foraging-resource-for-badgers.pdf

Water vole and fish

6.3.9 There is potential for drainage plans which may include the construction of an outfall, or newly created access to the Proposed Development, to affect water vole and fish potentially using Burn of Greens through loss of or damage to burrows or spawning sites respectively. Additional surveys will be undertaken to qualify presence and inform sensitive designs to be able to avoid or suitably reduce effects. In the absence of additional data and designs, potential remains for significant effects and this would be scoped into further assessment through EIA.

Barn owl

6.3.10 Potential significant effects to barn owl through disturbance and displacement during the construction phase could occur as the latest Site plans indicate construction of material lay down areas and SUDs ponds surrounding the original building where a barn owl was observed. In addition, the main farm building complex involving the second barn owl observation is within the Site Boundary and potentially impacted by the Proposed Development. Further to this, updates to the Site Boundary in the south-east of the Site incorporate an additional farm building complex into the ZoI that may be suitable for barn owl. The buildings are alongside the Site and potentially within a ZoI for disturbance, dependent on the nature of works in this area. The nature of works along the eastern Site Boundary is not confirmed. In a worst-case scenario demolition of buildings to facilitate construction of the Site Boundary could result in significant effects to barn owl.

6.3.11 As a precaution barn owl will be considered in the EIA and mitigation will be implemented that is proportionate to the anticipated effects once construction methods are fully understood.

6.3.12 Effects arising from artificial lighting at night on nocturnal/crepuscular species (e.g., bats, badgers, barn owls) from construction and operational phases of the Proposed Development will be considered. It is anticipated that sensitive/sympathetic lighting schemes would be embedded and light spill outside of the Site would be reduced as far as possible.

6.4 Mitigation

6.4.1 The mitigation hierarchy will be applied throughout the assessment, including from the design stage. The consideration of potential significant effects on habitats and species, informed by further survey data, will be used to influence the siting of infrastructure and construction access, where technically feasible, to avoid or minimise effects.

6.4.2 In addition, the Applicant has established best practice construction techniques and procedures that have been agreed with statutory consultees, including Scottish Environment Protection Agency (SEPA) and NatureScot. These are set out within the SSEN Transmission General Environmental Management Plans (GEMP) and Species Protection Plans (SPP). The Proposed Development would be constructed in accordance with these plans.

6.4.3 A contractual management requirement of the successful Principal Contractor would be the development and implementation of a comprehensive and site-specific robust Construction Environmental Management Plan (CEMP). This document would detail how the successful Principal Contractor would manage the works in accordance with all commitments and mitigation detailed in the EIA Report, the SSEN Transmission GEMPs, SPPs, statutory consents and authorisations, and industry best practice and guidance, including pollution prevention guidance.

6.4.4 Additional mitigation measures to remove or suitably reduce potential significant effects will be identified through the EIA. This may include ecological compensation. The EIA Report Chapter will fully detail any additional measures including responsibilities, timescales, and any follow-on monitoring requirements.

6.4.5 Mitigation measures will be identified to ensure compliance with nature conservation legislation and as a precaution for red squirrels and pine marten, where the use of the woodland to the north-east by these species is unknown and there were access limitations during the survey.

6.5 Proposed Scope of Assessment

6.5.1 Field surveys to inform the assessment are ongoing and under review – as described above in relation to habitats, bats, badgers, water vole, fish, and barn owls – to completed between November 2023 and August 2024.

6.5.2 The ecological impact assessment will be completed in accordance with the Chartered Institute of Ecological and Environmental Management (CIEEM) Guidelines for Ecological Impact Assessment. The assessment will use the ecological baseline to identify the Important Ecological Features (IEF) that could be affected by the construction or operation of the Proposed Development, by assigning a geographic level of importance to each receptor based on its conservation status, population / assemblage trends and other relevant criteria (including size, naturalness, rarity and diversity). Details of the Proposed Development will then be used to assess what level of effect each IEF is likely to receive and whether or not that effect will be beneficial, adverse, or neutral, and significant or not significant.

6.5.3 Where appropriate, mitigation measures will be recommended within the EIA to remedy any adverse effects and measures to enhance the local ecology will also be incorporated within the assessment. An assessment of residual effects will then be undertaken and reported within the EIA Report.

6.5.4 A BNG Summary of Assessment will also be produced, setting out the pre- and post-development BUs. This will aim to demonstrate a measurable net gain will be delivered through habitat enhancement and creation. A target of 10% net gain has been proposed. This will be set out alongside other more qualitative enhancements for biodiversity.

6.6 Issues Scoped Out

Designated sites

6.6.1 There are no perceived effect pathways for impacts to designated sites with ecological or ornithological qualifying interests. Although the Site and surrounding area provides suitable foraging habitat for geese, no designated sites with geese as qualifying interests were identified within the Proposed Development's potential Ecological Zone of Influence based on predicted foraging ranges.

Habitats

6.6.2 It is proposed that impacts to improved and semi-natural habitats at the Site, when considered solely as habitat interests (i.e., not as supporting species), are scoped out of further assessment. This is based on their relatively low ecological value, the fact they are comprised of commonly occurring or widespread species, current modified/land use condition, and being well represented in the wider landscape. It is anticipated that woodlands surrounding properties and treelines at the Proposed Development will be retained as far as reasonably possible through the design. A BNG assessment will be undertaken in parallel with the EIA to inform landscape designs. The BNG assessment will be documented within a standalone BNG Summary of Assessment. The Proposed Development will have a target to achieve a 10% net gain in BU. Habitat loss of semi-natural areas will therefore be accounted for through the BNG process.

6.6.3 A full review of the value of each habitat type and how it may be affected by final designs will be undertaken to qualify what may be scoped in/out.

Pollution

6.6.4 All issues arising from pollution during the construction and operational phases are scoped out. If any, these would be short-term and likely to be localised events. Effective, industry-standard mitigation measures will be embedded within the Proposed Development (detailed within the Principal Contractor's CEMP and the SSEN Transmission GEMPs).

Protected Species (Non-Avian)

6.6.5 Based on the baseline information available, the following species are scoped out of further assessment through EIA: red squirrel, pine marten, amphibians, reptiles, and invertebrates. No evidence of their presence has been observed, the Site and surrounding area offers low suitability habitat or is unlikely to represent a key area for these species/groups. The same habitat types are well represented in the wider landscape. Any new evidence of these species, or other protected and conservation priority species, which may be recorded during subsequent ecology surveys and other visits to the Site will be reconsidered as part of the EIA. In addition, the EIA will list mitigation measures driven by legal requirements for both IEF and non-IEF species.

Ornithology

6.6.6 Aside from barn owl discussed in **Section 6.3**, all other ornithological interests are scoped out of further assessment through EIA. Breeding bird surveys to date have found that the arable and grazing-dominated habitat within the Site and the wider area is of low value for ornithological interests. Species recorded have included a range of typical farmland passerines (songbirds) in addition to grey partridge. Grey partridge is a declining Red List species within BoCC5 and has a UK population estimate of 37,000 pairs[49]. However, taking account of the relatively localised nature of the Proposed Development in comparison to the extensive suitable habitat (arable farmland) present in the wider area, no significant effects to the species are anticipated. In addition, these species are expected to be habituated to a degree of disturbance from farming operations.

6.6.7 Effective, industry-standard mitigation measures and sensitive timings of works would be embedded within the Proposed Development for the protection of all active bird nests, to ensure compliance with the Wildlife and Countryside Act (1981) as amended.

6.7 Summary

6.7.1 Baseline studies for ecology are ongoing, but initial data suggests bats, badgers, water vole, fish and barn owls could be the main sensitivities at the Site. The EIA Report Chapter will focus on these species and review additional data obtained through future surveys to assess fully the significance of any impacts to these species and their supporting habitat. The mitigation hierarchy will be applied from early design stage. However, where there will be unavoidable impacts on resting sites (e.g., badger setts, bat roosts, water vole burrows), it is likely that species-specific mitigation, compensation and licensing will be required.

6.7.2 Effects on habitats and other species have been scoped out at this stage (pending further surveys). Notwithstanding, a BNG Assessment will be undertaken to deliver positive effects in terms of habitat enhancement and creation. This will be reviewed in collaboration with development of landscape designs that would also benefit wildlife.

[49] Woodward, I., Aebischer, N., Burnell, D., Eaton, M., Frost, T., Hall, C., Stroud, S. & Noble, D. (2020). APEP 4 - Population estimates of birds in Great Britain and the United Kingdom. British Birds Volume: 113.

7 Cultural Heritage

7.1 Introduction

7.1.1 This Chapter of the Scoping Report provides a brief overview of the cultural heritage baseline conditions, the potential effects associated with construction and operation of the Proposed Development and the proposed scope of assessment methodology to be considered in the EIA Report.

7.1.2 The cultural heritage EIA Report Chapter will assess the potential for significant effects on heritage assets resulting from the Proposed Development. It will also form the basis for further consultation with Historic Environment Scotland (HES) and the Aberdeenshire Council Archaeology Service (ACAS).

7.2 Baseline Conditions

7.2.1 The Site selection and scoping stages of the Proposed Development involved a review of publicly available heritage data from the following sources:

- Geographic Information System (GIS) data on scheduled monuments, listed buildings, and Gardens and Designed Landscapes (GDLs) obtained from Historic Environment Scotland (HES).
- GIS data on other heritage assets will be obtained from the Scottish National Record of the Historic Environment (SNRHE), which is maintained by HES, and from the Aberdeenshire Historic Environment Record (HER), which is maintained by the Aberdeenshire Council Archaeology Service (ACAS).
- First and subsequent editions of the Ordnance Survey (OS) maps of the Proposed Development area, examined via the National Library of Scotland (NLS).
- A detailed walkover survey of the Proposed Development area.

7.2.2 A walkover survey of the majority of the current Proposed Development boundary was conducted during the Site selection stage, but no new heritage assets were discovered. For areas not surveyed, aerial photography demonstrated that they had been extensively ploughed and no anomalies were noted that may have been of interest.

7.2.3 There are no designated heritage assets within the Site Boundary or the 1 km study area that has been utilised for Cultural Heritage. The 1 km study area was chosen due to the lack of potential for significant effects to arise from impacts on designated heritage assets outside of this study area, following initial assessments at Site selection stage and responses from consultees. Furthermore, the proposed substation is no higher than 14.5 m in height and has been designed to reduce visual impact (see **Section 2.3**). The nearest designated heritage asset is Millbrex Church (LB9629) which is located 3.6 km south of the Proposed Development.

7.2.4 The desk-based review identified three non-designated heritage assets within the Proposed Development. These comprise the remains of Mains of Greens farmstead (NJ84NW0070), a linear boundary dyke (NJ84NW0051), and the remains of rig and furrow (NJ84NW0050), all recorded within the local HER. There are also 10 non-designated heritage assets within 250 m of the Proposed Development. These include a range of heritage assets dating from the post-medieval period. **Table 7-1** lists the heritage assets within the study area.

Table 7-1 Heritage assets

Heritage Asset Designation	Heritage Asset Names and Reference Numbers
Non-designated	The following non-designated heritage assets have been identified within the boundary of the Proposed Development: • Upper Greenfield boundary dyke (NJ84NW0051) • Upper Greenfield rig and furrow (NJ84NW0050) • Mains Of Greens farmstead (NJ84NW0070)

Heritage Asset Designation	Heritage Asset Names and Reference Numbers
	The following non-designated heritage assets have been identified within the 250 m study area of the Proposed Development: • Newton farmstead (NJ84NW0058) – located outside the northern edge of the Proposed Development • Borderside farmstead (NJ84NW0072) – located outsdie the south eastern edge of the Proposed Development • Greenfield croft (NJ84NW0031) – located 130 m south of the Proposed Development • Greenfield mill (NJ84NW0032) – located 140 m south of the Proposed Development • Inchgreen cottage building (NJ84NW0007) – located 180 m south of the Proposed Development • Inchgreen farmstead (NJ84NW0008) – located 190 m south of the Proposed Development • Inchgreen farmstead (NJ84NW0103) – located 210 m south east of the Proposed Development • Upper Greenfield farmstead (NJ84NW0042) - located 210 m south west of the Proposed Development • Inchgreen cottage house (NJ84NW0101) – located 240 m south of the Proposed Development • Latchfold croft (Canmore ID 174487) - located 250 m south of the Proposed Development

7.3 Potentially Significant Effects

7.3.1 The Proposed Development is not located within 1 km of any designated heritage assets therefore there is no potential for significant effects on any designated heritage assets. No significant effects are anticipated beyond that distance because the Proposed Development is no higher than 14.5 m in height and has been designed to reduce visual impact (see **Section 2.3**). Beyond 1 km, impacts from changes within the setting of heritage assets are not anticipated to be significant.

7.3.2 The three identified non-designated heritage assets within the Proposed Development area (see **Table 7-1**) have the potential to be physically impacted by the Proposed Development. However, the boundary dyke (NJ84NW0051) and the rig and furrow (NJ84NW0050) are heritage assets of negligible value pertaining to agricultural features and field boundaries, and their removal would not result in significant adverse effects.

7.3.3 The demolition of the Mains of Greens farmstead (NJ84NW0070), that contains elements of the original farmstead from the 19th century Ordnance Survey maps, and may date to the 18th century, would constitute an impact that would result in a significant effect.

7.3.4 The Proposed Development area has not been developed in the post-medieval and modern periods and the only recorded activity is agricultural in nature. This suggests there is the potential for archaeological remains from earlier periods to survive as sub-surface remains. While this potential could not be clarified without archaeological investigations, it is not possible to ascertain the value of any remains that may exist. However, if archaeological remains were discovered, preservation by record through archaeological excavation would be extremely unlikely to result in significant residual effects.

7.4 Mitigation

7.4.1 Potential direct physical impacts on known heritage assets have been considered throughout the design process to avoid non-designated heritage assets and preserve them *in-situ*.

7.4.2 The boundary dyke (NJ84NW0051) and the rig and furrow (NJ84NW0050) within the Proposed Development would be demarcated and avoided where possible. If this cannot be acheived, mitigation in the form of an earthwork survey and archaeological recording may be required to mitigate the impacts upon them.

7.4.3 The physical impacts upon the Mains of Greens farmstead (NJ84NW0070) would require a historic building recording to a suitable level of detail for the remains that are *in-situ*, to be agreed through consultation with ACAS. This recording would allow for the preservation by record of the farmstead remains.

7.4.4 As the Proposed Development is in an area that has seen little modern development, there is potential for previously unrecorded archaeological remains to exist within the area. In keeping with planning policy set out within NPF4, a programme of archaeological work, such as archaeological evaluation prior to construction, or archaeological monitoring during construction, as well as excavation and recording of any discovered archaeological remains, will mitigate any impacts on these potential archaeological remains. The details and scope of such a programme of evaluation would need to be set out within an archaeological Project Design, to be agreed through consultation with ACAS.

