

## **Volume 5: Appendix 6.1 - Scoping Report**



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## GLOSSARY

Term	Definition
400 kV	400 kilovolt (400,000 volt) operating voltage electrical circuit.
Aberdeenshire Council Archaeology Service (ACAS)	Aberdeenshire Council Archaeology Service (ACAS) has the role of locating, evaluating, safeguarding, and interpreting all archaeological sites within four council areas (Aberdeenshire Council, Moray Council, Angus Council and Aberdeen City Council). This information is held in the Historic Environment Record (formerly known as the Sites and Monuments Record), which is publicly accessible online.
Access Strategy	Method for provision of access to the OHL alignment to facilitate construction eg the nature, indicative location and extent of temporary access tracks, permanent access tracks and road improvements.
Alignment	A centre line of an overhead line (OHL), along with location of key angle support structures.
Alignment (preferred)	An alignment for the overhead line taken forward to stakeholder consultation following a comparative appraisal of alignment options.
Alignment (proposed)	An alignment taken forward to consent application. It comprises a defined centre line for the overhead line and includes an indicative support structure (tower or pole) schedule, also specifying access arrangements and any associated construction facilities.
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.
Ancient Woodland	As defined by The Scottish Ancient Woodland Inventory. Ancient Woodland (categories 1a and 2a) is interpreted as semi-natural woodland from maps of 1750 (1a) or 1860 (2a) and continuously wooded to the present day. If planted with non-native species during the 20th century they are sometimes referred to as Plantations on Ancient Woodland Sites (PAWS).
Angle Tower	Support structure (tower) which allows a change in direction of the OHL.
Annex I (as listed on the EC Habitats Directive)	Annex I to the EC Habitats Directive lists the types of habitats and the animal and plant species whose conservation requires the designation of special areas of conservation. Some are defined as 'priority' habitats or species in danger of disappearing and for which there are specific rules.
AOD	Above Ordnance Datum
ASTI	Accelerated Strategic Transmission Infrastructure is a regulatory framework. This framework will assess, fund and incentivise the accelerated delivery of the large, strategic onshore transmission projects required to deliver the UK Government's ambition to connect up to 50 GW of offshore wind generation to the network by 2030 <sup>1</sup> .
AWI	The Scottish Ancient Woodland Inventory is a provisional guide to the location of Ancient Woodland. It contains three main categories of woodland, all of which are likely to be of value for their biodiversity and cultural value. These include Ancient Woodland, Long-established woodlands of plantation origin (LEPO), and other woodlands.
Background Noise (BGN)	Background noise is the noise level in the absence of the industrial noise source under consideration.
Baseline Conditions	The physical, chemical, biological and cultural setting in which the Proposed Development is to be located, and where local impacts (both positive and adverse) might be expected to occur.
Bellmouth	Widened areas of access tracks at the junction of the track with the public road to facilitate turning of heavy vehicles into and out of the track.
BGS	British Geological Survey

<sup>1</sup> Ofgem (2023) Decision to modify the special licence conditions in the electricity transmission licences: Accelerated Strategic Transmission Investment

Term	Definition
BNG	Biodiversity Net Gain (BNG) is an approach to development that aims to leave the natural environment in a measurably better state than it was pre-development. It focuses on the change in the biodiversity value of a site, comparing the pre and post construction biodiversity values to ensure a positive effect overall.
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, published December 2021. Birds of highest conservation concern will appear on the Red List.
Broadleaved Woodland	Broadleaved woodland is characterised by trees which do not have needles. Their leaves are broad and vary in shape, and most of them are deciduous. Broadleaved woodlands have 10% or less conifer in the canopy.
CEMP	Construction Environmental Management Plan – A document which defines specific methods for environmental survey, monitoring, mitigation and management throughout construction of a project.
Coniferous Woodland	Woodland that has 10% or less broadleaved trees in the canopy.
Construction Noise Impact Assessment (CNIA)	Construction Noise Impact Assessment. The basic principle of any noise impact assessment is to assess the change in the acoustic environment that will be brought about by the proposed development. The assessment of construction noise complies with best practice (BS5228), Code of Practice for Noise and Vibration Control on Construction and Open Sites.
Centre Line	The linear connection between the central point of each support structure along the length of the OHL.
Class 1 and Class 2 Peatland	Class 1 – Nationally important carbon-rich soils, deep peat and priority peatland habitat. Areas likely to be of high conservation value. Class 2 – Nationally important carbon-rich soils, deep peat and priority peatland habitat. Areas of potentially high conservation value and restoration potential.
Competent Authority	In the context of this Scoping Report and under <i>the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017</i> (“ <i>the EIA Regulations</i> ”), the Scottish Ministers are the competent authority and have the relevant powers and duties under the EIA Regulations.
Conductor	A metallic wire strung between OHL support structures, to carry electric current.
Commercial Forestry	Plantation woodlands typically dominated by conifer species and managed predominantly for timber extraction.
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.
Consultation Bodies	In terms of Regulation 2(1) of <i>the EIA Regulations</i> , defined as meaning the planning authority, NatureScot, the Scottish Environment Protection Agency and Historic Environment Scotland.
Contaminated Land	Land contaminated by harmful substances including Unexploded Ordnance.
Corridor	A linear area which allows a continuous connection between the defined connection points. The corridor may vary in width along its length; in unconstrained areas it may be many kilometres wide. A corridor should also take into account any pinch points along its length where subsequent design development for the OHL may be subject to fundamental restrictions which may limit the eventual viability of a project or gaining consent.
DMRB	The Design Manual for Roads and Bridges (DMRB) contains information about current design standards relating to the design, assessment and operation of motorway and all-purpose trunk roads in the United Kingdom.
Double circuit	A double circuit transmission line comprises of two independent circuits each made up of three sets of conductors (cables).
DWPA	Drinking Water Protected Areas (DWPA) – The water in ditches, streams, lochs and possibly groundwater in these areas is protected and likely to be taken to water treatment works, where it is treated and provided to the public as drinking water.

Term	Definition
ECU	Energy Consents Unit – The department of the Scottish Government responsible for processing applications for consent under <i>the Electricity Act 1989</i> on behalf of Scottish Ministers.
Effect	The change in condition of an environmental receptor (beneficial or adverse) arising as a result of a change brought about by the construction or operation of the Proposed Development.
EIA	Environmental Impact Assessment – A formal process codified by EU Directive 2011/92/EU, and subsequently amended by Directive 2014/52/EU. The national regulations are set out in <i>The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017</i> as amended. The EIA process is set out in Regulation 4(1) of the regulations and includes the preparation of an EIA Report (EIAR) by the developer to systematically identify, predict, assess and report on the likely significant environmental impacts of a proposed project or development.
Embedded Mitigation	Measures to avoid or reduce environmental impacts which are developed as an inherent part of the design of a project (eg reducing the height of a tower) or from adoption of specific design parameters (eg compliance with specific buffer distance from an environmental receptor).
European Designated Site	An area of land subject to protection through European legislation, including Special Areas of Conservation (SAC) and Special Protection Areas (SPA).
FLS	Forestry and Land Scotland (FLS) is the Scottish Government agency responsible for managing Scotland’s national forests and land.
GDL	Garden and Designed Landscape – As listed on the Inventory of Gardens and Designed Landscapes held by HES. These are considered by a panel of experts to be of national importance.
GEMPs	General Environmental Management Plans – A series of standardised construction environmental management plans produced by SSEN Transmission.
GWDE	Groundwater Dependent Terrestrial Ecosystem – Wetlands which critically depend on groundwater flows. They are safeguarded by the Water Framework Directive (WFD) and are sensitive to hydrological and ecological changes.
GW	Gigawatt (GW). One billion watts.
Habitat	Term most accurately meaning the place in which a species lives, but also used to describe plant communities or agglomerations of plant communities.
HER	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.
HES	Historic Environment Scotland
HGV	Heavy Goods Vehicle
HND	Holistic Network Design – A single, integrated coordinated plan that sets out the onshore and offshore electricity transmission infrastructure required across GB, to deliver the UK Government’s 2030 targets.
HRA	Habitats Regulations Appraisal – Appraisal to determine whether the Proposed Development is likely to have a significant effect on a European designated sites, to address the requirements of Regulation 63 of <i>the Conservation of Habitats and Species Regulations 2017</i> .
Holford Rules (as modified)	Principles used to inform the routing of OHLs and the siting of substations.
IBA	Important Bird Areas are designated by Birdlife as places of international significance for the conservation of birds and other biodiversity. They are a non-statutory, international designation.
Impact	Physical constructions or activities that may change or disturb the surrounding environment (eg erection of an OHL tower may impact the landscape resource).
Kilovolt (kV)	One thousand volts.

Term	Definition
LCT	Landscape Character Type is a distinct, recognisable and consistent pattern of elements in a landscape that differentiates the areas from each other.
LEPO	Long-Established Woodlands of Plantation Origin – NatureScot category of the Ancient Woodland Inventory. Many of these plantation sites have developed semi-natural characteristics, especially the oldest ones, which may be as rich as Ancient Woodland.
Listed Building	Building included on the list of buildings of special architectural or historic interest and afforded statutory protection under the <i>Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997</i> and other planning legislation. Classified in three categories A, B and C(S).
LLA	Local Landscape Areas are designated by local planning authorities for sites which are considered to be of regional/local importance for their scenic qualities. Local Development Plans (LDPs) typically show the location of LLAs and associated policy. Also sometimes referred to as Special Landscape Areas (SLA), for example by Aberdeenshire Council.
LNCS	Local Nature Conservation Site – A non-statutory designation given by local authorities to areas of locally important nature. LNCS are intended to safeguard biodiversity and geodiversity of at least local importance.
LNR	Local Nature Reserves are areas of natural heritage that are locally important. They are selected and designated by local authorities.
LOD	Limits of Deviation (LOD) are the areas within which micro-siting of the OHL infrastructure can occur within the terms of the section 37 consent. The purpose of the LOD is to allow flexibility within the section 37 consent for the final micro-siting of individual towers and access tracks to respond to localised ground conditions, topography, engineering and environmental constraints.
LVIA	Landscape and Visual Impact Assessment – Often presented as a chapter within the EIAR to systematically identify, predict, assess and report on the likely significant landscape and visual impacts of a proposed development.
Micro-siting	The process of positioning individual support structures (such as OHL towers) to avoid localised environmental or technical constraints.
Mitigation	Term used to indicate avoidance, remediation or alleviation of adverse environmental impacts (see also Embedded Mitigation definition).
Mixed Woodland	Mixed woodland is defined as having 10-90% of either broadleaved or conifer in the canopy.
National Forest Estate	The National Forest Estate includes over a third of Scotland's woodland area. Forestry and Land Scotland (FLS) manages the National Forests and Land on behalf of Scottish Ministers.
Native Woodland	Woodland recorded on the Native Woodland Survey of Scotland (NWSS) . The NWSS identified and mapped the location, extent, type and condition of all of Scotland's native woodlands. Launched in 2014, it was the first authoritative inventory of Scotland's native woods and created a baseline for future monitoring of change.
NatureScot	Scotland's statutory nature conservation agency (formerly Scottish Natural Heritage (SNH)).
NBN	The National Biodiversity Network (NBN) is a collaborative venture in the United Kingdom, which is committed to making biodiversity information available through the internet via the NBN Atlas - the data search website of the NBN.
NNR	National Nature Reserves are areas of natural heritage where public access is encouraged and which usually host nationally or internationally important habitats and species.
NSA	National Scenic Area – A national level designation applied to those landscapes considered to be of exceptional scenic value.
NSR	Noise Sensitive Receptors are defined as receptors which are potentially sensitive to noise and vibration. Examples include dwellings, hospitals, schools, community facilities.
Operational Corridor (OC)	The area either side of the OHL which needs to remain clear of trees for operational safety and maintenance.
OHL	Overhead Line – An electric line installed above ground, usually supported by lattice steel towers.

Term	Definition
OS	Ordnance Survey (OS). Great Britain's national mapping agency.
Planning Application	An application for planning permission under <i>the Town and Country Planning (Scotland) Act 1997</i> , as amended by the <i>Planning etc. (Scotland) Act 2006</i> . It should be noted that consent under section 37 of the <i>Electricity Act 1989</i> usually carries with it a direction from the Scottish Ministers under section 57 of <i>the Town and Country Planning (Scotland) Act 1997</i> that planning permission be deemed granted.
Plantation Woodland	Woodland of any age that obviously originated from planting.
PM <sub>10</sub>	Particulate matter with an aerodynamic diameter less than 10 micrometres.
PM <sub>2.5</sub>	Particulate matter with an aerodynamic diameter less than 2.5 micrometres.
Preferred Corridor	A corridor for the OHL taken forward to stakeholder consultation following a comparative appraisal of corridor options.
Preferred Option	The option which the Applicant has identified as the best balance of technical and environmental impact considerations identified through initial appraisal. This is then subject to consultation with stakeholders, where local and previously unknown considerations may confirm or alter the initial preference. Once confirmed, this becomes the Proposed Option to take forward to the next stage of project development.
Preferred Route	A route for the OHL taken forward to stakeholder consultation following a comparative appraisal of route options.
PiC	Properties in Care – A collection of monuments, which define significant aspects of Scotland's history, brought into care for their long-term preservation and public benefit through <i>the Ancient Monuments and Archaeological Areas Act 1979</i> . They are managed by HES of behalf of Scottish Ministers.
Proposed Development	The Proposed Development is a description capturing the physical characteristics of the OHL which will be designed following a confirmed Proposed Alignment.
Proposed Route	A route taken forward following stakeholder consultation to the alignment selection stage of the OHL routeing process. The Proposed Route is the approximately 1 km wide route through Sections A-F which has been considered the scoping envelope for this Scoping Report.
Public Body	Defined in terms of Regulation 12(4)(b) of the EIA Regulations as meaning " <i>any other public body which the Scottish Ministers consider is likely to have an interest in the proposed development by reason of that body's specific environmental responsibilities or local and regional competencies</i> ".
Ramsar Site	Wetlands of international importance that have been designated to reflect their representative, rare or unique wetland types or for their importance in conserving biological diversity.
Route	A linear area of approximately 1 km width (although this may be narrower/wider in specific locations in response to identified constraints), which provides a continuous connection between defined connection points.
Routeing	The work undertaken which leads to the selection of a proposed route and then a proposed alignment, capable of being taken forward to the consenting process under section 37 of the <i>Electricity Act 1989</i> .
SAC	Special Area of Conservation – Designated under Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (known as the 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.
SBL	The Scottish Biodiversity List is a list of species and habitats of particular importance for the conservation of biodiversity in Scotland.
Schedule 1 Species	Birds listed on Schedule 1/A1/1A of <i>the Wildlife &amp; Countryside Act 1981</i> , for which it is an offence to intentionally or recklessly disturb at, on or near an 'active' nest. The following are included in the schedules: Schedule 1 – birds protected by special penalties; Schedule 1A – birds that may not be intentionally or recklessly harassed at any time; and Schedule A1 –

Term	Definition
	birds whose habitually used nests may not be intentionally or recklessly taken, damaged, destroyed or otherwise interfered with when not in use.
Scheduled Monument	A monument which has been scheduled by the Scottish Ministers as being of national importance under the terms of <i>the Ancient Monuments and Archaeological Areas Act 1979</i> .
Scoping Opinion	An opinion adopted by the Scottish Ministers as to the scope and level of detail of information to be provided in the EIA.
Section	Due to the length of the project, it has been necessary to split the route into 'sections' to more easily describe, identify and assess the Proposed Development. There are six sections.
Section 37 Application	An application for development consent under section 37 of the <i>Electricity Act 1989</i> .
Semi-natural Woodland	Woodland that does not obviously originate from planting. The distribution of species will generally reflect the variations in the site and the soil. Planted trees must account for less than 30% of the canopy composition.
SEPA	Scottish Environment Protection Agency
SPA	Special Protection Area – Designated under Directive 2009/147/EC on the Conservation of Wild Birds (the Birds Directive) to protect important bird habitats.
SPEN	Scottish Power Energy Networks
SPP	Species Protection Plan (SPP). Developed by the Applicant to document general procedures, legislation and requirements for ensuring protection to a variety of species.
Spraint	Otters produce droppings known as 'spraints', which are left in prominent places along riverbanks, on rocks or under bridges to mark out their territories.
SSEN Transmission	Scottish Hydro Electric Transmission plc is a wholly owned subsidiary of the SSE plc group of companies. Operating and known as Scottish and Southern Electricity Networks Transmission (SSEN Transmission) it owns and maintains the electricity transmission network across the north of Scotland and remote islands. It holds a licence under the <i>Electricity Act 1989</i> to develop and maintain an efficient, co-ordinated and economical system of electricity transmission.
SSSI	Site of Special Scientific Interest – Areas of national importance designated by NatureScot under <i>the Nature Conservation (Scotland) Act 2004</i> . The aim of the SSSI network is to maintain an adequate representation of all natural and semi-natural habitats and native species across Britain.
Stakeholders	Organisations and individuals who can affect or may be affected by SSEN Transmission works.
Study Area	A defined area for the consideration of environmental effects (including direct, indirect and cumulative) on each relevant factor listed under Regulation 4(3) of the EIA Regulations.
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.
The National Grid	The electricity transmission network in Great Britain.
UK BAP	The UK Biodiversity Action Plan was published in 1994 after the Convention on Biological Diversity. It summarised the most threatened species and habitats in the UK and gave detailed plans for their recovery.
UKHab	UK Habitat Survey (UKHab). The UK Habitat Classification is a unified and comprehensive approach to classifying habitats, designed to provide a simple and robust approach to survey and monitoring for the 21st Century.
Volts	The international unit of electric potential and electromotive force.
Wayleave	A voluntary agreement entered into between a landowner, upon whose land an OHL is to be constructed, and SSEN Transmission.
WLA	Wild Land Area, as classified by NatureScot.