7.5 Proposed Scope of Assessment

7.5.1 The assessment of potential effects on heritage assets within the baseline will be carried out in accordance with the standards set by the Chartered Institute for Archaeologists (ClfA), and in agreement with HES and ACAS.

7.5.2 A detailed desk study will be undertaken to inform the cultural heritage baseline and will include consultation with HES and ACAS. The assessment will be informed by a review of all available archaeological records, historical documentary evidence, cartographic evidence, and photographic material. This will involve consultation of the following sources:

- Geographic Information System (GIS) data on scheduled monuments, listed buildings, and GDLs obtained from HES;
- GIS data on other heritage assets will be obtained from the SNRHE, which is maintained by HES, and from the Aberdeenshire HER, which is maintained by ACAS;
- Readily accessible primary and secondary historical sources for information relating to the area's historical past, including past land use;
- Pre-Ordnance Survey maps of the Proposed Development area, available online from the National Library of Scotland (NLS);
- First and subsequent editions of the Ordnance Survey (OS) maps of the Proposed Development area, examined via the NLS;
- LIDAR datasets of the general area through NLS;
- The solid and drift geology for the Proposed Development area based on that recorded by the British Geological Survey/Geological Survey of Great Britain maps; and
- The detailed walkover survey of the Proposed Development area, undertaken on 15th November 2022.

7.5.3 The study area for the assessment will be set at 500 m for non-designated heritage assets, providing a wider baseline understanding of the archaeological potential within the site.

7.5.4 Effects related to cultural heritage will be determined by identifying the value of the heritage assets within the baseline and assessing the magnitude of any potential impacts. The effects will be assessed by taking account of the predicted magnitude of impact and the value of the receptor. Mitigation measures will be recommended to minimise the impact of the Proposed Development on cultural heritage, and a residual effect will be determined.

7.5.5 The determination of the value of heritage assets is based on statutory designation and/or professional judgement against the characteristics and criteria expressed in HES Designation Policy and Selection Guidance[50] and the Historic Environment Policy for Scotland[51].

7.5.6 Five ratings will be adopted for ascertaining the value of heritage assets: very high, high, medium, low, and negligible. The magnitude of impact will be determined on a five point scale as well, from No Change to Major, with beneficial as well as adverse impacts noted.

7.5.7 The significance of the effect of an impact on a heritage asset is a function of the value of the heritage asset and the magnitude of impact. For this assessment, effects of **Moderate** or greater significance are potentially significant in the context of the EIA regulations and are highlighted in bold in **Table 7-2**.

Table 7-2 Significance of Effect

		Magnitude of Impact				
Value		Major	Moderate	Minor	Negligible	No Change
	Very high	**Very Large**	**Large or Very Large**	**Moderate or Large**	Slight	Neutral
	High	**Large or Very Large**	**Moderate or Large**	**Moderate** or Slight	Slight	Neutral
	Medium	**Moderate or Large**	**Moderate**	Slight	Neutral or Slight	Neutral
	Low	Slight or **Moderate**	Slight	Neutral or Slight	Neutral or Slight	Neutral
	Negligible	Slight	Neutral or Slight	Neutral or Slight	Neutral	Neutral

7.6 Issues Scoped Out

7.6.1 The direct impacts during construction and operation of the Proposed Development on World Heritage Sites, Scheduled Monuments, GDLs, Historic Battlefields and Conservation Areas will be scoped out of the cultural heritage assessment as there are none present within the Proposed Development area or within the 1 km study area.

7.6.2 The direct impacts during operation of the Proposed Development on non-designated heritage assets will be scoped out as any impacts through changes within the setting of these negligible to low valued, post-medieval heritage assets would not result in significant effects.

7.6.3 It is not anticipated that there will be any indirect impacts from the construction or operation of the Proposed Development, therefore the assessment of indirect impacts on heritage assets has been scoped out.

[50] Historic Environment Scotland (2019). Designation Policy and Selection Guidance.
[51] Historic Environment Scotland (2019). Historic Environment Policy for Scotland.

7.7 Summary

7.7.1 The proposed approach to the assessment has been designed to identify and evaluate any heritage assets present within the Proposed Development site, through examination of desk-based sources and detailed field survey. The direct physical impacts on known and potential heritage assets within the Proposed Development will be considered within the report.

7.7.2 The effects of the Proposed Development on heritage assets will be assessed and mitigation measures, where appropriate, will be proposed to prevent, reduce, or offset any direct physical impacts on heritage assets.

8 Hydrology, Hydrogeology, Geology and Soils

8.1 Introduction

8.1.1 This section of the Scoping Report provides a brief overview of the hydrology, hydrogeology, geology and soils environment, the potential effects associated with the Proposed Development, and the proposed scope of assessment methodology to be considered in the EIA Report.

8.2 Baseline Conditions

Study Area

8.2.1 The study area for hydrology, hydrogeology, geology and soils receptors includes the area within the Site and within 1 km of the Site.

8.2.2 SEPA's guidance on assessing the impacts of developments on Groundwater Dependent Terrestrial Ecosystems (GWDTE) (LUPS-GU31)[52] requires assessment of potential GWDTE located within 250 m of excavations greater than 1 m and within 100 m of excavations less than 1 m. Therefore, the 'GWDTE Study Area' includes the area within 250 m of the Site.

River Catchment

8.2.3 The Site is located in the upper catchment of the River Ythan near to the boundary between that and the adjacent River Deveron catchment.

8.2.4 Ordnance Survey (OS) 1:25,000 scale mapping indicates the Site is located approximately 380 m west of the Little Water; a watercourse which is classified under the Water Framework Directive (WFD) by SEPA (water body name: 'Little Water / Black Burn'; ID: 23237) as having an overall status of Moderate in 2022, and has been designated as a heavily modified water body on account of physical alterations that cannot be addressed without a significant impact on the drainage of agricultural land[53].

8.2.5 Tributaries of the Little Water are present within the Site, including the Burn of Greens, which flows from north to south and a small network of field drains, some of which will be temporarily crossed during construction of the Proposed Development.

8.2.6 The Proposed Development would require the crossing of the Burn of Greens, which is shown on OS 1:50,000 scale mapping and would be subject to Controlled Activities Regulations (CAR) authorisation.

Statutory Designated Sites

8.2.7 No SSSI, SAC, SPA, Ramsar sites, Geological Conservation Review Sites or Marine Protected Areas have been identified within 1 km of the Site.

Water Supplies

8.2.8 Aberdeenshire Council private water supplies (PWS) data indicates that there are 16 PWS within 1 km of the Site, with the following five PWS located within 250 m of the Site:

[52] SEPA Land Use Planning System. SEPA Guidance Note 31 (2017). [online] Available at: https://www.sepa.org.uk/media/144266/lups-gu31-guidance-on-assessing-the-impacts-of-development-proposals-on-groundwater-abstractions.pdf (Accessed December 2023)
[53] SEPA Water Classification Hub (2023). [online] Available at: https://www.sepa.org.uk/data-visualisation/water-classification-hub/ (Accessed December 2023)

- Borderside (supply type: B[54]);
- Greenfield (supply type: B);
- Mains of Greens (supply type: B) (located within the Site);
- Mains of Greens Bungalow (supply type: B) (located within the Site); and
- Newton of Northburn (supply type: B)

8.2.9 A site walkover was undertaken at the Site by WSP engineers on 19 September 2023 which confirmed the presence of an additional groundwater sourced PWS within the Site which is not recorded in the Aberdeenshire Council's PWS data.

8.2.10 Scottish Water (SW) data indicates that there are no public water abstraction points within a 1 km radius of the Site. SEPA data indicates that there are five potential abstractions within 1 km of Site.

8.2.11 The Scottish Government Drinking Water Protected Areas (DWPA) – Scotland river basin district maps[55] indicate that the Proposed Development is not located within a DWPA for surface water; however, it is located within a DWPA for groundwater.

Geology and Soils

8.2.12 According to the British Geological Survey (BGS) Geoindex Onshore Bedrock[56] and Superficial Deposits geology mapping[56], underlying bedrock is of the Macduff Formation, comprising micaceous psammite, semipelite and pelite, with superficial deposits comprising Devensian diamicton till.

8.2.13 According to the James Hutton Institute National Soil Map of Scotland[57], the Proposed Development is predominantly underlain by humus-iron podzols, with peaty gleyed podzols underlying the western extent of the Site.

8.2.14 According to the NatureScot Carbon and Peatland map[58] the Proposed Development is underlain predominantly by Class 0 (mineral soils – peatland soils are not typically found on these soils), with Class 4 (unlikely to be associated with peatland and carbon rich soils) present in the westernmost extent of the Site.

8.2.15 Ground investigation (GI) borehole log and trial pit information indicates the presence of peaty soils to be very limited within the Site, with 'peaty topsoil' recorded in one location (BH18) and a 'brown gravelly sandy peaty clay' in one location (BH13) out of 46 borehole locations.

Hydrogeology

8.2.16 The online BGS hydrogeology map (1:625,000 scale)[59] indicates the Proposed Development is underlain by the Southern Highland Group low productivity aquifer, where small amounts of groundwater may be present in the near surface weathered zone and in secondary fractures.

[54] Type B Supplies – supplies serving 'only' domestic premises with less than 50 persons in total supplied (These are regulated by the Private Water Supplies (Scotland) Regulations 2006).
[55] The Scottish Government drinking water protected areas - Scotland river basin district: maps [online]. Available at: https://www.gov.scot/publications/drinking-water-protected-areas-scotland-river-basin-district-maps/ (Accessed 28 December 2023).
[56] BGS Geoindex (interactive web map). Available at: https://mapapps2.bgs.ac.uk/geoindex/home.html?_ga=2.245552583.25395335.1617804149-924903878.1582883826 [Accessed December 2023]. .
[57] James Hutton Institute (2021) Scotland's Soils [online]. Available at: http://map.environment.gov.scot/Soil_maps/?layer=1 [Accessed December 2023]
[58] NatureScot Carbon and Peatland (interactive web map). Available at: https://soils.environment.gov.scot/maps/thematic-maps/carbon-and-peatland-2016-map/ [Accessed December 2023].
[59] BGS (2023). GeoIndex Onshore. Available at: https://mapapps2.bgs.ac.uk/geoindex/home.html?_ga=2.214383955.519299777.1698760637-1329375161.1698760637)

8.2.17 According to the SEPA Water Classification Hub[60] the Proposed Development is underlain by Ellon groundwater body (ID: 150676), classified as having an overall status of 'Poor' in 2022.

Flood Risk

8.2.18 SEPA's indicative flood risk mapping[61] indicates a high likelihood of flooding within the Site associated with the Burn of Greens, which flows north to south in the eastern extent of the Site.

8.2.19 There are small, localised areas at high risk of surface water flooding within the forested area in the western extent of the Site and immediately beyond the Site Boundary.

Groundwater Dependent Terrestrial Ecosystems (GWDTE)

8.2.20 Habitat survey information was not available at the time of this report in order to establish potential GWDTE supporting habitats. However, with consideration of the geology and hydrogeology indicative of low productivity aquifer, onsite topography, and with the location of the Site being on the upper slopes near to the boundary between two main river catchments, current arable land use and presence of field drainage, GWDTE are not anticipated. Further habitat information will be considered, however, as it becomes available.

Fisheries

8.2.21 The Site is located in the upper River Ythan catchment close to the boundary with the adjacent River Deveron catchment. The Ythan District Salmon Fishery Board is a statutory body responsible for the protection and enhancement of Atlantic salmon and sea trout fisheries in the Ythan District[62].

Sensitive Receptors

8.2.22 Sensitive receptors are considered to be:

- Watercourses (WFD classified watercourse: Little Water / Black Burn)
- Private Water Supplies

8.3 Potentially Significant Effects

8.3.1 Potentially significant effects that may result from the construction, operation and decommissioning phases (including cumulative) of the Proposed Development include:

- Pollution of surface watercourses, groundwater and associated private water supplies: including from suspended sediment in surface water bodies, and hydrocarbon and oil pollution. Potential sources of suspended sediments on construction sites include excavations, exposed ground and stockpiles, plant and wheel washing, dust, and mud on Site access roads. Sources of oils and hydrocarbons include leaks from access vehicles and powered hand tools; and
- Increased flood risk.

[60] SEPA Water Classification Hub (2023). [online] Available at: https://www.sepa.org.uk/data-visualisation/water-classification-hub/ (Accessed December 2023)
[61] Scottish Environment Protection Agency – Flood Maps: https://map.sepa.org.uk/floodmap/map.htm [Accessed December 2023].
[62] River Ythan District Salmon Fishery Board website. Available at: https://riverythan.org/board-trust/ythan-district-salmon-fishery-board.html (Accessed December 2023)

8.4 Mitigation

8.4.1 The review and analysis of data gathered during the EIA process will ensure that the Proposed Development and associated construction access and requirements are carefully sited to ensure potential effects on the water environment are minimised where practicable through design.

8.4.2 In addition, the Applicant has established best practice construction techniques and procedures that have been agreed with statutory consultees, including SEPA and NatureScot. These are set out within the SSEN Transmission GEMPs. The Proposed Development will be constructed in accordance with these plans.

8.4.3 A contractual management requirement of the successful Principal Contractor would be the development and implementation of a comprehensive and site-specific CEMP. This document would detail how the successful Principal Contractor would manage the works in accordance with all commitments and mitigation detailed in the EIA Report, SSEN Transmission GEMPs, statutory consents and authorisations, and industry best practise and guidance, including pollution prevention guidance.

8.4.4 The CEMP will also outline measures to ensure that the works minimise the risk to soils, geology, groundwater and surface water, and water supplies. SEPA authorisation through a licence would be required under CAR and this will specify control and management procedures to ensure water resources are not adversely affected by the construction of the Proposed Development.

8.5 Proposed Scope of Assessment

8.5.1 A desk study and data search will be undertaken to identify the baseline environment, including information on solid and drift geology, surface water and groundwater, and flood risk. Available information will be sought from the following sources:

- Drainage Strategy, Flood Risk Assessment and Drainage Impact Assessment for the Proposed Development;
- SSEN GI information and groundwater monitoring results;
- OS Map data at 1:10,000, 1:25,000 and 1:50,000 scales;
- SEPA Water Classification Hub (River Basin Management Plan interactive web map)[60];
- SEPA Flood Maps (interactive web map)[61];
- BGS Geoindex Onshore Bedrock and Superficial Deposits geology 1:50,000 scale (interactive web map)[56];
- BGS Hydrogeological Map of Scotland 1:625,000 scale (interactive web map)[56];
- James Hutton Institute National Soil Map of Scotland 1:250,000 scale (interactive web map)[57];
- NatureScot Carbon and Peatland (interactive web map)[58]; and
- NatureScot SiteLink[63] (interactive web map).