Term	Definition
Woodland	Woodland is defined as vegetation dominated by trees more than 5m high when mature, forming a distinct, although sometimes open, canopy.
ZTV	Zone of Theoretical Visibility – The computer generated plan showing the theoretical visibility of an object in the landscape.

## EXECUTIVE SUMMARY

This Scoping Report has been prepared by Land Use Consultants Limited (LUC) 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 has statutory duties under section 9 of *the Electricity Act 1989*, to develop and maintain an efficient, co-ordinated and economical system of electricity transmission, and, to facilitate competition in the supply and generation of electricity. Having regard to those duties, the Applicant needs to provide a new 400 kilovolt (kV) overhead line (OHL) transmission connection between Kintore in Aberdeenshire and a location near to Tealing in Angus. The main drivers for the project are the forecast growth in renewable electricity generation across the northeast of Scotland and the need to reinforce the electricity transmission network to transport that electricity to areas of demand, supporting the transition to net zero emissions.

The Applicant is proposing to submit an application for consent under section 37 of *the Electricity Act 1989* to construct and operate a 106 kilometre (km) 400 kV OHL, supported by steel lattice towers between a proposed new substation at Emmock<sup>2</sup> and an existing substation at Kintore via a second proposed new substation to be named Hurlie, which is to be located within Fetteresso Forest west of Stonehaven. The application and this Environmental Impact Assessment (EIA) Scoping Report relates to the proposed installation and operation of the OHL project. Separate applications for planning consent for the two new substations have been submitted to the relevant local planning authorities.

This Scoping Report is provided to support a formal request to the Scottish Ministers under Regulation 12 of *The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017* by the Applicant for a Scoping Opinion to determine the information to be provided within an EIA Report (EIAR) and which will accompany the section 37 application.

The proposed scope of the EIA has been defined through a process of preliminary environmental assessment of the Proposed Development which is presented in **Chapters 4 to 15** of this Scoping Report. These assessments have drawn on extensive information available to the EIA team from work undertaken to date on the project proposals, including for OHL corridors and route options appraisals. It also takes into account consultation feedback received from EIA consultees and non-statutory stakeholders, including those provided in response to extensive OHL routing consultations in 2023 and early 2024, the findings of which are set out in SSEN Transmission’s Reports on Consultation (RoC)<sup>3</sup> &<sup>4</sup>.

A summary of the proposed EIA scope is presented in **Table ES1: Topics Scoped In and Out of the EIA**, noting that the final scope will be agreed following the receipt of a Scoping Opinion from the Scottish Ministers.

**Table ES1: Topics Scoped In and Out of the EIA**

Topic	Comment on Scope
Land Use and Recreation	<p>Effects on agricultural land management and changes to other land uses including utilities and commercial and residential properties are not predicted to be significant and are scoped out of the assessment.</p> <p>It is proposed that a land use chapter will be included in the EIAR to provide a land use context for the proposals and to allow for commentary on the overall changes to land use including agricultural land as a regional resource as a result of the Proposed Development.</p> <p>Direct effects of woodland loss from the requirement to form an Operational Corridor (OC) will be assessed. Felling outside of the OC and forestry management issues during operation</p>

<sup>2</sup> Formerly named as (the proposed new) Tealing substation. The name has been changed by the Applicant to Emmock substation (in November 2023) to differentiate the proposed new 400 kV substation from the existing Tealing 132 kV Substation.

<sup>3</sup> SSEN Transmission (2023) Kintore to Tealing 400 kV Overhead Line – Report on Consultation. Available at: <https://www.ssen-transmission.co.uk/globalassets/projects/rocs/tkup-ohl/report-on-consultation---kintore-to-tealing-400kv-ohl.pdf>

<sup>4</sup> SSEN Transmission (August 2024). Kintore to Tealing 400 kV Overhead Line - Report on Consultation. Available at: <https://www.ssen-transmission.co.uk/globalassets/projects/rocs/tkup-ohl-august-24/report-on-consultation-august-2024.pdf>. The Report on Consultation was written concurrently with this Scoping Report.

Topic	Comment on Scope
	is scoped out. Forestry effects would be presented in a separate chapter of the EIAR. Effects on recreation including for users of paths, cycle routes, tourism and recreational fishing are scoped out of the EIAR (See <b>Chapter 4: Land Use and Recreation</b> ).
Landscape and Visual Amenity	<p>Effects on Landscape Character are scoped into the assessment along with effects on the designated landscapes of the Dee Valley Special Landscape Area (SLA)<sup>5</sup> and the Braes of the Mearns SLA.</p> <p>Visual effects on representative viewpoints, visual receptors at settlements and communities and residents in closest proximity to the Proposed Development are scoped in. Recreational receptors and receptors travelling on roads and railways are scoped into the assessment. Assessment of effects at night on Landscape Character, designated landscapes and visual amenity are scoped out of the EIA for both construction and operation (see <b>Chapter 5: Landscape and Visual Amenity</b>).</p>
Cultural Heritage	<p>Within the inner study areas defined for the assessment, direct effects during construction on cultural heritage assets and buried archaeological remains, and cumulative effects on cultural heritage assets are scoped into the assessment (see <b>Chapter 6: Cultural Heritage</b>).</p> <p>Direct effects on cultural heritage assets beyond the inner study area are scoped out. Indirect effects on standing remains or structures and buried archaeological remains or deposits, from hydrological changes or from vibration and seismic events (ie quarry blasting), are scoped out.</p> <p>Operation effects and cumulative effects on the setting of cultural heritage assets will be included in the assessment.</p> <p>Temporary setting effects during construction are scoped out. Setting effects on listed buildings within built areas, such as settlements are scoped out of the assessment due to the screening effect of intervening buildings from the OHL. Assessment of direct operational effects from maintenance or replacement works are to be scoped out.</p>
Ecology	<p>During construction, effects on designated sites for which a possible impact pathway has been identified, loss or fragmentation of habitats of conservation concern and impacts on protected species, including otter, bats, beaver, red squirrel, pine marten, water vole, and badger, as a result of habitat loss or fragmentation are scoped into the assessment. Disturbance to aquatic environments that support populations of freshwater pearl mussel is scoped into the assessment. (see <b>Chapter 7: Ecology</b>).</p> <p>During construction, effects on designated sites for which no impact pathway has been identified, impacts on protected and notable species as a result of disturbance during construction, aquatic ecological features (with the exception of freshwater pearl mussel) and brown hare, hedgehog and water shrew, amphibians, reptiles and invertebrates are scoped out.</p> <p>Operational impacts on designated sites, habitats of conservation concern, and protected and notable species are scoped out of the assessment.</p>
Ornithology	<p>During construction and operation of the OHL, effects on designated sites, particularly Special Protection Areas (SPAs), for which the qualifying features show connectivity (ie where species' core foraging range overlaps) and impacts on protected bird species, including Schedule 1/1A/A1 species and red-list bird species of conservation concern (BoCC) arising from habitat loss, collision and disturbance are scoped into the assessment (see <b>Chapter 8: Ornithology</b>).</p> <p>Designated sites for which designated features show no connectivity, barrier effects and electrocution - on designated features/Schedule 1 birds and BoCC are scoped out of the assessment.</p>
Hydrology, Hydrogeology, Geology and Soils	During construction, effects on watercourses, hydrology/ flood risk, Ground Water Dependent Terrestrial Ecosystems (GWDTEs), Private Water Supplies (PWS) abstractions and

<sup>5</sup> Local planning authorities identify and designate Local Landscape Areas (LLAs) for areas where scenery is highly valued locally. LLAs are typically included within Local Development Plans (LDPs) which show their locations and associated policy. Angus Council has recently consulted on the designation of a number of LLAs which are awaiting approval. Aberdeenshire Council includes a series of Special Landscape Areas (SLAs) in the Aberdeenshire LDP (2023). For the purposes of this assessment, the terms LLA and SLA are considered to be representative of the same type of local landscape designation.

Topic	Comment on Scope
	<p>peat are scoped into the assessment (see <b>Chapter 9: Hydrology, Hydrogeology, Geology and Soils</b>).</p> <p>Effects on surface water quality, PWS, groundwater abstractions and GWDTE during operation and effects on peat and other soils during the operational phase are scoped out of the assessment.</p> <p>Potential effects from encountering contaminated land will be investigated further as part of the ongoing alignment design phase and reported as required in the EIA. The project design to date has factored in information from an unexploded ordnance (UXO) desk study and constraints assessment commissioned by The Applicant. The UXO constrained areas have been avoided as far as possible.</p> <p>Where potential constraints cannot be avoided, risk mitigation will be recommended which will be dependent on the proposed scope of works in the area and the identified hazard. Risk mitigation will be undertaken and would form part of the Construction Environmental Management Plan (CEMP) to be implemented by the Principal Contractor.</p>
Traffic and Transport	<p>Effects associated with construction traffic across the proposed study area are scoped into the assessment (see <b>Chapter 10: Traffic and Transport</b>).</p> <p>Effects of traffic during operation and maintenance are scoped out of the assessment.</p>
Noise and Vibration	<p>Effects associated with construction and operational noise and vibration are scoped into the assessment (see <b>Chapter 11: Noise and Vibration</b>).</p> <p>An operational OHL does not produce vibration effects as part of operation; therefore these effects are scoped out of the assessment.</p>
Population and Human Health	<p>Effects are scoped out of the EIA. Impacts of the Proposed Development have been assessed in relation to their potential to affect health determinants and are not predicted to be significant (see <b>Chapter 12: Population and Human Health</b>). However, additional information demonstrating the compliance of the electricity transmission systems for the Proposed Development with the UK guidelines on Electro-Magnetic Field (EMF) exposure will be separately provided with the section 37 application.</p>
Air Quality	<p>Effects are scoped out of the EIA since significant residual adverse effects on local air quality are not predicted taking account of the nature of the proposed works and the Embedded and Applied Mitigation assumed in this preliminary assessment (see <b>Chapter 13: Air Quality</b>).</p>
Climate Change	<p>Effects in relation to climate mitigation including the generation of greenhouse gas (GHG) emissions from embodied carbon from the manufacturing and installation of transmission assets during construction, and those from construction activities are scoped out of the assessment. However, the EIAR will include further mitigation measures to support the process of GHG emissions reduction and minimisation for the selection of materials and components for the Proposed Development and for its construction.</p> <p>Effects of GHG emissions from changes in land use associated with construction and permanent development of the OHL infrastructure and emissions from operation of the transmission infrastructure and its maintenance are scoped out of the assessment.</p> <p>The in-combination impact of climate change on the 'impacts upon protected species' and 'designated sites' are scoped out of the assessment. The impacts of climate change on the vulnerability of the OHL asset are scoped out. (See <b>Chapter 14: Climate Change</b>).</p>
Major Accidents and Disasters	<p>Effects are scoped out of the EIA as no significant direct and/or indirect effect are predicted (see <b>Chapter 15: Major Accidents and Disasters</b>).</p>
Telecommunications and Aviation	<p>It is not predicted that there would be significant technical issues with telecommunications, television and radio broadcasting or aviation systems interference caused by the Proposed Development and this issue is proposed to be scoped out from further consideration within the EIA process.</p>
Socio-Economics	<p>A Socio-Economic Assessment is scoped out of the EIAR as the project 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.</p>

Topic	Comment on Scope
	A stand-alone report will be provided to accompany the EIAR as part of the section 37 application to provide information on this topic to be considered in relation to wider policy, as part of the determination process.

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 the Energy Consents Unit (ECU) of the Scottish Government to ensure that all responses of relevance to the EIA are collated and considered by the ECU for the purposes of adopting a Scoping Opinion. Responses can be sent:

- Through the website: [www.energyconsents.scot](http://www.energyconsents.scot)
- Via email: [representations@gov.scot](mailto:representations@gov.scot)
- In writing to:

Energy Consents Unit  
Scottish Government  
5 Atlantic Quay  
150 Broomielaw  
Glasgow  
G2 8LU

When submitting a response to the ECU in respect of the Scoping Report, the Applicant would be grateful if a copy of the response could also be sent to the address below:

Via email to: [sarah.cane-ritchie@sse.com](mailto:sarah.cane-ritchie@sse.com)

OR

- By writing to:
 

For the Attention of Sarah Cane-Ritchie  
SSEN Transmission  
Inveralmond House  
200 Dunkeld Road  
Perth  
PH1 3AQ

# 1. INTRODUCTION

## 1.1 The Proposals

- 1.1.1 Scottish Hydro Electric Transmission plc (“the Applicant”) is a wholly owned subsidiary of the SSE plc group of companies. Operating and known as Scottish and Southern Electricity Networks Transmission (“SSEN Transmission”) it 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 a section 37 application for consent to construct and operate a 106 kilometre (km) double circuit 400 kV overhead line (OHL), supported by steel towers between Kintore in Aberdeenshire and Tealing in Angus, Scotland (described hereafter as the ‘Proposed Development’). The OHL forming the Proposed Development will be located within an area defined as the ‘Proposed Route’ which is a linear corridor approximately 1 km in width.
- 1.1.3 The Scoping assessment within this report has been undertaken with reference to the route options being taken forward to alignment development as confirmed in our Report on Consultation, dated August 2024<sup>6</sup>. The following options are being taken forward, as shown in **Figure 1.1 Location Plan**:
- 1.1.4 A single option is being taken forward to alignment development in each Section A to D:
- A1
  - B1.1
  - C1
  - D4
- 1.1.5 Two options are being taken forward to alignment development in Section E:
- E2 and E1
  - E2 and E4
- 1.1.6 Two options are being taken forward to alignment development in Section F:
- F1.3 and F2
  - F3 and F2
- 1.1.7 Alignment development work is ongoing, with public consultation on alignment options to be undertaken in September and October 2024. In the event the ongoing development and consultation process results in the selection of an alternative option which is materially beyond what has been assumed for the Proposed Route in this Scoping Report, the Applicant would revisit the findings of this Scoping Report and provide an update to the Energy Consents Unit (ECU) as appropriate. At this stage the Applicant considers that there are unlikely to be material changes to the scope of the EIA due to the nature of the Proposed Development, the potential significant effects, and the typical receiving environments associated with the other options which are similar to those which have been subject to a preliminary scoping assessment for the Proposed Route.
- 1.1.8 To support the construction of the new OHL to provide the full 400 kV capacity, two new substations are also proposed to connect with the OHL. At the southern end of the proposed OHL, a new 400 kV capable substation is proposed to be built within the vicinity of the existing Tealing Substation, named Emmock (approximately 5 km to the north of Dundee). In the central section of the proposed OHL, a new 400 kV substation is proposed to be built at Hurlie in an area of Fetteresso Forest located approximately 7 km west of Stonehaven. The construction of the new 400 kV OHL and two new 400 kV substations are part of the programme of East Coast 400 kV Phase 2 upgrade projects being promoted by SSEN Transmission. As part of this programme SSEN Transmission is also separately applying for section 37 consent for the re-conductoring of two existing

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<sup>6</sup> SSEN Transmission (August 2024). Kintore to Tealing 400 kV Overhead Line - Report on Consultation. Available at: <https://www.ssen-transmission.co.uk/globalassets/projects/rocs/tkup-ohl-august-24/report-on-consultation-august-2024.pdf>. The Report on Consultation was written concurrently with this Scoping Report.

275 kV overhead lines which connect Tealing Substation with substations at Alyth and eventually Westfield<sup>7</sup> (Alyth to Tealing OHL 400kV Upgrade (Reconductoring) ECU Reference: ECU00005167 and Tealing to Westfield OHL 400kV Upgrade (Reconductoring) ECU Reference: ECU00005168). The upgrading of these lines to 400 kV capacity would also require them to be connected into the proposed Emmock (400 kV) substation rather than into Tealing Substation which will require some localised re-direction of the most easterly sections of these OHLs (ECU Reference: ECU00005204). Consent for these revised connections, and for an OHL tie-back between the proposed Emmock substation and Tealing Substation will be applied for by SSEN Transmission through a separate section 37 application<sup>8</sup>.