8.5.2 Consultation has been undertaken for hydrology, hydrogeology, geology and soils. The following consultees have been approached for information to inform the EIA:

- SEPA (regarding licensed abstractions and engineering activities in the water environment);
- Scottish Water (regarding public water supplies); and
- Aberdeenshire Council (regarding PWS).

8.5.3 The following tasks will be undertaken in the completion of the assessment:

[63] NatureScot (2021) Sitelink [online] Available: https://sitelink.nature.scot/map [Accessed December 2023].

- Review of data obtained from relevant stakeholders, including SEPA, Scottish Water and Aberdeenshire Council;
- Desk-based study to obtain baseline and historical data;
- Review of GI data;
- Identification of the potential impacts of the Proposed Development and assessment of their significance based on the magnitude of the impact and the sensitivity of receptors;
- Identification of options for the mitigation of potential effects in accordance with applicable legislation, policies and guidance; and
- Identification of residual effects.

8.5.4 The significance of the impacts upon the baseline environment will be defined as a function of the sensitivity of receptors and the magnitude of change. The impact assessment will be undertaken in accordance with the EIA Regulations and the significance of effects will be determined using a combination of magnitude of effect, sensitivity of receptor and probability.

8.5.5 The assessment will also include the impacts of any works required along the access route upon the baseline environment. Particular attention will be paid to the potential hydrological and water quality impacts upon any water supplies within the vicinity of the Proposed Development and any aquatic ecological features identified within **Chapter 6: Ecology, Nature Conservation and Ornithology**. The potential water quality impacts through enhanced erosion of disturbed soil will also be considered.

8.5.6 A private water supply screening assessment will be undertaken to identify supplies at risk of adverse effect from the Proposed Development. Consultation with supply owners and site visits will verify information collated, where required. Detailed private water supply risk assessment will be undertaken as identified as required, in accordance with SEPA guidance[64].

8.5.7 The Proposed Development will be assessed for flood risk in line with NPF4. A full flood risk assessment and drainage impact assessment will be undertaken.

8.6 Issues Scoped Out

8.6.1 It is considered that good design and construction good practice, including pollution prevention mitigation detailed within the SSEN Transmission GEMPs will reduce the potential for pollutants or sediment to be released into water bodies as a result of the Proposed Development. As a result, operational impacts and the following construction impacts have been scoped out:

- Impacts to statutory designated sites on the basis that there are none present within 1 km of the Proposed Development.
- Impacts to bedrock and superficial geology as they have not been identified as sensitive receptors and significant effects are therefore not anticipated.
- Impacts to GWDTE based on a review of the geology, hydrogeology, hydrology and topography of the Site.
- Impacts related to disturbance, compaction and loss of peat on the basis of SSEN GI information, BGS Superficial Deposits geology mapping, James Hutton Institute National Soil Map of Scotland, and NatureScot Carbon and Peatland mapping indicating presence of peat soils to be very limited within the Site and considering the current arable land use; therefore, significant effects are not anticipated.
- Impacts related to changes to groundwater flows and levels, and surface water drainage patterns; and

[64] SEPA (2017). SEPA Guidance Note 31 (2017). Available at: https://www.sepa.org.uk/media/144266/lups-gu31-guidance-on-assessing-the-impacts-of-development-proposals-on-groundwater-abstractions.pdf

- Impact of pollution on fisheries, including from suspended sediment in surface water bodies, oil and hydrocarbons.

8.7 Summary

8.7.1 The above section outlines the tasks to be undertaken during the EIA with regards to hydrology, hydrogeology, geology and soils. Any potential impacts likely to have a significant effect on the sensitive receptors, such as private water supplies, will be evaluated within the EIA Report.

8.7.2 Mitigation measures will be proposed, where required, for LSE. In this case, we would anticipate the main issues to be potential pollution impacts to unnamed water bodies resulting from construction activities and potential water quality impacts to private water supplies.

9 Noise and Vibration

9.1 Introduction

9.1.1 This Chapter provides a brief overview of the methodology proposed to support the preparation of the Noise and Vibration Chapter of the EIA Report. It sets out the baseline conditions and identifies the potential effects associated with the Proposed Development's construction and operation. A mitigation strategy will be outlined to minimise both construction and operational significant effects.

9.2 Baseline Conditions

9.2.1 A desk-based study has been undertaken to provide an initial overview of the baseline environment in the vicinity of the Proposed Development. The study has considered the following data/information:

- Aerial imagery and mapping from publicly available sources; and
- Scottish strategic noise mapping and noise action plans[65].

9.2.2 The substation layout and construction techniques are not yet finalised, therefore scoping has been carried out on assumptions outlined herein.

9.2.3 The Proposed Development is located within a rural setting, and primarily comprises agricultural land use. The area immediately around the Proposed Development is sparsely settled, with scattered farms and farmstead to the north, east, south, and west, including:

- Farms and farmsteads at Greens (directly abutting RLB to the southeast);
- Farm and farmsteads at Burnside (1 km south);
- Farm and farmsteads at Maryhill (0.8 km south);
- Farm and farmsteads at Muirtack (1 km southwest);
- Farm and farmsteads at Middlehill (1.5 km northeast);
- Farm and farmsteads at Slacks of Cairnbanno (2.2 km southeast); and
- Farm and farmsteads at Howe of Tuechar (2 km southwest).

9.2.4 Defra strategic noise mapping indicates the noise emissions from major road and rail sources. There are no noise emissions shown on this mapping for the site and surrounding area, the closest being 9 km due west in Turriff. However, there is likely to be some traffic noise from local roads.

9.3 Potentially Significant Effects

9.3.1 At this preliminary stage, it is anticipated that possible effects associated with construction and operation of the Proposed Development include:

- Noise and vibration during the construction phase; and
- Operational effects of noise from the substation.

Construction Noise

9.3.2 There is the potential for construction noise impacts from static, quasi static and mobile plant items including:

- Rotary piling during the construction of foundations;

[65] https://noise.environment.gov.scot/noisemap/

- Excavators, delivery of materials with lorries/dumper trucks, delivery, manufacturing and pumping of concrete; and
- Installation of electrical infrastructure equipment.

Operational Noise

9.3.3 With respect to operational noise, the most significant sources of environmental noise in substations are air handling units, valve coolers, reactors, transformers and associated cooling equipment.

9.3.4 Transformers, and other electrical equipment associated with substation developments, emit noise at frequencies of twice the normal operating current frequency due to magnetostriction of the transformer core. In the UK, the supply current frequency is 50 Hertz (Hz), which results in 100 Hz and harmonics thereof being produced by the transformer. The nature of the noise generation mechanism results in tonal noise being emitted. The noise is continuous and consistent depending on the electrical load of the equipment, and therefore is not expected to have any impulsive characteristics.

9.4 Mitigation

Construction Noise

9.4.1 Best practice measures will be put in place during construction to mitigate impacts from noise and vibration. The measures will be included in the CEMP, to be agreed with Aberdeenshire Council and secured by an appropriately worded planning condition, and will include best practice measures as outlined in BS 5228[66] such as:

- Avoiding undertaking noisy activities at the weekends or outside of daytime defined hours as necessary. In setting working hours, consideration is given to the fact that the level of noise through the normal working day is more easily tolerated than during the evening and night-time. Selecting quiet working methods, including the use of inherently quiet plant/equipment, reasonable working hours for noisy operations, and economy and speed of operations. Site work continuing throughout at 24-hour period should be programmed, where appropriate, including scheduling of haulage vehicles during the working day;
- Avoidance of vehicles waiting or queuing, particularly on public roads or in residential areas with their engines running; and
- Ensuring plant and equipment are regularly and properly maintained. All plant should be situated to sufficiently minimise noise impact at nearby properties.

Operational Noise

9.4.2 A detailed noise assessment is required to determine the extent of mitigation required for the Site to reduce the impact on noise sensitive receptors (NSRs). The 400 kV substation will comprise two 400/132 kV SGTs, outdoor AIS and associated air insulated isolators/earth switches. It is likely mitigation will be required around the externally housed equipment of the Proposed Development to curtail the noise impact on the critical receptors. This may come in the form of barriers within the Site, bunds around the Site, or building at lower platform heights, effectively “sinking” the Site to reduce direct noise propagation to NSRs. Further modelling will be conducted to investigate the impact of bunding around the Site, platform height reduction and acoustic barriers.

[66] BS 5228-1: 2009+A!: 2014 Code of practice for noise and vibration control on construction and open sites. Part 1: Noise.

9.5 Proposed Scope of Assessment

9.5.1 The Proposed Development noise survey and assessment methodology assessment has not yet been discussed with the Aberdeenshire Council environmental health officer (EHO), Confirmation is requested to confirm that the following is appropriate.

9.5.2 A baseline noise survey will be carried out to establish the acoustic environment at noise sensitive receptors situated in the vicinity of the proposed substation. A survey of the background ($L_{A90,T}$) ambient noise ($L_{Aeq,T}$), and 1/3rd octave band spectrum levels will be conducted to determine the existing noise level at the nearest NSRs. The noise measurements will be carried out in accordance with BS7445-1[67] and BS 4142[68]. To ensure that values are reliable and representative of the outdoor amenity of NSRs, a minimum of one-week continuous background monitoring is proposed at up to four locations:

- Newton – situated on the northern boundary;
- Torridon – situated on the eastern boundary;
- Greenford – situated on the southern boundary; and
- Upper Greenfield – situated 250m southwest from the western boundary.

9.5.3 A noise and vibration assessment will be undertaken to determine the likely effects during the construction phase of the Proposed Development. Noise and vibration predictions will be undertaken for typical construction activities. The assessment will follow guidance in BS 5228[69] and the prediction method considers the noise emission level of the proposed plant items, the separation distance between the source and the receiver and the effect of the intervening topography and structures. The construction noise assessment would be carried out according to the ABC method specified in Table E.1 of BS5228-1, in which NSRs are classified in categories A, B or C according to their measured or estimated background noise level. In line with best practice (BS 5228-1), a Construction Noise Management Plan (CNMP) will be developed by the principal contractor prior to starting construction works.

9.5.4 Where deemed necessary, construction induced vibration levels will be predicted using the empirical formula contained in BS5228- 2[70]. The vibration levels will be assessed against the Peak Particle Velocity (PPV) threshold levels within the standard for humans and buildings.

9.5.5 The influence of construction phase traffic flows on the public road will be calculated using the methodology set out in the Calculation of Road Traffic Noise (CRTN)[71] publication. The predicted variance in road traffic noise levels will be assessed using the short-term criteria provided in the Design Manual for Roads and Bridges document ref. 'LA 111 - Noise and Vibration'[72].

9.5.6 A noise assessment will be undertaken to determine the likely effects during operation of the Proposed Development in accordance with BS 4142[73] and the TAN which accompanies the PAN. A CadnaA noise model will be prepared to determine the noise impact likely to arise from up to two operational scenarios. Calculations in the model will be done in accordance with ISO 9613 Part 2[74].

9.5.7 A mitigation strategy will be outlined to minimise both construction and operational significant effects.

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67 British Standard 7445-1:2003 'Description and environment of environmental noise – Part 1: Guide to quantities and procedures

68 British Standard 4142: Methods for rating and assessing industrial and commercial sound (BS 4142), BSI, 2014, Amended 2019

69 British Standard 5228-1:2009+A1:2014 'Code of practice for noise and vibration control on construction and open sites - noise

70 British Standard 5228- 2:2009+A1:2014 'Code of Practice for Noise and Vibration Control on Construction and Open Sites – vibration

71 Calculation of Road Traffic Noise. 1988. Department of Transport, Welsh Office HMSO

72 Design Manual for Roads and Bridges 2020. LA111 Noise and Vibration, May 2020, Revision 2

73 British Standard 4142:2014+A1:2019 'Methods for rating and assessing industrial and commercial sound

74 ISO 9613-2: 1996. Acoustics. Attenuation of sound during propagation outdoors. Part 2: General method of calculation

9.6 Issues Scoped Out

9.6.1 There are no expected vibrational noise issues associated with the operation of the Proposed Development at nearby NSRs. Therefore, it is proposed that operational vibration is scoped out of the EIA report.

9.7 Summary

9.7.1 The above section outlines the tasks to be undertaken during the EIA with regards to noise and vibration. Any potential impacts likely to have a significant effect on the NSRs with respect to operational noise and construction noise of the Proposed Development, will be evaluated within the EIA Report.

9.7.2 Mitigation measures will be proposed, where required, for LSE.

9.7.3 An assessment methodology and approach to mitigation will be discussed with the EHO at Aberdeenshire Council.

10 Forestry

10.1 Introduction

10.1.1 This Chapter of the Scoping Report provides a brief overview of the forestry baseline conditions, the potential effects associated with the construction and operation of the Proposed Development and the proposed scope of assessment methodology to be considered within the EIA Report.

10.2 Baseline

10.2.1 The Proposed Development interacts with a small area of commercial woodland at Waggle Hill. This area of woodland is under a Forest Plan approved during the Rural Development Contracts – Rural Priorities 2007 – 2013. The aim of the Forest Plan is to deliver long-term environmental benefits through sustainable forestry management. The ten year approval for felling and thinning operations for this area of woodland ends in November 2026.

10.2.2 Approximately 3.4 ha out of the overall 13.5 ha woodland block is within the red line boundary and may be removed as part of the Proposed Development. Ongoing design development of the Proposed Development may reduce the area required to be lost.

10.3 Potential Effects

10.3.1 The Proposed Development may required the felling of commercial forestry during construction. The potential forestry effects associated with the construction of the Proposed Development includes:

- temporary or permanent woodland cover loss and fragmentation;
- potential for wind throw risk and identification of wind firm boundaries;
- potential for forest landscape impact and identification of forest landscape design boundaries; and
- loss of timber volume production due to early felling.

10.4 Mitigation

10.4.1 The ongoing design development will look to avoid impacts to forestry where possible. The wider site selection process which was undertaken in 2022-2023 considered forestry as a key constraint and looked to avoid areas of forestry where possible.

10.4.2 In line with the Scottish Government's policy on control of woodland removal[75], Compensatory Planting would be required for all areas of woodland loss associated with the Proposed Development. This would be discussed with Forestry and Land Scotland, other forestry owners and Aberdeenshire Council.

[75] Scottish Government, (2019). *The Scottish Government's Policy on Control of Woodland Removal.* (online) Available at: https://forestry.gov.scot/publications/285-the-scottish-government-s-policy-on-control-of-woodland-removal/viewdocument

10.5 Proposed Scope of Assessment

10.5.1 The forestry assessment will focus on areas of commercial forestry through which the Proposed Development would be located. Consideration will be undertaken on achieving resilience from tree fall to ensure there is no potential for tree fall onto the substation equipment. Tree growth height appraisal will consider all site and species factors. Where necessary forestry wind throw hazard and forest landscape assessment will be considered on the impact of woodland removal areas. Where wind throw and forest landscape impact is predicted, consideration will be made as to the requirement of felling to desirable wind firm and forest landscape boundaries.