- 1.1.9 The scope of the section 37 application for the proposed Kintore to Tealing 400 kV OHL and this EIA Scoping Report is limited to the installation and operation of the proposed 400 kV OHL connection (the Proposed Development). Separate applications for planning consent for the two proposed new substations, supported by EIARs for each development application, have been submitted to the relevant local planning authorities. The predicted environmental effects of the OHL will be considered closely with those predicted for the substations in the assessment of cumulative effects to be presented in the EIA Report. The approach to this is discussed further in the proposed EIA methodology (see **Section 3.8: Approach to Assessment of Significant Environmental Effects**).
- 1.1.10 This project is part of a wider scope of works to upgrade the transmission network in the northeast of Scotland. Further detail on the wider works is provided in **Section 2.2: Need for the Project** of this report.

## 1.2 The EIA Regulations

- 1.2.1 An application for consent for the Proposed Development will be made to the Scottish Ministers under section 37 of the *Electricity Act 1989*<sup>9</sup>, along with a request for a direction that planning permission be deemed to be granted under section 57 (2) of the *Town and Country Planning (Scotland) Act 1997*<sup>10</sup> (as amended).
- 1.2.2 The Proposed Development is categorised as ‘Schedule 1’ development under *The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017*<sup>11</sup> (the EIA Regulations) (“construction of overhead electrical power lines with a voltage of 220 kilovolts or more and a length of more than 15 kilometres”). On this basis, the application for consent must be supported by an Environmental Impact Assessment Report (EIAR).
- 1.2.3 This EIA Scoping Report has been prepared in accordance with the EIA Regulations, with other relevant EIA best practice guidance and taking account of the Applicant’s own procedures for the routeing and assessment of OHL projects. It has been prepared by a team of environmental technical specialists led by Land Use Consultants Ltd (LUC) and managed by EIA practitioners with relevant competence in undertaking EIA.

## 1.3 Sustainability Strategy

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<sup>7</sup> SSEN Transmission will seek section 37 consent to upgrade the existing 275 kV OHL from Tealing Substation to the licence area boundary shared with Scottish Power Energy Networks (SPEN), mid-span between Tower 66 (SSEN) and Tower 65 (SPEN). SPEN will be responsible for consent requirements from the licence area boundary to Westfield Substation.

<sup>8</sup> The East Coast 400 kV Phase 2 Upgrade projects also include an extension to the existing Kintore Substation which is currently under construction – <https://www.ssen-transmission.co.uk/projects/project-map/kintore-tealing-400kv-ohl-connection/>

<sup>9</sup> HM Government (1989) *Electricity Act 1989* – Section 37. Available at: <https://www.legislation.gov.uk/ukpga/1989/29/section/37>

<sup>10</sup> HM Government (1997) *Town and Country Planning (Scotland) Act 1997* (as amended) – Section 57(2). Available at: <https://www.legislation.gov.uk/ukpga/1997/8/section/57>

<sup>11</sup> HM Government (2017) *The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017*. Available at: <https://www.legislation.gov.uk/ssi/2017/101/contents/made>

1.3.1 A key part of SSEN Transmission's Sustainability Strategy<sup>12</sup> is to achieve Biodiversity Net Gain (BNG)<sup>13&14</sup> as part of the delivery of each project. As such, the ambition is to ensure that activities not only maintain the existing ecological balance but also enhance biodiversity. For new infrastructure projects, the Applicant proposes to:

- ensure natural environment considerations are included in decision making at each stage of a project's development;
- utilise the mitigation hierarchy to avoid impacts by consideration of biodiversity in project design;
- achieve Biodiversity Net Gain of 10% or more on all new infrastructure projects gaining consent from May 2023 onwards; and
- work with the supply chain to understand enhancement opportunities to gain the maximum benefit during asset replacement and upgrades, which includes development of new infrastructure.

1.3.2 BNG is a key consideration throughout project development and is discussed further in **Chapter 7: Ecology**.

## 1.4 Purpose of the EIA Scoping Report

1.4.1 The purpose of this EIA Scoping Report is to ensure that the EIA of the Proposed Development 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 and presented in the EIAR, this document also identifies those issues that are not considered necessary to assess further because they would not be predicted to have significant environmental effects, and which can be 'scoped out' of detailed assessment.

1.4.2 This Scoping Report, prepared by LUC on behalf of the Applicant, is provided in support of a request by the Applicant to the Scottish Ministers for a Scoping Opinion under Regulation 12<sup>15</sup> of the EIA Regulations.

1.4.3 In accordance with Regulation 12(2) of the EIA Regulations, this EIA Scoping Report contains:

- A plan sufficient to identify the Site which is the subject of the Proposed Development (see **Figure 1.1: Location Plan**);
- A brief description of the nature and purpose of the Proposed Development and its potential effects on the environment (see **Chapter 2: Description of the Proposed Development** for description and subsequent chapters of the Scoping Report for potential effects); and
- Additional supporting information or representations from the Applicant.

1.4.4 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 for the Proposed Development?
- Do you agree with the proposed approach for the collection of baseline data, and for the assessment of environmental effects?
- 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?

## 1.5 Overview of Approach to the EIA Scoping Report

1.5.1 This report is structured to provide information on the individual factors (key issues) which require consideration under the EIA Regulations. The Scoping Report presents the findings of an initial appraisal of the potential likely significant environmental

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<sup>12</sup> SSEN Transmission (2023) *Sustainability Strategy*. Available at: <https://www.ssen-transmission.co.uk/about-us/sustainability-and-environment/sustainability-strategy/>

<sup>13</sup> SSEN Transmission (2019) *A Network for Net Zero: Our Approach to Implementing Biodiversity Net Gain*. Available at: <https://www.ssen-transmission.co.uk/globalassets/documents/a-network-for-net-zero/supporting-evidence/our-approach-to-implementing-biodiversity-net-gain-.pdf>

<sup>14</sup> SSEN Transmission (2023) *Delivering for Nature and Net Zero on World Biodiversity Day by committing to biodiversity net gain on all our projects*. Available at: <https://www.ssen-transmission.co.uk/news/news--views/2023/5/delivering-for-nature-and-net-zero-on-world-biodiversity-day-by-committing-to-biodiversity-net-gain-on-all-our-projects/> and SSEN Transmission *Delivering a positive environmental legacy*, Available at: <https://www.ssen-transmission.co.uk/globalassets/documents/sustainability-and-environment/environmental-legacy-booklet>

<sup>15</sup> HM Government (2017) *The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 – Regulation 12: Request for Scoping Opinions*. Available at: <https://www.legislation.gov.uk/ssi/2017/101/regulation/12/made>

effects of the Proposed Development on the receiving environment, based on the current understanding of the baseline conditions and the characteristics of the Proposed Development. The report identifies the potential for likely significant effects with reference to:

- The current understanding of the baseline environment and its sensitivity;
- The proposed approach to further baseline data collection (where required);
- Issues that can be scoped out from further assessment;
- Issues that require further assessment on the basis of their potential for significant environmental effects; and
- The methodology proposed for the assessment of significant environmental effects in each case.

1.5.2 The EIA Regulations require the EIAR to identify, describe and assess the likely significant effects on the factors specified in Regulation 4(3)<sup>16</sup> to the extent that they are relevant to the specific characteristics of the Proposed Development and to the environmental features likely to be affected, and the interaction between those factors. **Table 1.1: Consideration of Factors in the EIA Scoping Report** lists the factors and outlines how this EIA Scoping Report addresses each. The potential interactions between the factors in the table will be considered as part of an assessment of potentially significant cumulative effects in the EIAR. An outline of the approach to cumulative effects assessment is set out in **Section 3.8: Approach to Assessment of Significant Environmental Effects** of this Scoping Report.

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<sup>16</sup> HM Government (2017) The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 – Regulation 4: Environmental impact assessment. Available at: <https://www.legislation.gov.uk/ssi/2017/101/regulation/4/made>

**Table 1.1: Consideration of Factors in the EIA Scoping Report**

Regulation 4(3) Factor	How this is Addressed within the EIA Scoping Report
Population and Human Health	<p><b>Chapter 12: Population and Human Health</b> considers the potential for likely significant effects on community health and wellbeing in relation to:</p> <ul style="list-style-type: none"> <li>Perceived health effects related to electromagnetic fields (EMF); and</li> <li>Potential effects on health associated with other topics proposed to be assessed in detail in the EIAR, including residential visual amenity, water quality, traffic and transport, noise, climate change and air quality.</li> </ul>
Biodiversity	<p><b>Chapter 7: Ecology</b> considers the potential for likely significant effects on terrestrial habitats of conservation concern, protected species (including otter, bats, beaver, red squirrel, pine marten, water vole, badger, brown hare, hedgehog and water shrew), aquatic ecological features (including fish and freshwater pearl mussel), amphibians, reptiles and invertebrates.</p> <p><b>Chapter 8: Ornithology</b> considers the potential for likely significant effects on protected avian species.</p>
Land	<p><b>Chapter 4: Land Use and Recreation</b> considers the potential for likely significant effects on land use including agricultural land use and commercial forestry.</p>
Soil	<p><b>Chapter 9: Hydrology, Hydrogeology, Geology and Soils</b> considers the potential for likely significant effects on soils including areas of peatland. Agricultural soils are discussed in <b>Chapter 4: Land Use and Recreation</b>.</p>
Water	<p><b>Chapter 9: Hydrology, Hydrogeology, Geology and Soils</b> considers the potential for likely significant effects on the water environment including hydrology, hydrogeology, water supplies and groundwater dependent terrestrial ecosystems (GWDTE).</p>
Air	<p><b>Chapter 13: Air Quality</b> assesses the potential for construction and operation of the Proposed Development to impact on local air quality including from arisings of dust during construction works.</p>
Climate	<p><b>Chapter 14: Climate Change</b> considers the potential for likely significant effects from greenhouse gas emissions and from future changes in climate inter-acting on the Proposed Development.</p>
Material Assets <sup>17</sup>	<p><b>Chapter 4: Land Use and Recreation</b> considers the potential for likely significant effects from the use of land and land take (including forestry) and on recreation including for users of paths, cycle routes, tourism and recreational fishing.</p> <p><b>Chapter 6: Cultural Heritage</b> considers the potential for likely significant effects on assets associated with cultural heritage and archaeological sites.</p> <p><b>Chapter 10: Traffic and Transport</b> considers the potential for likely significant effects on transport and from changes in traffic flows associated in particular with the construction of the Proposed Development.</p> <p>The potential for wider environmental impacts associated with the use of materials such as manufactured products, construction materials and aggregates is considered through the assessment of the embodied carbon as part of the assessment of effects on climate change (see <b>Chapter 14: Climate Change</b>).</p> <p>The management of materials and waste during construction, including requirements to maximise re-use of secondary materials and retain un-used materials in the value chain will be addressed through the development of mitigation measures during the construction process. These will be set out in a schedule of commitments in the EIAR.</p>
Cultural Heritage	<p><b>Chapter 6: Cultural Heritage</b> considers the potential for likely significant effects on cultural heritage and archaeology assets including on their setting.</p>
Landscape	<p><b>Chapter 5: Landscape and Visual Amenity</b> considers the potential for likely significant effects on designated landscape areas, landscape character and visual receptors.</p>

1.5.3 The EIA Regulations also require (in Regulation 4(4)) consideration of the effects deriving from the vulnerability of the Proposed Development to the risks of major accidents and disasters. These issues are considered further in **Chapter 15: Major**

<sup>17</sup> Material assets are not specifically defined by the EIA Regulations. This report has considered material assets with reference to a range of topics which are considered in the EIA.

**Accidents and Disasters.** Emissions of noise and vibration, which are referenced in paragraph 1(d) of Schedule 4 of the EIA Regulations, are addressed in this report in **Chapter 11: Noise and Vibration**.

- 1.5.4 The scope of the EIA is not proposed to include a socio-economic assessment of the Proposed Development. Information relating to wider socio-economic (and tourism) impacts will be submitted separately from the EIAR by the Applicant as part of the section 37 application. The Applicant will also provide further information on community economic benefits as part of the application, including on a proposed Community Benefit Fund. The EIAR will include some contextual information on the employment generation of the construction phase of the infrastructure proposals which have potential for beneficial impacts to the local and regional economy.
- 1.5.5 The socio-economic assessment undertaken as part of the needs case for National Developments as defined in National Planning Framework 4 (NPF4) is an established and settled policy in Scotland. Given that the proposed project fits within the provisions of the policy and its supporting framework it is unnecessary to revisit or argue material relevance of socio-economic impact. Further information on the basis for scoping out socio-economic effects is presented in **Chapter 16: Summary of Proposed EIA Scope**.
- 1.5.6 Further explanation of the proposed approach and methodology for the EIA is presented in **Chapter 3: EIA Approach and Methodology** of this Scoping Report. A detailed overview of the guidance and methodology adopted for each technical study is provided within the respective technical chapters of this EIA Scoping Report (**Chapters 4 to 15**). All figures are located in **Appendix A: Figures**.

## 1.6 Corridor, Route and Alignment Selection

- 1.6.1 A detailed alignment selection process has been, and continues to be, undertaken to identify the OHL alignment which best balances environmental, technical and economic factors. Environmental designations and key sensitive receptors have been avoided where possible throughout the process. At each of the three stages, 'corridor', 'route', and 'alignment', options are identified, appraised and then consulted on before decisions are made and the design moves to the following stage in accordance with the Applicant's established guidance<sup>18</sup>. Each stage presents more detailed options than the previous, to ultimately arrive at the Proposed Alignment for the OHL and associated access routes which will provide a design to be taken into, and assessed at, the EIA stage.
- 1.6.2 In May, June and July 2023<sup>19</sup> the first public consultation was undertaken for the Proposed Development, this comprised a combined corridor and route consultation. Separate Consultation Documents were prepared for both the corridor and route options and set out the project need and described the Kintore to Tealing OHL Project, seeking comments from stakeholders and members of the public on the corridor and route option studies undertaken. The corridor consultation document set out the rationale for, and approach to, the selection of the Preferred Corridor. Comments received were documented in a Report on Consultation (published in November 2023), which set out the consultation process for the project during the corridor option stage, how feedback was taken into account, and confirmed the Proposed Corridor.
- 1.6.3 Within the Proposed Corridor a series of route options were identified which would enable connectivity between Kintore and Tealing by analysing a series of data sets on physical, technical and environmental constraints. Routes were identified and appraised in a series of six sections (from south to north, A to F) between Tealing and Kintore. In May 2023 a Consultation Document was prepared seeking comments from stakeholders and members of the public on the route option studies undertaken, and the rationale for, and approach to, the selection of the Preferred Route at that stage. The Preferred Route was selected based on the findings of route options appraisal and represented the option with the lowest overall environmental and engineering constraint and the lowest cost.
- 1.6.4 Following the combined consultation feedback, no change was made to the Preferred Corridor but feedback received regarding the Preferred Route required the route options to be reviewed. This comprised further survey work and a review of the route options appraisal work. Following this, some changes in the route preference in Sections B, and F were made. Concurrently, feedback on the proposed new 400 kV substations at Fiddes and Tealing received following consultation in May

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<sup>18</sup> SSEN Transmission (2020) Procedures for Routeing Overhead Lines and Underground Cables of 132 kV and above. Internal.

<sup>19</sup> Consultation events were held in May 2023 and the subsequent feedback period extended into June and July 2023.

2023 was analysed and a decision was made by SSEN Transmission to extend the site selection exercise for the proposed Fiddes substation site, and a new candidate site was selected for the proposed substation near Hurlie, in Fetteresso Forest. This change necessitated a revised OHL routeing exercise to be implemented in Section D and part of Section E of the Proposed OHL Corridor. This was all documented in a Report on Consultation (Published in November 2023), which set out the Proposed Route in Sections A, B, C, part of E and F and the new route options considered by SSEN Transmission in Section D and part of Section E.

- 1.6.5 A Consultation Document was prepared in March 2024 to set out the changes in route preference for Section B and F and to also set out the new route options appraised in Sections D and E for connection to and from the proposed Hurlie substation. Consultation was held in March and April 2024 to seek comments from stakeholders and members of the public on the new route options and Proposed Route. A Report on Consultation has been published which confirms the Proposed Route<sup>20</sup>.
- 1.6.6 Work is currently being undertaken to identify and appraise OHL alignment options located within the Proposed Route, which will be the subject of an alignment stage Consultation Document, which is expected to be issued prior to a further consultation in autumn 2024. The initial assessment of potential significant environmental effects in this Scoping Report has been based on the Proposed Route for the OHL (see **Section 1.1**).
- 1.6.7 The location of the proposed Emmock (Tealing) and Hurlie substations, into which the Proposed Development would connect, has been informed by separate site selection studies and consultation with stakeholders and the public. The planning applications for the substation developments are being progressed separately and both will be supported with an EIAR. The EIA for the Proposed Development, will capture the predicted significant effects of the OHL and (through consideration of cumulative effects) those of the substations. The approach to assessment and reporting of cumulative effects is set out in more detail in **Section 3.8: Approach to Assessment of Significant Environmental Effects**.