10.6 Issues Scoped Out

10.6.1 Secondary effects resulting from forestry activities, including effects on habitats and species, ornithology, hydrology and landscape and visual effects, would be considered within their respective chapters of this EIA Report and would not be included within the Forestry Chapter.

10.7 Summary

10.7.1 The above section outlines the tasks to be undertaken during the EIA with regards to Forestry. Any potential impacts likely to have a significant effect on the commercial forestry, will be evaluated within the EIA Report. Mitigation measures will be proposed, where required, for LSE and compensatory planting will be undertaken.

11 Traffic and Transport

11.1 Introduction

11.1.1 This Chapter provides a brief overview of the methodology proposed to support the preparation of the Traffic and Transport assessment to be presented in a specific chapter of the EIA Report. It sets out the baseline conditions and identifies the potential effects associated with the Proposed Development's construction and operation.

11.2 Baseline

11.2.1 The Proposed Development is located approximately 3 km to the west of New Deer. It is proposed that access to the Site is from a new junction formed on the classified C29S located between Oldmill of Allathan and Asleid near Mains of Greens. In the vicinity of the Proposed Development the road is a two-lane single carriageway.

11.2.2 The Study Area, for the purposes of the Traffic and Transport Chapter, it is proposed that the following road sections would form the Study Area:

- C29S between the Site access and Oldmill of Allathan;
- B9170 between the C29S and the A948;
- B9170 between the C29S and the B9027;
- B9027 between the B9170 and the A98;
- A981 (including B9028) between the B9028/A948 junction south of New Deer and the A950; and
- A948 between the B9170 junction at New Deer to the A90 east of Ellon.

11.2.3 The currently available traffic flow data has been sourced from the DfT's traffic survey database, with the extracted data summarised in **Table 11-1**.

Table 11-1: Baseline Traffic Data

Location	Site ID	2022 Baseline Flows		
		HGV's	Total	% HGV's
A981 between A950 and New Deer	ATC41009	93	1277	7%
A948 (north of junction) with B9028 at New Deer	ATC1180	75	856	9%
A948 (south of junction with B9028) between Nethermuir and Ellon	ATC50860	124	1723	7%

Sensitive Receptors

11.2.4 The roads within the Study Area are generally rural in nature between the Site access and the A98, the A950 and the A90, with residential properties or any form of development which could be classed as a limited sensitive receptors located on or close to the roads which support access to Greens between the A950, the A90 and the A98. The rural nature of the area and the form of the roads also results in there being little in the way of pedestrian and cycle infrastructure. Urban areas along the routes such as the A948 through New Deer and the B9027 through New Blyth, feature pedestrian footways either side of the carriageway.

11.2.5 The main sensitive receptors identified by IEMA Guidance, subject to assessment are defined as:

- non-motorised users;
- public rights of way users;
- motorists and freight vehicles;

- public transport; and
- emergency services.

11.2.6 Such receptors have potential to be found near locations identified within the Study Area, such as:

- stand-alone properties (farms);
- residential properties;
- places of worship; and
- places of employment.

11.2.7 The sensitivity of the receptors identified on the proposed access routes will be evaluated in relation to the potential impacts of general construction traffic, with appropriate mitigation measures proposed.

11.3 Potentially Significant Effects

11.3.1 It is expected that the potential effects relating to Traffic and Transport would only be potentially significant within the Study Area identified above. As such only those sensitive receptors identified in **Section 11.3** will be assessed within the Chapter.

11.3.2 Effects on the receptors identified, are expected to occur only during the construction phase and be temporary in nature. Potential effects are likely to be limited to construction traffic travelling to and from the Proposed Development, which in turn could potentially impact upon accidents and safety, pedestrian amenity, pedestrian delay, and driver delay.

11.4 Mitigation

11.4.1 The Principal Contractor (appointed as Siemens and BAM JV 'SBAM'), in conjunction with the Applicant, will prepare a detailed Construction Traffic Management Plan (CTMP), which will be agreed with Aberdeenshire Council prior to commencement of work on-site. The CTMP will set out in full the mitigation measures which will be implemented during the construction phase to reduce or avoid potential adverse effects of the construction of the Proposed Development. The measures will manage the impact of all construction traffic, including abnormal loads, on the operation of the local road network.

11.4.2 It is proposed to include a CTMP as part of the Traffic and Transport Chapter of the EIA report.

11.5 Proposed Scope of Assessment

11.5.1 It is intended that potential effects of the Proposed Development will be reviewed in accordance with the Institute of Environmental Management and Assessment (IEMA) Guidelines for the Environmental Assessment of Traffic and Movement[76] which confirms that an assessment should be undertaken in accordance with the following two rules:

- Rule 1: On road links where traffic flows are predicted to increase by more than 30% (or where the number of heavy goods vehicles is predicted to increase by more than 30%); and
- Rule 2: On road links of high sensitivity where traffic flows have increased by 10% or more.

11.5.2 Where the predicted growth in traffic flow is below the thresholds, the IEMA guidelines suggest the significance of the effects can be stated to be negligible and further detailed assessment is not warranted.

[76] IEMA (2023) Institute of Environmental Management and Assessment (IEMA) Guidelines: Environment Assessment of Traffic and Movement. Available online: https://www.iema.net/resources/blog/2023/07/12/new-iema-guidance-environmental-assessment-of-traffic-and-movement.

11.5.3 In addition to the main sensitive receptors identified in **Section 11.3**, the IEMA further identifies the following groups and special interests that may be affected:

- people at home
- people at work
- sensitive and/or vulnerable groups (including young age; older age; income; health status; social disadvantage; and access and geographic factors)
- locations with concentrations of vulnerable users (e.g. hospitals, places of worship, schools)
- retail areas
- recreational areas
- tourist attractions
- collision clusters and routes with road safety concerns
- junctions and highway links at (or over) capacity

11.5.4 Each highway link included in the assessment will be assigned a sensitivity in accordance with IEMA Guidance and informed by professional judgement based on factors including the proximity of sensitive receptors to the highway link and the road environment.

11.5.5 **Table 11-2** summarises the rationale used to determine the sensitivity of the receptors to change.

Table 11-2 Criteria for Determining Sensitivity of Receptor

Sensitivity	Rationale/Description
High	Road links with sensitive receptors alongside them such as schools, colleges, playgrounds, accident cluster areas, retirement homes, urban/residential roads without footways that are used by high volumes pedestrians and cyclists where footway provision is poor.
Medium	Road links with congested junctions/road links, places of worship, doctors' surgeries, hospitals, retail with road frontage, roads with narrow footways, unsegregated cycleways, tourist attractions, community centres, parks, and recreation facilities
Low	Road links with adjacent land-uses such as public open space, nature conservation areas, listed buildings and residential areas with adequate footway provision and limited pedestrian/cycle users.
Negligible	Road links with receptors sufficiently distant from affected roads and junctions and no/very limited numbers of pedestrians/cyclists.

11.5.6 Where either of the two IEMA thresholds are exceeded, the impact of construction traffic will be assessed in terms of the following effects:

- severance;
- driver delay;
- pedestrian delay;
- pedestrian amenity;
- fear and intimidation; and
- accidents and safety.

11.5.7 The significance of the effects on receptors will be evaluated against the IEMA guidance and, where possible, in line with the criteria used for the other environmental topic areas covered in the EIA Report. These criteria are subjective but consider the number of receptors affected, their sensitivity, and the length of the period for which they would be impacted.

11.5.8 A number of the traffic-related effects set out in the IEMA guidance such as noise, vibration and ecological effects, are outwith the scope of this assessment and will be assessed in the respective chapters of the EIA Report.

11.5.9 With regard to the sourcing of materials in relation to the construction of the Proposed Development, the contractors and suppliers are unlikely to be known at the EIA Report stage and so it is not possible to confirm with certainty which routes will be used by Proposed Development traffic, and how much traffic will utilise each route. Therefore, worst-case assumptions of assigning all construction traffic to each route will be made (unless agreed otherwise with Aberdeenshire Council).

11.5.10 While the routing of construction traffic would only be able to be determined following confirmation of routing from the Principal Contractor, it has been assumed that the Lovie Quarry which is located approximately 2 km to the west of New Pitsligo, would support the Proposed Development's construction. Quarry sourced materials would be transported by way of the A98/B9027/B9170/C29S to access the Site. In the absence of any further information, it has been assumed that the remaining construction traffic would access the area via the A90, split evenly between the A981and A948 and then following the B9170/C29S to the Site.

11.5.11 The Study Area, identified in paragraph 11.2.2 has been defined as the public road network in the vicinity of the Proposed Development, which would be used by vehicles to access the Site in relation to construction activities.

11.5.12 To establish baseline traffic flows, data identified in **Table 11-1** was obtained from the Department for Transport (DfT) for the most recently available period. Annual Average Daily Flow (AADF) information was obtained for the agreed study network, which confirmed the traffic levels including HGVs along the access route. These figures will have a growth factor applied to the assumed period of construction and will then be combined with the forecast levels of construction traffic, in order to identify the impact of the Proposed Development on the study network.

11.5.13 At locations on the agreed study network where DfT traffic data is unavailable, it is proposed that independent traffic surveys will be obtained through Automatic Traffic Counts (ATCs) installed for a period of one week. Based on **Table 11-1**, it would be necessary to obtain additional traffic count information for the following roads which fall within the proposed study area:

- C29S north of the proposed Site access junction;
- B9170 at New Blyth; and
- B9170 between the C29S junction and New Deer.

11.5.14 The most recently available five-year period of personal injury accident data will be obtained from the Crashmap database for the study area to review the current operation of the local road network to be used by construction traffic.

11.5.15 In order to assess traffic impacts during the construction phase, estimated vehicle movements for all major construction vehicle trip generators will be calculated. Daily vehicle movements during the peak period of the construction phase will be assessed against the baseline traffic conditions. Any changes in traffic levels on each of the study network links during the construction phase will be assessed in terms of percentage change and compared against the maximum vehicle capacity of each link.

11.5.16 The perception of change in traffic is dependent on a wide range of factors including volume, speed and composition of traffic (i.e. Percentage of HGVs). The assessment of environmental effects of traffic requires a number of stages, namely:

- determination of existing and forecast traffic levels and characteristics;
- determining the time period suitable for assessment;
- determining the year of assessment; and
- identifying the geographical boundaries of assessment.

11.5.17 Once the environmental effects and the road links to be included within the analysis have been identified, the next stage of the assessment is to quantify the magnitude of the impact and identify the level of significance that such changes will make. This requires the definition of both baseline conditions and estimation of conditions for the appropriate year of assessment. Each receptor will have a different value and level of sensitivity to change. Other effects such as severance are more subjective as there are no current proven or reliable techniques for study.

11.5.18 The IEMA guidelines suggest that 30%, 60% and 90% changes in traffic levels should be considered as "slight, moderate and substantial" impacts respectively. It is generally considered that traffic flow increases of 10% are 'not significant', given that daily variation in background traffic flow may vary by this amount. Based on these rules and perceptions, the magnitude of the impact is classified using the criteria in **Table 11-3**.

Table 11-3 Criteria for Determining the Magnitude of Impact

Substantial	Moderate	Slight	Negligible
>90% increase in traffic	60%-90% increase in traffic	30%-60% increase in traffic	10%-30% increase in traffic

11.5.19 A combination of the sensitivity of the receptor and the magnitude of effect are then used to inform the significance of the effect as outlined in **Chapter 3**. For many effects there are no simple rules or formulae which define thresholds of significance and there is, therefore, a need for interpretation and judgement on the part of the assessor, backed up by data or quantified information where possible. It is, however, generally considered that effects are significant where the identified magnitude of impact is moderate and above.

11.6 Issues Scoped Out

11.6.1 As vehicles travel away from the Proposed Development during the construction phase, they would disperse across the wider road network, thus diluting any potential effects. It is therefore expected that the effects relating to Traffic and Transport are unlikely to be significant beyond the identified Study Area, and as such no further routes are proposed to be included.

11.6.2 The traffic impacts associated with the operational phase are anticipated to be of low volume, limited to movements associated with maintenance activities and low numbers of staff commuting to the Site. Therefore, further assessment of the traffic impacts of the Proposed Development during the operational phase is not considered necessary.

11.7 Summary

11.7.1 The Proposed Development would lead to a temporary increase in traffic volumes on the roads identified within the Study Area during the construction phase of the Proposed Development. The Study Area is assumed in the absence of established construction routing plans. Given the lack of traffic flow baseline data, it is necessary to obtain ATC data at the proposed locations identified in paragraph 11.6.13. It is predicted given the rural Study Area that the potential effects relating to Traffic and Transport would only be potentially significant and as such only sensitive receptors identified within **Section 11.3** will be assessed within the Chapter. The Principal Contractor and the Applicant will set out mitigation measures to reduce any impact of construction traffic in a CTMP which will be included as part of the Chapter.

11.7.2 Any other limitations or assumptions made in the preparation of the Traffic and Transport Chapter will be clearly stated in the EIA Report.

12 Topics "Scoped Out"

12.1.1 As explained above, a number of topics are considered not to be significant and will be scoped out from further consideration within the EIA process. **Table 11-1** below lists each topic and the elements scoped out from further assessment; with a summary of the justification for doing so.

Table 11-1 Issues Scoped Out

Topic	Scoped Out	Justification
Landscape and Visual Impact	Landscape Character: National Parks, National Scenic Areas, Wild Land Areas.	There are no Nationally designated ladnscapes within 10 km of the Proposed Development and they would therefore not experience any effects as a result of the Proposed Development.
	Landscape Character: Special Landscape Area (SLA)	The closest SLA to the site has been identified as the Deveron Valley, approximately 9km to the west of the site. Distance and intervening topography, built form, and vegetation would prevent any significant effects occurring on the key characteristics or special qualities of the regionally designated SLA.
	Landscape Character: National Character Areas	With the exception of LCT 20 (which covers the Site extents and almost the entirety of the Study Area), all National LCAs will be scoped out of the assessment due to their large geographical area and distance from the site making it highly unlikely for significant effects due to the Proposed Development to occur.
	Visual Receptors: Derelict Farmsteads	At the time of writing, some properties may be derelict and their future use and function unknown. These properties are therefore excluded from the scope of this assessment.
	Visual Receptors: Recereational receptors at East Balthangie Caravan & Camping Park	East Balthangie Caravan & Camping Park is approximately 4.5 km northeast of the Proposed Development and unliklely to incur significant effects due to the distance from the Proposed Development and the undulating topography
	Residential Visual Amenity Assessment (RVAA)	RVAA determines whether the impact of a development is of such a nature and / or magnitude that it potentially affects 'living conditions' or Residential Amenity. RVAA does not consider other components of Residential Amenity such as noise or air quality and therefore is only of value where residential properties in close proximity to the Proposed Development may be significantly impacted in relation to visual Residential Amenity. Effects on residential receptors are anticipated to be captured sufficiently and holistically within the LVIA to identify significant adverse effects (taking in to account perceptual qualities as well as visual changes on receptors) and therefore a separate RVAA is scoped out of this assessment.
	Night time Assessment	Night time working is not anticipated and proposed buildings are not expected to be illuminated at night during normal operation. There would be emergency floodlights installed for health and safety purposes, but these would not be permanently lit. The access roads would also not be lit under normal operation. As such, there are no anticipated impacts from light pollution as a result of the Proposed Development and a night-time visual assessment has therefore been scoped out of this assessment.

Topic	Scoped Out	Justification
Ecology, Nature Conservation and Ornithology	Designated Sites	There are no perceived effect pathways for impacts to designated sites with ecological or ornithological qualifying interests. Although the Site and surrounding area provides suitable foraging habitat for geese, no designated sites with geese as qualifying interests were identified within the Proposed Development's potential Ecological Zone of Influence based on predicted foraging ranges.
	Habitats	It is proposed that impacts to improved/modified and non-native habitats at the Site, when considered solely as habitat interests (i.e., not as supporting species), are scoped out of further assessment. This is based on their relatively low ecological value, the fact they are comprised of commonly occurring or widespread species, current modified/land use condition, non-native conifers, and being well represented in the wider landscape. For clarity, the ditch within the Site has been considered to be modified for drainage purposes and would not meet the priority definition of a watercourse.
	Pollution	All issues arising from pollution during the construction and operational phases are scoped out. If any, these would be short-term and likely to be localised events. Effective, industry-standard mitigation measures would be embedded within the Proposed Development (detailed within the Principal Contractor's CEMP and the SSEN Transmission GEMPs).
	Protected Species (Non-Avian)	Based on the baseline information available, the following species are scoped out of further assessment through EIA: red squirrel, pine marten, amphibians, reptiles, and invertebrates. No evidence of their presence has been observed, the Site and surrounding area offers low suitability habitat or is unlikely to represent a key area for these species/groups. The same habitat types are well represented in the wider landscape. Any new evidence of these species, or other protected and conservation priority species, which may be recorded during subsequent ecology surveys and other visits to the Site will be reconsidered as part of the EIA. In addition, the EIA will list mitigation measures driven by legal requirements for both IEF and non-IEF species.

Topic	Scoped Out	Justification
	Ornithology (excluding Barn Owl)	Aside from barn owl discussed, all other ornithological interests are scoped out of further assessment through EIA. Breeding bird surveys to date have found that the arable and grazing-dominated habitat within the Site and the wider area is of low value for ornithological interests. Species recorded have included a range of typical farmland passerines (songbirds) in addition to grey partridge. Grey partridge is a declining Red List species within BoCC5 and has a UK population estimate of 37,000 pairs[77]. However, taking account of the relatively localised nature of the Proposed Development in comparison to the extensive suitable habitat (arable farmland) present in the wider area, no significant effects to the species are anticipated. In addition, these species are expected to be habituated to a degree of disturbance from farming operations. Effective, industry-standard mitigation measures and sensitive timings of works would be embedded within the Proposed Development for the protection of all active bird nests, to ensure compliance with the Wildlife and Countryside Act (1981) as amended.
Cultural Heritage	Impacts on designated heritage assets	The direct impacts during construction and operation of the Proposed Development on World Heritage Sites, Scheduled Monuments, GDLs, Historic Battlefields and Conservation Areas will be scoped out of the cultural heritage assessment as there are none present within the Proposed Development area or within the 1 km study area.
	Operational impacts on non-designated heritage assets	The direct impacts during operation of the Proposed Development on non-designated heritage assets will be scoped out as any impacts through changes within the setting of these negligible to low valued, post-medieval heritage assets would not result in significant effects.
	Indirect impacts	It is not anticipated that there will be any indirect impacts from the construction or operation of the Proposed Development, therefore the assessment of indirect impacts on heritage assets has been scoped out.
Traffic and Transport	Impact on road network outwith Study Area	As vehicles travel away from the Proposed Development during the construction phase, they would disperse across the wider road network, thus diluting any potential effects. It is therefore expected that the effects relating to Traffic and Transport are unlikely to be significant beyond the identified Study Area, and as such no further routes are proposed to be included.

[77] Woodward, I., Aebischer, N., Burnell, D., Eaton, M., Frost, T., Hall, C., Stroud, S. & Noble, D. (2020). APEP 4 - Population estimates of birds in Great Britain and the United Kingdom. British Birds Volume: 113.

Topic	Scoped Out	Justification
	Operational Phase	The traffic impacts associated with the operational phase are anticipated to be of low volume, limited to movements associated with maintenance activities and low numbers of staff commuting to the Site. Therefore, further assessment of the traffic impacts of the Proposed Development during the operational phase is not considered necessary.
Hydrology, Hydrogeology, Geology and Soils	Impacts related to disturbance, compaction and loss of peat.	BGS Superficial Deposits geology mapping, James Hutton Institute National Soil Map of Scotland, and NatureScot Carbon and Peatland mapping indicate peat soils to be limited within the Site and considering the current arable land use; therefore, significant effects are not anticipated.
	Impacts to statutory designated sites.	There are none present within 1 km of the Proposed Development.
	Impacts to bedrock and superficial geology	These have not been identified as sensitive receptors and significant effects are therefore not anticipated.
	Impacts to GWDTE	Based on a review of the geology, hydrogeology and hydrology of the Site.
	Impacts related to changes in groundwater flows and levels, and surface water drainage patterns.	It is considered that good design and construction good practice, including pollution prevention mitigation detailed within the SSEN Transmission GEMPs will reduce the impacts related to changes in groundwater flows and levels, and surface water drainage patterns.
	Impact of pollution on fisheries, including from suspended sediment in surface water bodies.	It is considered that good design and construction good practice, including pollution prevention mitigation detailed within the SSEN Transmission GEMPs will reduce the potential for pollutants or sediment to be released into water bodies as a result of the Proposed Development.
Noise and Vibration	Vibration	There are no known vibrational noise issues associated with the operation of the Proposed Development at nearby NSRs. Therefore, it is proposed that operational vibration is scoped out of the EIA assessment.
Forestry	Secondary effects	Secondary effects resulting from forestry activities, including effects on habitats and species, ornithology, hydrology and landscape and visual effects, would be considered within their respective chapters of this EIA Report and would not be included within the Forestry Chapter.
Land Use and Agriculture	Whole Topic	The Proposed Development is located in an area of extensive, open, agricultural landscape bounded by post and wire fences with hedgerows and mature trees. Land use is predominantly farmland, with interspersed farmsteads and residential properties. There is an area of plantation woodland in the north west of the Site. The Macaulay Land Use Research Institute's Land Use Capability system is the official agricultural classification system used in

Topic	Scoped Out	Justification
		Scotland. According to the Macaulay Land Use Research Institute[78], the Proposed Development consists of: • Land Capability for Agriculture (LCA) Class 3.1 – 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 within these areas; and • LCA Class 3.2 – classification indicates land capable of average production (though high yields of barley, oats and grass can be obtained). Prime agricultural land is identified as being LCA Class 1, 2 or 3.1 in the land capability classification system. As such, the majority of the Proposed Development lies outside of prime agricultural land, with only the south east corner qualifying as prime agricultural land. As the majority of the Proposed Development is not located on high quality agricultural land, significant effects on land use would be unlikely and therefore Land Use and Agriculture has been scoped out from further assessment.
Electromagnetic Fields	Whole topic	To prevent known effects of EMFs on health, the International Commission on Non-Ionizing Radiation Protection (ICNIRP) developed health protection guidelines in 1998 for both public and occupational exposure. In the UK, the National Institute for Health Protection's (NIHP) Centre for Radiation, Chemical and Environmental Hazards (CRCE) has set out guidelines for exposure to EMFs. In March 2004, the UK adopted the ICNIRP 1998 guidelines on the advice of the National Radiological Protection Board (now part of NIHP CRCE) . These guidelines set conservative exposure levels for the public to EMFs, and they are endorsed by the World Health Organisation and the UK Government. The NIHP CRCE keeps under review emerging scientific research and/or studies that may link EMF exposure with various health problems and provides advice to the Department of Health and Social Care on the possible need for introducing further precautionary measures. In determining the level of impact, SSEN Transmission closely observe these independent guidelines which in conjunction with a Code of Practice, published in 2012 by industry and the Department for Energy and Climate Change (now part of the Department for Energy Security and Net Zero), sets out all the practical details needed to apply the exposure limits for transmission lines. SSEN Transmission designs all new equipment to comply with the Government guidelines as set out in the Code of Practice. This includes measures adhering to statutory ground clearance requirements and ensuring optimum phasing of high voltage double-circuit overhead lines. The Proposed Development will not produce significant electric fields outside its boundary because the perimeter fence screens

[78] The Macaulay Land Use Research Institute (2010), Land Capability for Agriculture in Scotland. Available at: https://www.hutton.ac.uk/learning/exploringscotland/landcapability-agriculture-scotland [Accessed: September 2023].

Topic	Scoped Out	Justification
		the electric field from any sources within the substation. Inside the substation, the busbars and other equipment produce electric fields. However, the internal arrangement of busbars within the substation means that where they are aligned in adjacent rows or mirror lengths, the fields produced are cancelled. Consequently, the EMF fields are not significant. The intensity of the magnetic fields produced by equipment inside substations falls rapdily with distance. By the time any personnel are at the perimeter fence, or a few metres beyond it, the magnetic field from inside the substation is usually approaching background levels. As explained above and as set out in more detail in **Appendix 12.1: Scoping out EMF for Substations in Environmental Impact Assessment Reports**, the EMFs in the vicinity of the Proposed Development will be well below the levels associated with established health effects. As EMF limits will be adhered to there is no potential for significant effects. Consequently, no significant effects are anticipated as a result of the Proposed Development and therefore an assessment on EMF is proposed to be scoped out of the EIA Report in its entirety.
Population and Human Health	Whole Topic	The Proposed Development is located in a rural area with relatively few nearby sensitive receptors. The nearest settlement to the Proposed Development containing businesses is Cuminstown, approximately 2.5 km to the north. A small number of businesses including local shops are located in Cuminestown. Due to its location, nature, and scale, the Proposed Development is not anticipated to have any significant direct or indirect effects on residential properties or businesses within Cuminestown. There may be short-term disruption to residents and businesses using the B9179 during the construction period, however, this will be managed through the implementation of a CEMP and CTMP by the Principal Contractor, which will be agreed in advance with Aberdeenshire Council. The Proposed Development is expected to provide substantive support to the economy of Scotland in terms of direct and indirect employment and business investment, with wider economic benefits, including the facilitation that the project provides to large scale deployment of renewable generation in the North of Scotland. There are no tourist businesses in the immediate area of the Proposed Development, and it is considered unlikely that any would be adversely affected by the Proposed Development. In relation to recreation, the closest Aberdeenshire Council Core Path is located approximately 2.5 km north and forms part of The Formartine and Buchan Way long distance route. There are no core paths designated across the Site or any records of rights of way, although the record of rights of way is not definitive. It is not known what level of informal use, if any, is made by residents local to the area. As such, as they are outwith the Site it is not expected that any core paths would be directly affected by the Proposed Development. Indirect visual effects to users of public roads and recreational routes will be considered within the Landscape and Visual Impact chapter. Where there may be

Topic	Scoped Out	Justification
		interactions with recreational users during the construction of the Proposed Development, an Outdoor Access Plan would be prepared as part of the Principal Contractor's CEMP, and signage would be erected at suitable locations to warn of construction traffic. Any disturbance during construction would be temporary and short term in nature. The impacts on human health for a development of this nature and scale are limited to increased exposure to noise and changes in amenity value of residential or recreational resources. These will be considered in the Landscape and Visual Impact and Noise and Vibration chapters of the EIA Report and therefore a specific Human Health assessment has been scoped out of the EIA. Based on the above, it is proposed that the Population and Human Health topic (including potential impacts to Socioeconomics, Tourism and Recreation) is scoped out of further assessment in the EIA.
Major Accidents and Disasters	Whole Topic	The EIA Regulations require the consideration of the vulnerability of the Proposed Development to major accidents and disasters. Given the nature of the Proposed Development, the potential for effects related to the vulnerability to major accidents and disasters are likely to be limited to those associated with unplanned power outages, due to extreme weather or structural damage. Crisis management and continuity plans are in place across the SSE Group. These are tested regularly and are designed for the management of, and recovery from, significant energy infrastructure failure events. Where there are material changes in infrastructure (or the management of it) additional plans are developed. Potential significant effects on the vulnerability of the Proposed Development to Major Accidents and Disasters has therefore been scoped out of the EIA Report.
Air Quality and Climate	Whole Topic	The Proposed Development is not located within an Air Quality Management area (AQMA), with the closest AQMA located approximately 33 km south at Aberdeen and has been declared for exceedances of Nitrogen dioxide (NO_2) and Particulate Matter (PM_{10}) air quality standard limits. The Proposed Development has the potential to give rise to some localised and temporary construction related releases associated with dust (foundation construction, passage of vehicles along access tracks) and construction plant and traffic exhaust emissions. However, the nature of the construction activities is that these would be localised, short term for individual activities and intermittent. Any potential for nuisance effects on residential or recreational amenity during construction would be strictly controlled in accordance with a CEMP. The greenhouse gas emission (GHG) assessment undertaken in support of the preparation of the NPF4[79] indicates that, at the strategic level, the negative effects predicted in relation to grid

[79] Scottish Government (2022) National Planning Framework 4 Research Project: Lifecycle Greenhouse Gas Emissions of NPF4 Proposed National Developments Assessment Findings. Available at: https://www.gov.scot/publications/national-planning-framework-4-lifecycle-greenhouse-gas-emissions-npf4-proposed-national-developments-assessment-findings/ (Accessed June 2024)

Topic	Scoped Out	Justification
		infrastructure are not expected to be greater than minor in significance. Specifically, the assessment highlighted that when direct and indirect effects are combined, a development of the scale of the Proposed Development will have a net positive effect on lifecycle GHG emissions due to potential for substantial generation and transmission of renewable electricity. There will be specific opportunities to minimise direct effects from the Proposed Development, particularly in relation to land use change where carbon rich soils are present and employing good practice in relation to embodied carbon. These will be implemented by design and where relevant, specific mitigations to reduce impacts would be identified within the relevant technical chapters of the EIA Report. The assumptions of low impacts of the Proposed Development are based on the lifecycle emissions from carbon in embodied materials and components, including reuse of materials in construction, use of low carbon construction materials and decommissioning waste materials which are reused again or recycled. In relation to climate adaptation, the design and location of the Proposed Development has considered the potential risk posed by increased flood risk and ground instability (further details provided in **Chapter 8**). The intention is to reduce potential risks to the electricity assets so that repairs and upgrades are less frequent. Based on the above, it is therefore proposed that Air Quality and Climate can be scoped out of the EIA Report.
Material Assets and Waste	Whole Topic	The materials and waste associated with construction activities will be captured and addressed within a Materials Management Plan and Site Waste Management Plan which will form part of the Principal Contractor's CEMP. This will include use of recycled material, efficient use of material to minimise waste, and other waste management measures. To minimise the generation of waste, material excavated to create the platforms for the Proposed Development as far as is practicable will be reused on-site to minimise the off-site deposition of material. Considering the nature and scale of the Proposed Development, significant effects on material assets and waste are not anticipated. It is therefore proposed that Materials and Waste can be scoped out of requiring a specific chapter within the EIA Report.