## 1.7 OHL Contractor

- 1.7.1 SSEN Transmission has engaged two experienced OHL construction contractors<sup>21</sup> to inform the identification and initial design of a Potential Alignment, through exploring the advantages, disadvantages and constructability of OHL alignment options. This has proven valuable at this early stage of the project in terms of providing confidence in the buildability of alignment options, and construction access opportunities. Whilst the full access strategy is still being developed, construction and operational access requirements will be a key consideration in informing the Potential Alignment, utilising existing access where possible and identifying access routes to facilitate the OHL.
- 1.7.2 The Proposed Alignment for the OHL (including the associated access strategy) will be used to inform the description of the Proposed Development for the EIA and further more detailed information on the project design will be provided in the EIAR.

## 1.8 Scoping Report Structure

- 1.8.1 The remainder of this Scoping Report is structured as follows:
- **Chapter 2: Description of the Proposed Development**, summarises the need for the Proposed Development, provides a description of the key components of the proposals as well as an outline of the likely construction methodology.
  - **Chapter 3: EIA Approach and Methodology**, provides a description of the proposed approach to the assessment of environmental effects to support a proportionate EIA. This chapter also provides an overview of engagement with stakeholders to date and planned future consultation.
  - **Chapters 4 to 15** cover the technical EIA topics, detailing the approach to assessment of potential likely significant effects, the baseline conditions, key sensitive receptors and potential significant effects as well as the proposed scope of assessment in the EIA and issues that have been scoped out. The topics covered in these chapters are as follows:

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<sup>20</sup> SSEN Transmission (August 2024). Kintore to Tealing 400 kV Overhead Line - Report on Consultation. Available at: <https://www.ssen-transmission.co.uk/globalassets/projects/rocs/tkup-ohl-august-24/report-on-consultation-august-2024.pdf>. The Report on Consultation was written concurrently with this Scoping Report.

<sup>21</sup> One contractor is informing design from the proposed Emmock substation to the proposed Hurlie substation and the other contractor is informing design from the proposed Hurlie substation to the existing Kintore Substation.

- **Chapter 4: Land Use and Recreation;**
- **Chapter 5: Landscape and Visual Amenity;**
- **Chapter 6: Cultural Heritage;**
- **Chapter 7: Ecology;**
- **Chapter 8: Ornithology;**
- **Chapter 9: Hydrology, Hydrogeology, Geology and Soils;**
- **Chapter 10: Traffic and Transport;**
- **Chapter 11: Noise and Vibration;**
- **Chapter 12: Population and Human Health;**
- **Chapter 13: Air Quality;**
- **Chapter 14: Climate Change;** and
- **Chapter 15: Major Accidents and Disasters.**
- **Chapter 16: Summary of Proposed EIA Scope;** provides an overview of the issues scoped in and the issues scoped out of the EIA.
- **Chapter 17: Next Steps,** provides an overview of the steps to be undertaken following completion of the EIA Scoping Report.

1.8.2 In addition, this EIA Scoping Report includes the following appendices:

- **Appendix A: Figures;**
- **Appendix B: List of Applied Mitigation Documents;** and
- **Appendix C: List of Proposed Scoping Consultees.**

## 2. DESCRIPTION OF THE PROPOSED DEVELOPMENT

### 2.1 Introduction

2.1.1 This chapter provides an explanation of the need for the Proposed Development in the context of SSEN Transmission's legislative duties for maintaining and upgrading the electricity transmission system in the north of Scotland. It presents a concise description of the proposals and their likely means of construction. Information on the operation of the proposed OHL is also set out together with an overview of the anticipated use of natural resources and an estimate of the residues and emissions from the Proposed Development in line with the requirements of the EIA Regulations.

### 2.2 The Need for the Project

- 2.2.1 The Applicant has statutory duties under section 9 of the *Electricity Act 1989*, to develop and maintain an efficient, co-ordinated and economical electrical transmission system in its licence area, and to facilitate competition in the supply chain and generation of electricity. Where there is a requirement to extend, upgrade or reinforce its transmission network, the Applicant's aim is to provide an environmentally aware, technically feasible and economically viable solution which would cause the least disturbance to the environment and to people who use it.
- 2.2.2 In July 2022, National Grid, the Electricity System Operator (ESO), published the *Pathway to 2030 Holistic Network Design (HND)*<sup>22</sup>, setting out the blueprint for the onshore and offshore electricity transmission network infrastructure required to enable transmission of the forecasted growth in renewable electricity across Great Britain, including the UK and Scottish Governments' 2030 offshore wind targets of 50 GW and 11 GW respectively.
- 2.2.3 Having regard to its duties under section 9 of the *Electricity Act*, The Applicant is proposing to establish a new 400 kV OHL between Kintore and Tealing. This also requires two new 400 kV substations to be constructed at Tealing (close to Dundee, the proposed Emmock substation) and at Fetteresso Forest (west of Stonehaven, the proposed Hurlie substation), to enable future connections to the electricity transmission network and export routes to areas of demand (see **Figure 1.1: Location Plan**). In addition, two of the existing 275 kV OHLs connecting the existing Tealing Substation with Alyth and eventually Westfield (Glenrothes) Substations respectively, require upgrades to enable operation at 400 kV and to allow them to be connected to the proposed Emmock 400 kV substation. These OHL upgrades are subject to a separate application for section 37 consent.
- 2.2.4 These proposals, collectively forming part of SSEN Transmission's East Coast 400 kV Phase 2 projects, have been determined as critical to enable the delivery of the UK and Scottish Government's renewable energy targets.
- 2.2.5 For the north of Scotland, there is a need for a significant and strategic increase in the capacity of the onshore electricity transmission infrastructure to deliver 2030 targets and a pathway to net zero. Identified elements of the network reinforcement to deliver this capacity require accelerated development and delivery to meet 2030 connection dates and the East Coast 400 kV Phase 2 requires to be progressed accordingly. The need for these reinforcements has been further underlined within the recent *British Energy Security Strategy*<sup>23</sup>. This sets out the UK Government's plans to accelerate homegrown power to support increased UK energy independence.
- 2.2.6 The extensive studies completed to inform the ESO's Pathway to 2030 HND confirmed the requirement to increase the power transfer capacity of the onshore corridor from Kintore to Tealing. This requires a new 400 kV connection between these sites to enable the significant power transfer capability needed to take power from onshore and large scale offshore renewable generation which is proposed to connect at onshore locations on the East Coast of Scotland before then being transported to areas of demand.

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<sup>22</sup> National Grid ESO (2022) Pathway to 2030: A holistic network design to support offshore wind deployment for net zero. Available at: <https://www.nationalgrideso.com/document/262676/download>

<sup>23</sup> Department for Business, Energy and Industrial Strategy, Department for Energy Security and Net Zero and Prime Minister's Office, 10 Downing Street (2022) British energy security strategy. Available at: <https://www.gov.uk/government/publications/british-energy-security-strategy/british-energy-security-strategy>