13 Next Steps

13.1.1 SSEN Transmission invites consultees to comment on the following:

- What environmental information do you hold or are aware of that will assist in the EIA described here for the Proposed Development?
- Do you agree with the proposed approach for collection of baseline data, and that the range of surveys across particular topics is sufficient and appropriate to inform the assessment of environmental effects?
- Is there any other relevant existing baseline data that should be taken into account?
- Are there any key issues or possible effects which have been omitted?
- Do you agree with the list of issues to be scoped out, and the rationale behind the decision?

13.1.2 All responses should be addressed to Aberdeenshire Council.

13.1.3 When submitting a response to the Scoping Report, the Applicant would be grateful if you could also send a copy of your response to the address below:

Email to: chris.gardner@sse.com

OR

For the Attention of Chris Gardner

Consents & Environment Manager (East and Argyll Region)

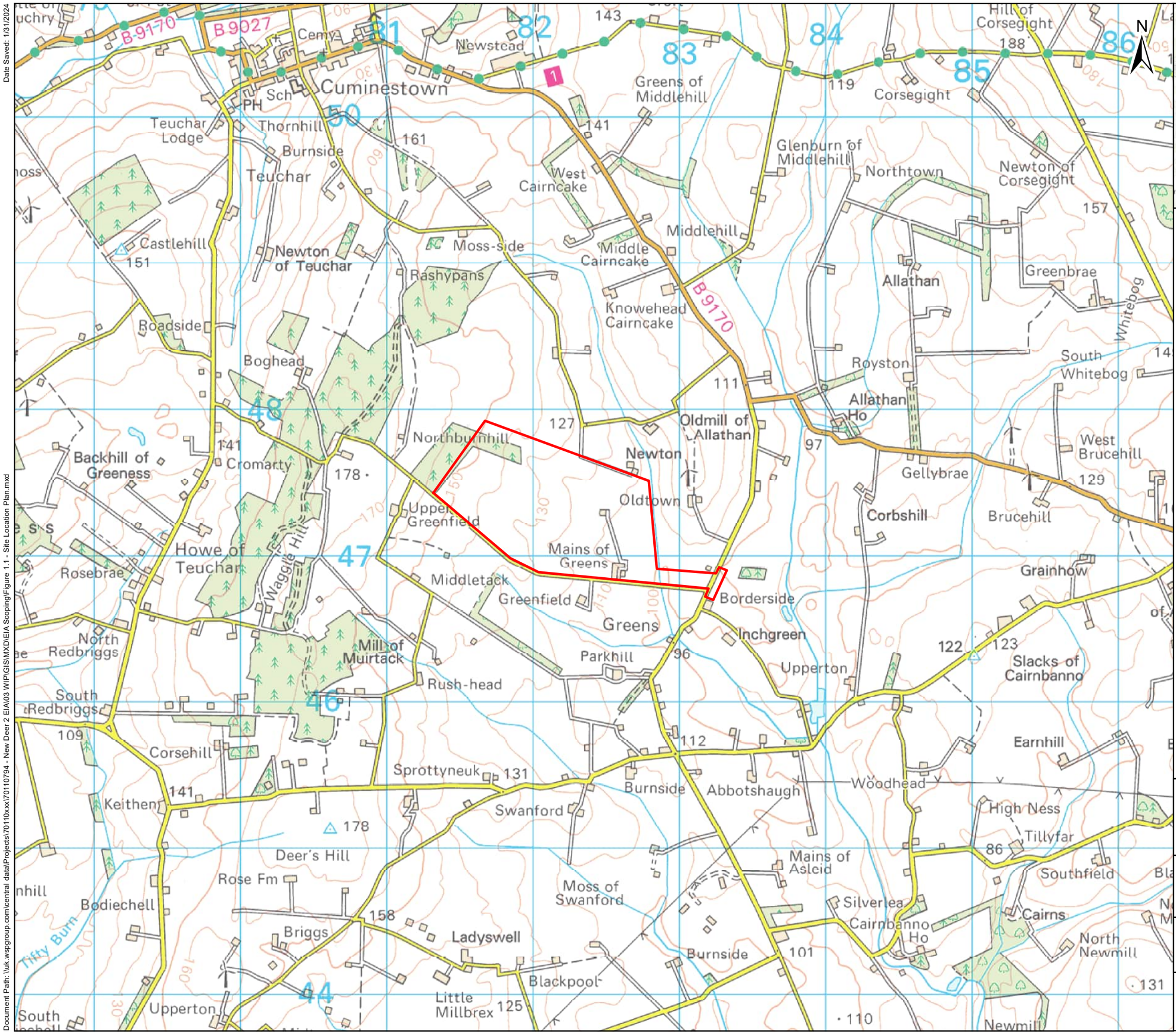
Scottish Hydro Electric Transmission Plc

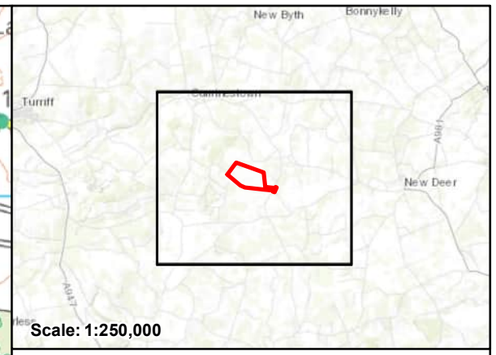
Inveralmond House, 200 Dunkeld Road, Perth, PH1 3AQ

13.1.4 The Scoping Opinion will be used to finalise the terms of the EIA and the specific approach to the individual assessments.

13.1.5 All comments received will be included in the EIA Report for reference, unless consultees request otherwise.

Figures





Key

Substation Red Line Boundary

0 0.5 1 Km

Client: Scottish & Southern Electricity Networks TRANSMISSION

Project: **Greens Substation EIA Scoping**

Title: Figure 1.1: Site Location Plan

Date: 31/01/24 Scale: 25,000 @ A3

Drawn: AS Checked: IM Approved: LW

Drawing Number: GREENS-EIA-SCOPING-001

Date Saved: 1/31/2024

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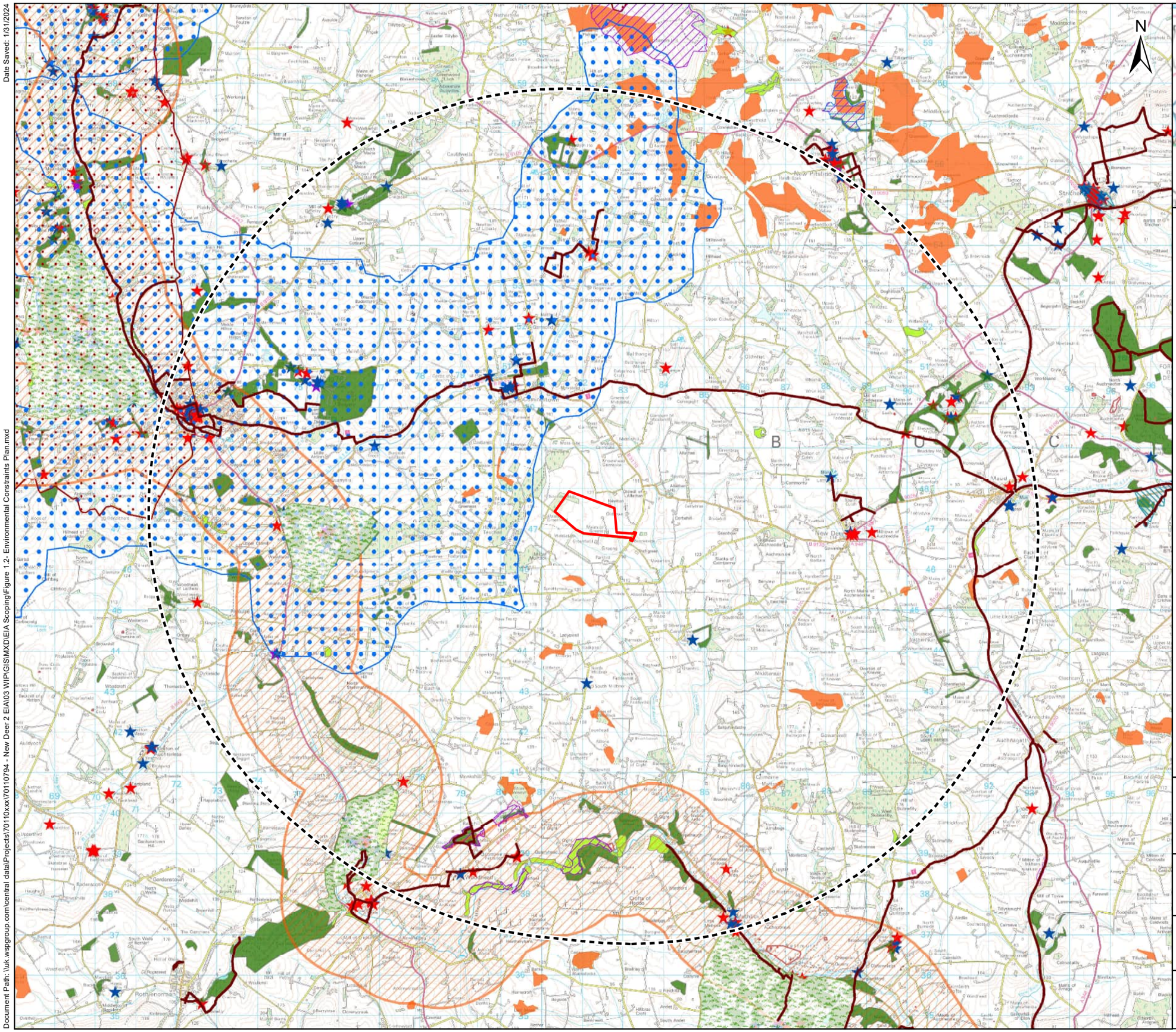

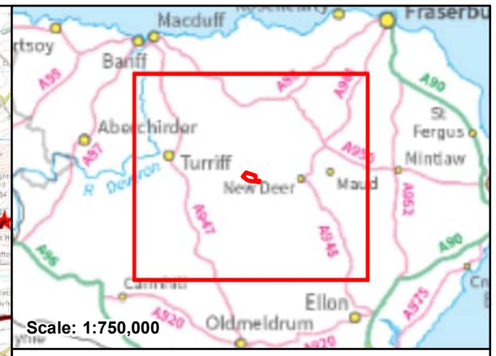

Key

- Substation Red Line Boundary
- 10 Km Substation Buffer

Environmental Constraints

- Core Paths
- Special Area of Conservation (SAC)
- Sites of Special Scientific Interest (SSSI)
- Special Landscape Area
- Conservation Area
- Garden and Designed Landscape
- Buglife B-Lines Network
- Drinking Water Protected Areas (Surface Water)
- Geological Conservation Review Sites
- NatureScot Priority Peatland Habitat - Class 1
- NatureScot Priority Peatland Habitat - Class 2
- Scheduled Monument

Ancient Woodland

- Ancient (Of Semi-Natural Origin)
- Long-Established (Of Plantation Origin)
- Other (On Roy Map)

Listed Building

- Listed Building Grade A
- Listed Building Grade B
- Listed Building Grade C

0 2 4 Km

Client: Scottish & Southern Electricity Networks TRANSMISSION

Project: **Greens Substation EIA Scoping**

Title: Figure 1.2: Environmental Constraints Plan

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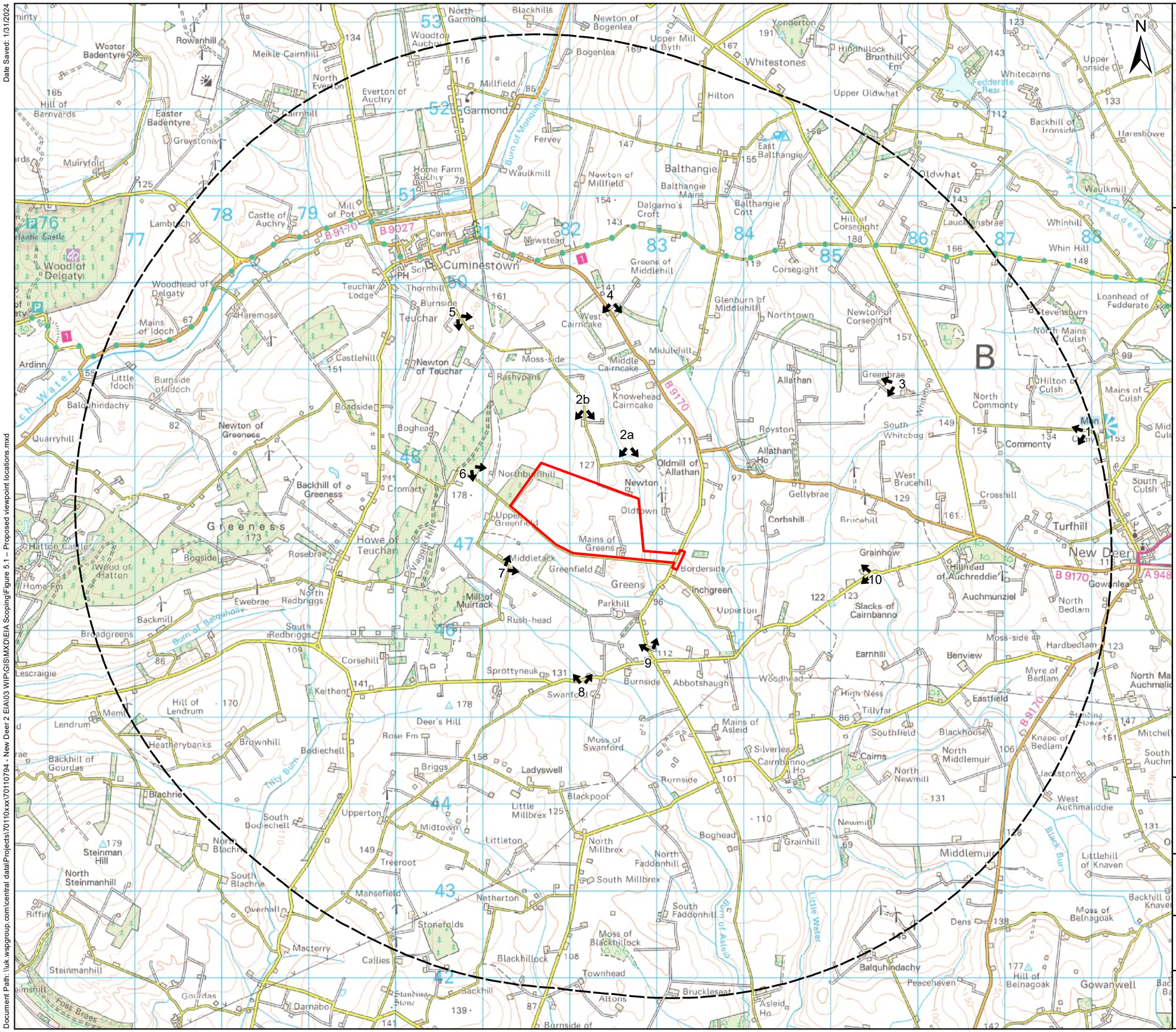
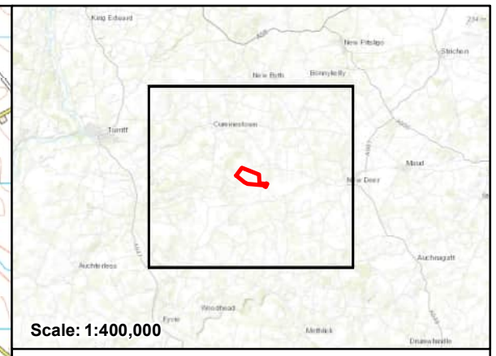
Date Saved: 1/31/2024





Key

- Substation Red Line Boundary
- Indicative Study Area of 5km
- Proposed Viewpoint Locations

0 0.5 1 Km

Client: Scottish & Southern Electricity Networks TRANSMISSION

Project: **Greens Substation EIA Scoping**

Title: Figure 5.1 – Proposed Viewpoint Locations

Date: 31/01/24 Scale: 42,000 @ A3
Drawn: AS Checked: IM Approved: LW
Drawing Number: GREENS-EIA-SCOPING-003

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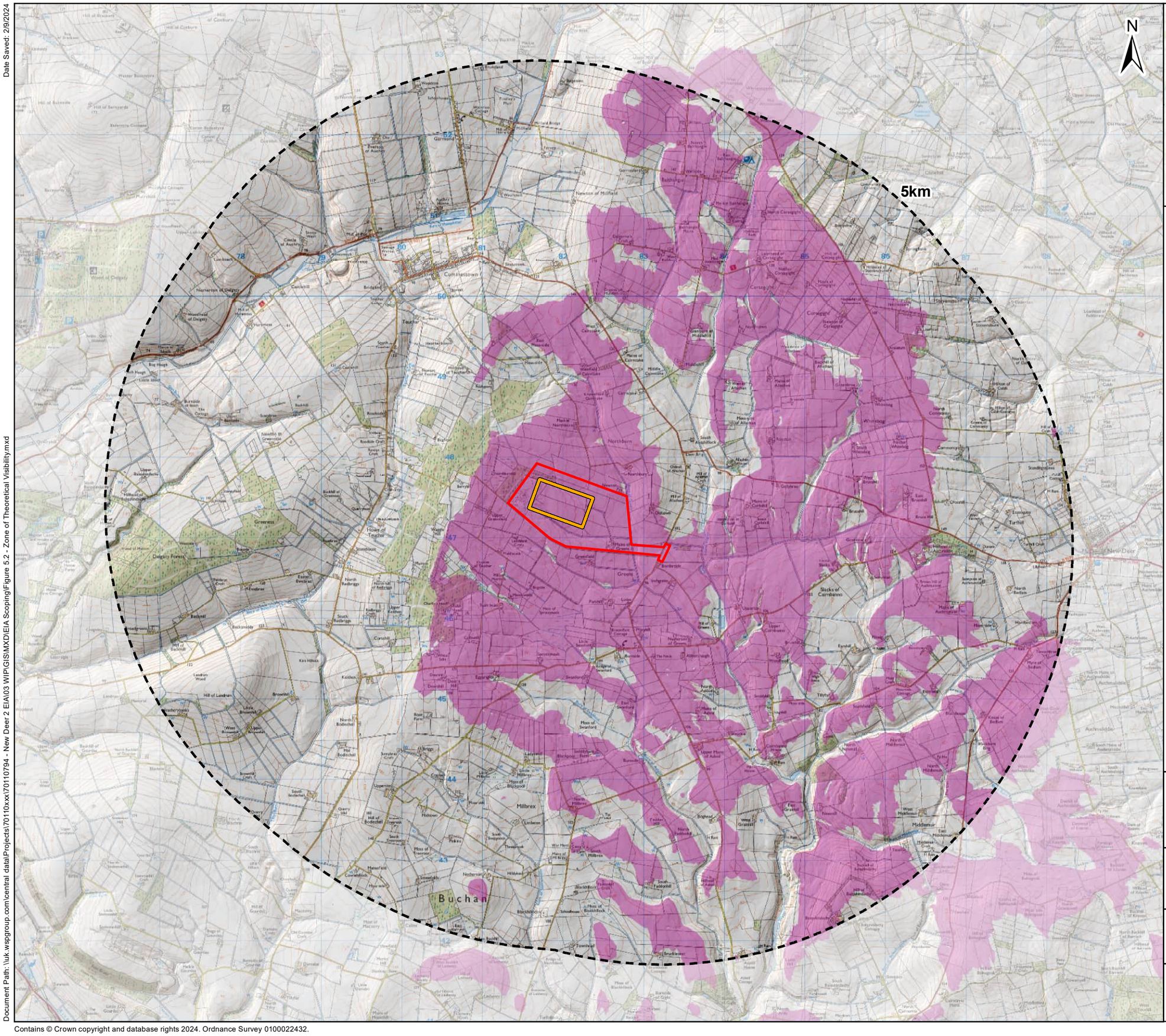
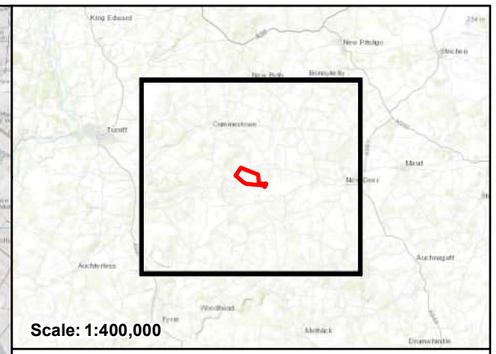




Key

- Site Boundary
- Substation Platform
- 5km Study Area
- Zone of Theoretical Visibility

Note:

The ZTV is calculated based on the substation platform height of 14.5m with a base height of 131m above sea level and a viewer height of 1.7m above ground level.The terrain model assumes bare ground and is derived from OS Terrain 5 data. Earth curvature and atmosphere refraction have been taken into account.

0 0.5 1 Km

Client: Scottish & Southern Electricity Networks TRANSMISSION

Project: **Greens Substation**

Title: Figure 5.2 - Zone of Theoretical Visibility

Date: 09/02/24 Scale: 45,000 @ A3

Drawn: AS Checked: IM Approved: FS

Drawing Number: GREENS-EIA-SCOPING-001

Appendix 1.1: SSEN Transmission's Pathway to 2030 Projects

SSEN Transmission's Pathway to 2030 projects:

Why are these projects needed and how has this need been assessed

Introduction

SSEN Transmission's Pathway to 2030 projects are part of a major upgrade of the electricity transmission network across Great Britain (GB) that are required to help deliver UK and Scottish Government climate change and energy security targets. In simple terms, these projects are required to connect homegrown, low carbon renewable electricity generation and transport that power to areas of demand across the country, building a cleaner, more secure and affordable energy system for homes and businesses across Great Britain.

This paper sets out some of the policies and targets that have been set by the UK and Scottish Government that are driving the need for investment in new clean power and the electricity transmission network that is required to enable this. It also explains the electricity network planning processes that have established the need for these Pathway to 2030 network reinforcements.

HM Government

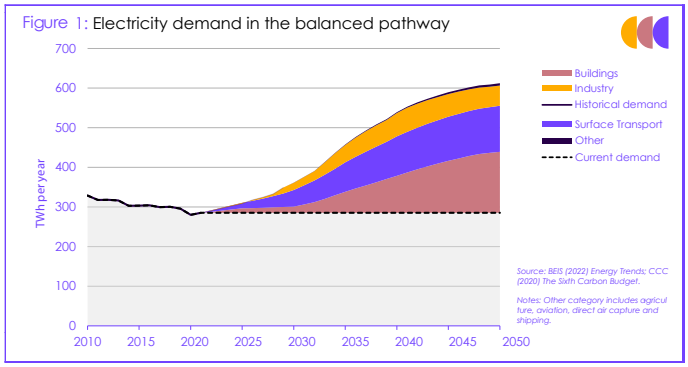
Scottish Government
Riaghaltas na h-Alba

Net zero and renewable targets

The UK and Scottish Government have committed to deliver net zero emissions by 2050 and 2045 respectively.

To put into context the scale of the challenge in delivering these legally binding net zero targets, the Climate Change Committee - an independent, statutory body which advises the UK and devolved governments on their emissions reduction targets - forecast in its 'Delivering a reliable decarbonised power system' report[1], that electricity demand will double by 2050.

Figure 1: Electricity demand in the balanced pathway



This is as a result of forecast changes in electricity use across the UK, for example, through the electrification of transport and heating.

Meeting these net zero targets and associated increases in electricity demand will require significant and unprecedented investment in new low carbon electricity generation and the enabling electricity network infrastructure across GB that is required to connect and transport this power from generation source to areas of demand across the country. Further investment is also required to replace the generation capacity lost due to the planned closure of fossil fuel powered electricity generation power stations.

To maintain progress towards delivering these net zero commitments, the UK and Scottish Government have also set a number of interim targets. This includes the UK Government's target of 50GW of offshore wind by 2030 and a target to fully decarbonise the electricity system by 2035.

The Scottish Government, in its Draft Energy Strategy and Just Transition Plan[2], has set a new target for an additional 20GW of new low carbon renewable electricity generation by 2030, including 12GW of new onshore wind. The Scottish Government has also consulted on increasing its current offshore wind target of 11GW by 2030, with its final Energy Strategy and Just Transition Plan expected by summer 2024.

There is currently around 14GW of offshore wind across the UK and in Scotland, there is currently around 13GW of low carbon renewable generation. To meet the UK Government's 2030 offshore wind target, we need to more than treble what is currently connected and to meet the Scottish Government's 2030 renewable target, we need to more than double what is currently connected. With the current electricity transmission system already at full capacity in many places across GB, particularly throughout the north of Scotland, over £10bn in new electricity transmission network infrastructure, in the north of Scotland alone, is required to deliver these Government targets.

[1]https://www.theccc.org.uk/wp-content/uploads/2023/03/Delivering-a-reliable-decarbonised-power-system.pdf
[2]https://www.gov.scot/publications/draft-energy-strategy-transition-plan/

Scottish & Southern Electricity Networks
TRANSMISSION

SSEN Transmission's Pathway to 2030 projects:

Why are these projects needed and how has this need been assessed

Energy Security

As well as delivering net zero and renewable targets, there is also a requirement to secure the country's future security of supply and reduce our dependence on volatile and often expensive global wholesale energy markets.

The British Energy Security Strategy

In April 2022, the UK Government published its British Energy Security Strategy (BESS)[3]. This set out the UK Government's plans to secure the country's future energy independence by reducing dependence on, and price exposure to, volatile global wholesale gas markets.

This will be achieved by accelerating the deployment of homegrown and affordable low carbon electricity generation, together with accelerating the enabling electricity network infrastructure required to connect and transport this power.

UK Government
British Energy Security Strategy
April 2022

"This plan comes in light of rising global energy prices, provoked by surging demand after the pandemic as well as Russia's invasion of Ukraine. This will be central to weaning Britain off expensive fossil fuels, which are subject to volatile gas prices set by international markets we are unable to control, and boosting our diverse sources of homegrown energy for greater energy security in the long-term.

Accelerating our domestic supply of clean and affordable electricity also requires accelerating the connecting network infrastructure to support it."

The BESS included the UK Government's increased ambition for offshore wind of 50GW by 2030, up from its previous 40GW target. Around 11GW of this target will be met from new offshore wind in Scottish waters granted seabed leases in January 2022 by Crown Estate Scotland through the ScotWind leasing round[4].

Pathway to 2030 Holistic Network Design

To enable the connection of the UK Government's 50GW of offshore wind by 2030 target, the independent GB Electricity System Operator, National Grid ESO (the ESO) – which is responsible for balancing electricity supply and demand across GB and oversees the coordination of electricity transmission network system planning processes - was tasked by the UK Government with developing what is known as the 'Pathway to 2030 Holistic Network Design' (the HND)[5].

The HND, which was developed in collaboration with the three GB Transmission Owners[6], is a single, integrated coordinated plan that sets out the onshore and offshore electricity transmission infrastructure required, across GB, to deliver this UK Government target. The HND confirmed the requirement for all of SSEN Transmission's Pathway to 2030 projects.

National Grid ESO
Pathway to 2030 Holistic Network Design
July 2022

"The Pathway to 2030 Holistic Network Design (HND) is a major step for Great Britain in delivering cheap, clean energy from offshore wind.

It sets out a single, integrated design that supports the large-scale delivery of electricity generated from offshore wind, taking power to where it's needed across Great Britain

The HND provides a recommended offshore and onshore design for a 2030 electricity network, that facilitates the Government's ambition for 50GW of offshore wind by 2030."

The ESO's assessment also considered the proposed technology choices, which includes a combination of overhead and subsea electricity network investments. Upon completion, the HND was then endorsed by both the UK and Scottish Government as meeting the Terms of Reference for the Offshore Transmission Network Review.

[3]https://www.gov.uk/government/publications/british-energy-security-strategy/british-energy-security-strategy
[4]https://www.crownestatescotland.com/scotlands-property/offshore-wind/scotwind-leasing-round
[5]https://www.nationalgrideso.com/future-energy/the-pathway-2030-holistic-network-design/hnd
[6]SSEN Transmission, SP Transmission and National Grid Electricity Transmission

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Accelerated Strategic Transmission Investment

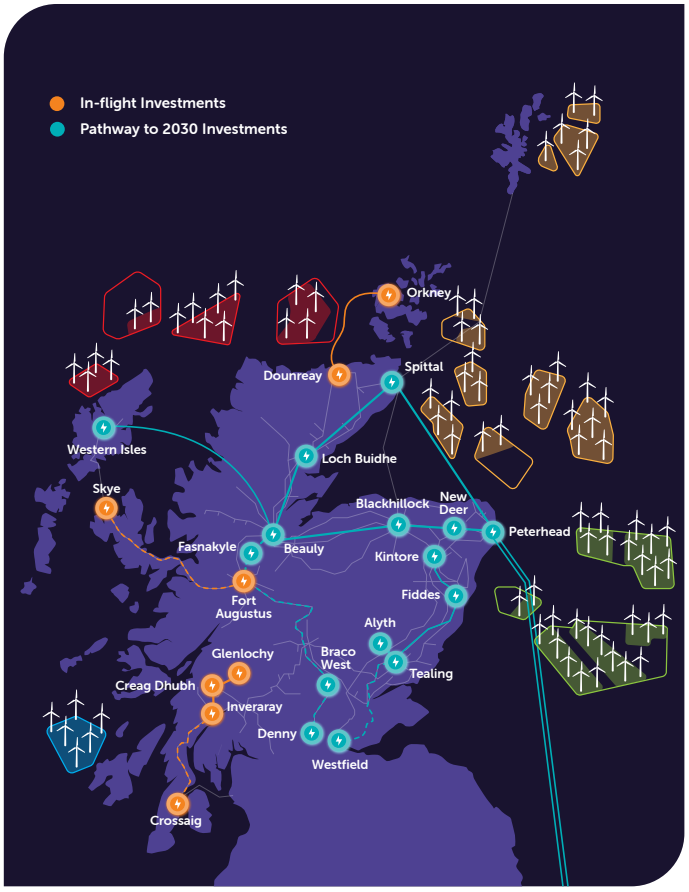
Following the publication of the HND, in December 2022, the independent GB energy regulator, Ofgem, approved the need for these projects as part of its Accelerated Strategic Transmission Investment (ASTI)[7] framework decision, again as a GB-wide programme of investments. Ofgem's decision included approval for all of SSEN Transmission's Pathway to 2030 projects. It also set out the regulatory framework under which these projects will be taken forward.

Ofgem
Decision on accelerating onshore electricity transmission investment

"The British Energy Security Strategy set out the Government's ambition to connect up to 50GW of offshore generation to the electricity network by 2030. Facilitating this ambition will require significant reinforcements to the onshore electricity transmission network and a change to the current regulatory framework in order to accelerate delivery of large projects.

In August 2022 we consulted on how Ofgem could support the accelerated delivery of the strategic electricity transmission network upgrades needed to meet the Government's 2030 renewable electricity generation ambitions.

This document contains our decision to introduce a new Accelerated Strategic Transmission Investment (ASTI) framework. We set out the initial list of ASTI projects, our decision on exempting strategic projects from competition, the new process for assessing and funding ASTI projects and the range of measures we are introducing to protect consumers against additional risks that changing the process brings."



[7]https://www.ofgem.gov.uk/publications/decision-accelerating-onshore-electricity-transmission-investment

Further background to GB electricity transmission network system planning processes

In this section, we further explain the system planning processes, overseen by the independent ESO, which establish the need for new electricity transmission network infrastructure. These processes involve extensive analysis and power system studies to establish both the drivers for network investments and the identification of which network upgrades should be taken forward.publication.

Future Energy Scenarios

This considers future electricity trends, set out annually in the ESO's Future Energy Scenarios (FES)[8] publication. The FES sets out scenarios for future electricity generation and demand, broken down regionally across GB, and considers all energy technologies.

nationalgridESO

Electricity Ten Year Statement

The outputs from the FES are then considered against the existing electricity network, including planned reinforcements, to identify both generation and demand constraints on pre-defined electricity transmission system boundaries. This process, the Electricity Ten Year Statement (ETYS)[9], is important to identify where there are 'bottlenecks' on the transmission system that require intervention to address those constraints that would otherwise prevent the transportation of electricity generation to meet local and wider demands.

Where such a bottleneck exists, the ESO is required to intervene to balance the system by reducing generator output behind the bottleneck and increasing it on the other side. The costs incurred in doing this are ultimately passed to electricity consumers.

Networks Options Assessment

To address those bottlenecks, the three GB electricity Transmission Owners submit a range of potential network reinforcements designed to alleviate such constraints to the ESO. This involves multiple options, often to address the same network constraints, which are then analysed and assessed on a GB wide basis to establish which reinforcement investments are deemed economical and required. This process, known as the Networks Options Assessment (NOA)[10], makes recommendations as to which investments Transmission Owners should take forward to alleviate current and forecast constraints across those pre-defined transmission system boundaries. This includes the proposed technology solution, for example, overhead line or subsea link. The outcome of the 2022 NOA refresh has informed the strategic network reinforcements set out in the ESO's Pathway to 2030 Holistic Network Design.

Conclusion

In conclusion, the need for SSEN Transmission's Pathway to 2030 electricity transmission network reinforcements, which form part of a major upgrade of the electricity transmission system across Great Britain, are underpinned by UK and Scottish Government energy policies and associated targets.

The independent ESO has assessed the need for these projects as required and made recommendations that they proceed, including the proposed technology choice, through its Pathway to 2030 Holistic Network Design. And the independent GB energy regulator, Ofgem, has approved the regulatory need for these projects through its Accelerated Strategic Transmission Investment (ASTI) framework.

For SSEN Transmission, the need for these reinforcements is clear. What we need to do now is develop this critical national infrastructure as sensitively as possible, in a way which seeks to minimise and mitigate community and environmental impacts and maximise local and national economic opportunities and jobs.

[8]https://www.nationalgrideso.com/future-energy/future-energy-scenarios
[9]https://www.nationalgrideso.com/research-and-publications/electricity-ten-year-statement-etys
[10]https://www.nationalgrideso.com/research-and-publications/network-options-assessment-noa

Appendix 12.1 – Scoping out EMF for Substations in Environmental Impact Assessment Reports: Technical Note

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Scoping out EMF for Substations in Environmental Impact Assessment Reports

Technical Note

June 2024

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JUSTIFICATION FOR SCOPING OUT EMF ASSESSMENT FOR SUBSTATIONS

The information provided in this Appendix has been included in this Scoping Report for the purpose of explaining the basis upon which the Applicant proposes to scope out of the EIA Report, an assessment in relation to the likely significance of health effects associated with human exposure to electric and magnetic fields ("EMFs"). The justification for scoping out EMF as a topic for assessment of impacts is based on exposure limits known to be significantly below national and international standards on strengths of electric and magnetic fields. Where it can be demonstrated that EMF are unlikely to have significance effect, assessments of EMF will be scoped out of a statutory assessment of environmental impacts assessment.

Where relevant and appropriate to do so, Electric and Magnetic Fields[1] (EMF) assessments will form standalone technical reports and summaries to accompany a planning application.

[1] Electric and Magnetic Fields – as it applies to the technologies that form the basis of a proposed development, in which electric and magnetic fields derived from distribution and use of electricity.

1.1 Relevant Guidance for Public Exposure

1.1.1 To prevent known effects of EMFs on health, the International Commission on Non-Ionizing Radiation Protection (ICNIRP) developed health protection guidelines in 1998 for both public and occupational exposure. In the UK, the National Institute for Health Protection's (NIHP) Centre for Radiation, Chemical and Environmental Hazards (CRCE) has set out guidelines for exposure to EMFs.

1.1.2 In March 2004, the UK adopted the ICNIRP 1998 guidelines on the advice of the National Radiological Protection Board (now part of NIHP CRCE)[2]. These guidelines set conservative exposure levels for the public to electric and magnetic fields, and they are endorsed by the World Health Organisation and the UK Government.

1.1.3 The NIHP CRCE keeps under review emerging scientific research and/or studies that may link EMF exposure with various health problems and provides advice to the Department of Health and Social Care on the possible need for introducing further precautionary measures.

1.1.4 In determining the level of impact, SSEN Transmission closely observe these independent guidelines which in conjunction with a Code of Practice, published in 2012 by industry and the Department for Energy and Climate Change[3] (now part of the Department for Energy Security and Net Zero), sets out all the practical details needed to apply the exposure limits for transmission lines.

[2] ICNIRP (1998) – Guidelines for limiting exposure to time-varying electric, magnetic and electromagnetic fields (up to 300 GHz). Available to download from: https://www.icnirp.org/cms/upload/publications/ICNIRPemfgdl.pdf

[3] Department of Energy and Climate Change (DECC, 2012) – Power Lines: Demonstrating compliance with EMF public exposure guidelines – a voluntary Code of Practice. Available to download from https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/48308/1256-code-practice-emf-public-exp-guidelines.pdf

1.1.5 SSEN Transmission designs all new equipment to comply with the Government guidelines as set out in the Code of Practice. This includes measures adhering to statutory ground clearance requirements and ensuring optimum phasing of high voltage double-circuit overhead lines.

1.2 Relevant National Planning Policy

1.2.1 The UK Government's latest policy on EMF is set out in National Policy Statement EN-5 (NPS EN-5) which was re-issued in November 2023 and came into force on 17 January 2024[4]. This latest policy is reflective of the review process referred to above and is in line with current UK guidance, informed by relevant international guidance, and considered appropriate by the UK Government and their public health experts.

1.2.2 NPS EN-5 states "The levels of EMFs produced by power lines in normal operation are usually considerably lower than the ICNIRP 1998 reference levels. For electricity substations, the EMFs close to the sites tend to be dictated by the overhead lines and cables entering the installation, not the equipment within the site."

1.2.3 Whilst the determination of applications for statutory consent of electricity power transmission infrastructure such as substations is devolved to Scottish Ministers, as noted in paragraph 1.4.3 of the NPS aspects of NPS EN-5 is a relevant consideration for Scottish Ministers to take into account in decision-making on the transmission projects such as the Proposed Development. This is of significance in relation to the UK Government's most recent national planning policy in respect of EMFs that is contained in NPS EN-5. In that regard SSEN

[4] UK Government Department for Energy Security & Net Zero (2023) National Policy Statement EN-5 (NPS EN-5). Available to download from: Electricity Networks National Policy Statement - EN-5 (publishing.service.gov.uk)

Transmission will demonstrate site specific compliance reporting with the EMF guidance as set out in the NPS EN-5, based on the ICNIRP guidelines and the relevant Codes of Practice discussed above. Specifically, SSEN Transmission will demonstrate through a project specific compliance report that the design of the Proposed Development complies with the guidelines as set out in the Codes of Practice and paragraph 2.10.11 of NPS EN-5.

1.3 EMF Strengths

1.3.1 Electric fields are produced by voltage. Voltage is the pressure behind the flow of electricity. Electricity is distributed at higher voltages, from 11,000 volts (11 kV) up to 400,000 volts (400 kV). The higher the voltage, the higher the electric field. Electric fields are measured in volts per metre (V/m). Magnetic fields are produced by current, which is the flow of electricity (measured in amperes or amps). The higher the power and the current, the higher the magnetic field. Magnetic fields are measured in microteslas (µT).

Electric Field Strengths

1.3.2 The Proposed Development will not produce significant electric fields outside its boundary because the perimeter fence screens the electric field from any sources within the substation. Inside the substation, the busbars and other equipment produce electric fields. However, the internal arrangement of busbars within the substation means that where they are aligned in adjacent rows or mirror lengths, the fields produced are cancelled. Consequently, the EMF fields are not significant.

1.3.3 The highest field levels are found outside the perimeter of a substation where they are produced by the overhead lines entering a substation. The fields produced by equipment within the substation are smaller and decrease with

distance more quickly than fields generated by overhead lines. A detailed compliance report accompanying a application will present demonstrate that the electric field levels will remain below the public and occupational exposure limits at the boundary of the substation.

Magnetic Field Strengths

1.3.4 The equipment inside substations produces magnetic fields, but the intensity of the field falls with distance rapidly. By the time, any personnel are at the perimeter fence or a few metres outside it, the magnetic field from inside the substation is usually approaching background levels. Again, the largest magnetic fields around the perimeter of a substation come from the overhead lines and underground cables entering it.

1.3.5 In situations where there is a transformer located inside the substation close to the perimeter fence an elevated magnetic field produced by the cables or busbars supplying the transformer, the magnetic field at the perimeter fence would be one microtesla which is very low compared to the public exposure limits.

1.3.6 Magnetic field levels remain below the public exposure limits at the boundary of the substation.

1.4 Conclusion

1.4.1 The electric and magnetic fields in the vicinity of electricity substations are well below the levels associated with established health effects[5]. A compliance report supporting and accompanying the application for consent will demonstrate that

[5] https://researchbriefings.files.parliament.uk/documents/SN06151/SN06151.pdf

EMFs resulting from the proposed 400 kV substation remain below the public and occupational exposure limits at the boundary of the substation.

1.4.2 Consequently, in setting out the scope of an EIA, where SSEN Transmission can demonstrate through a compliance report that levels of exposure are within the limits set within the Electricity Safety, Quality and Continuity Regulations 2002[6], within the exposure guidelines as specified in the Code of Practice on compliance, and with the policy on phasing as specified in the Code of Practice on optimal phasing[7], do not consider that the environmental effects of EMF exposures are likely to be significant and that EMF should be scoped out of an Environmental Assessment. .

[6] The Electricity Safety, Quality and Continuity Regulations 2002 (legislation.gov.uk)

[7] Department of Energy and Climate Change (DECC, 2012) – Power Lines: Demonstrating compliance with EMF public exposure guidelines – a voluntary Code of Practice. Available to download from https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/48308/1256-code-practice-emf-public-exp-guidelines.pdf

RELEVANT REFERENCES AND GUIDANCE

Further information on EMFs is found from the following sources:

1. www.emfs.info – National Grid information site on EMFs
2. Energy Networks Association (2017) – Electric and Magnetic Fields: The Facts. Available to download from http://www.emfs.info/wp-content/uploads/2017/09/EMF_The_Facts_250917.pdf
3. Department of Energy and Climate Change (DECC, 2012) – Power Lines: Demonstrating compliance with EMF public exposure guidelines – a voluntary Code of Practice. Available to download from https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/48308/1256-code-practice-emf-public-exp-guidelines.pdf
4. ICNIRP (1998) – Guidelines for limiting exposure to time-varying electric, magnetic and electromagnetic fields (up to 300 GHz). Available to download from: https://www.icnirp.org/cms/upload/publications/ICNIRPemfgdl.pdf
5. UK Government (2016) - The Control of Electromagnetic Fields at Work Regulations 2016. Available to download from: The Control of Electromagnetic Fields at Work Regulations 2016 (legislation.gov.uk)
6. UK Government Department for Energy Security & Net Zero (2023) National Policy Statement EN-5 (NPS EN-5). Available to download from: Electricity Networks National Policy Statement - EN-5 (publishing.service.gov.uk)