## 2.3 Proposed Development Components

- 2.3.1 The following description is provided to inform the request for a Scoping Opinion from Scottish Ministers. The EIAR will provide a comprehensive description of the Proposed Development, in accordance with Regulation 5 and Schedule 4 to the EIA Regulations, to inform assessment of the likely significant effects of the proposals and for the purpose of defining the Proposed Development for the section 37 application.
- 2.3.2 The 'Proposed Development' would comprise the construction of approximately 106 km of 400 kV double circuit OHL from a proposed new 400 kV substation near Tealing (proposed Emmock substation) to connect with the existing 400 kV Substation at Kintore within the Proposed Route as shown on **Figure 1.1: Location Plan**. A second new 400 kV substation is proposed at Fetteresso Forest, to the west of Stonehaven (proposed Hurlie substation). Separate applications for planning permission for these new substations will be submitted to the respective local planning authorities (Angus Council for Emmock and Aberdeenshire Council for Hurlie) before the end of 2024.
- 2.3.3 Certain ancillary works would be associated with the Proposed Development such as: the formation of bellmouths where existing and proposed new access tracks connect with public roads; and construction of temporary and permanent access tracks from the public road network to OHL tower sites. There would also be a requirement for temporary working areas at the base of each tower, at locations between towers to facilitate conductor stringing and for other construction compounds and borrow pits to provide stone for access tracks (see **Section 2.7: OHL Construction**). Whilst the section 37 consent is concerned only with the authorisation of the installation and operation of the OHL, the Applicant will seek deemed consent for such works under s57(2) of the *Town and Country Planning (Scotland) Act 1997*.
- 2.3.4 To connect the Proposed Development at the existing Kintore Substation and proposed new Emmock substation some of the existing OHLs around these substations will need to be diverted or have short sections of line undergrounded to enable the new Kintore to Tealing 400 kV OHL connection to be completed. The consenting strategy for these works is being developed by the Applicant to support the section 37 application however it is expected that the requirement for local diversion (and undergrounding) of existing OHLs at Kintore Substation to create sufficient space for connection of the Proposed Development would principally be incorporated within the section 37 application for the Proposed Development. SSEN Transmission currently intends that separate section 37 applications from the Proposed Development will be submitted to seek powers to undertake redirection of the existing OHLs described in **paragraph 2.2.3** from Tealing Substation to the proposed Emmock substation (including for a short OHL tie-back between the two substations) and upgrades (reconductoring) of the existing Alyth to Tealing and Tealing to Westfield OHLs.
- 2.3.5 Further details on the arrangements for connections and tie-ins of other OHLs will be set out in the EIAR and used to inform the assessment of key effects including cumulative effects associated with the substations (see **Section 3.8: Approach to Assessment of Significant Environmental Effects**).

## 2.4 Limits of Deviation

- 2.4.1 The section 37 application will seek consent for the installation and operation of the OHL, specifying a centre line, terminal and angle supporting structures, together with prescribed horizontal Limits of Deviation (LOD)<sup>24</sup> to allow flexibility in the final siting of individual towers and construction access to reflect localised land, engineering and environmental constraints.
- 2.4.2 The horizontal LOD, for which consent will be sought, will be refined through the OHL alignment design and EIA process, and will ultimately seek to balance the need for flexibility in micro-siting with the desirability of avoiding, reducing or controlling the potential for environmental impact. It is anticipated that the LOD for the Proposed Development would be approximately 100 m either side of proposed OHL infrastructure and may vary depending on local constraints.
- 2.4.3 The vertical LOD, ie the maximum height of a tower above ground level, would be confirmed through the EIA process as more detailed design information is obtained. Whilst indicative tower heights are known based on standard tower designs (see **Section 2.6 OHL Design** below), some structure heights may vary depending on topography.

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<sup>24</sup> The Limits of Deviation (LOD) are the area within which micrositing of the OHL infrastructure is permitted within the terms of a section 37 consent. The purpose of the LOD is to allow flexibility within the section 37 consent for the final design and location of individual towers and access tracks to respond to localised ground conditions, topography, engineering and environmental constraints.

2.4.4 The approach to assessing the predicted environmental effects of the OHL with reference to the LOD concept is discussed further in **Section 3.8: Approach to Assessment of Significant Environmental Effects** of this Scoping Report.

## 2.5 Decommissioning the Proposed Development

2.5.1 The scope of the proposed section 37 application is limited to the installation and operation of the OHL. The Proposed Development would not have a fixed operational life; however, it is assumed that the Proposed Development would be operational for 50 years or more. Once the design life of the OHL has been reached a decision would be taken on whether to decommission and remove the transmission infrastructure or potentially to replace or upgrade it. The EIA will focus on the construction and operational effects of the Proposed Development although some commentary will also be provided on the potential impacts of decommissioning (see **Section 3.8: Approach to Assessment of Significant Environmental Effects**).

## 2.6 OHL Design

### *Physical Characteristics of the OHL*

- 2.6.1 The Proposed Development would comprise a series of steel lattice towers erected to support a number of electrical conductors (wires) which make up the circuits for the OHL. The typical height for the ASTI SSE400 tower suite, the likely tower design for the Proposed Development, is approximately 57 m in height on average, although tower heights may be increased where local topography dictates in order to achieve sufficient clearance distances. The size of towers and span lengths<sup>25</sup> is generally dependent on three main factors: altitude; weather; and the topography of the route including the requirement to avoid constraints.
- 2.6.2 The average span between towers is typically around 350 m however towers tend to be located closer together at higher altitudes to withstand the effects of greater exposure to high winds, ice and other weather events. Higher towers may also be required in certain locations to maintain the required ground clearance heights, such as at road, river and rail crossings.
- 2.6.3 The proposed steel lattice towers would support six conductor bundles (three wires per bundle) on six cross-arms (three on each side) and an earth wire between the peaks. Exact heights of, and the distances between, towers would be determined after a detailed line survey and confirmed prior to submission of an application for consent. Typical tower designs can be seen in **Plate 2.1**<sup>26</sup> and a schematic of the proposed steel lattice towers is shown in **Plate 2.2**.

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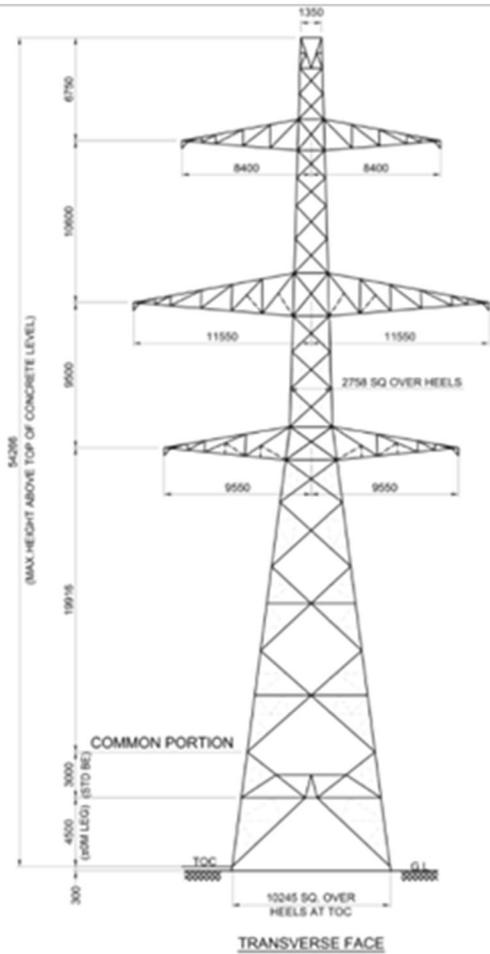
<sup>25</sup> The span length is the distance between adjacent towers. This can vary depending on factors such as topography and climate.

<sup>26</sup> The existing SSE400 tower suite design is currently being modified to provide stronger tower structures. The final tower design and appearance may differ slightly from the existing SSE400 tower suite shown in **Plate 2.1**. A schematic of the proposed ASTI SSE400 tower is shown in **Plate 2.2**.

**Plate 2.1: Existing SSE400 Steel Lattice Tower Design**



**Plate 2.2: Proposed ASTI SSE400 Steel Lattice Tower – Typical Schematic**



## 2.7 OHL Construction

2.7.1 High voltage OHL construction typically follows a standard sequence of activities as follows:

- Phase 1: Enabling Works;
- Phase 2: OHL Construction;
- Phase 3: OHL Commissioning; and
- Phase 4: Reinstatement.

2.7.2 Further detail on typical construction activities and work methods would be set out in the EIAR. An outline of the likely programme, phasing and working methods is provided here for the purpose of informing the scoping stage environmental assessment.

### Construction Programme

2.7.3 It is anticipated that construction of the Proposed Development would take place over a four year period, although detailed programming of works would be the responsibility of the Principal Contractor(s) in agreement with SSEN Transmission. It is anticipated that construction would commence in 2026 (subject to consents and approvals being granted) with a proposed energisation date of late 2030. The construction works are due to be delivered concurrently in two sections of Emmock to Hurlie and Hurlie to Kintore. The construction programme is planned to deliver both sections of the OHL by late 2030. A provisional construction period of approximately 36-48 months in total is anticipated. The construction phasing and programme would be subject to change as the detailed designs are finalised and, also, progress with the necessary statutory consents being granted, and, voluntary wayleaves being agreed or granted through the necessary wayleave process. The final decisions in relation to construction methods and phasing would be made by the appointed OHL contractor(s), having regard to any conditions attached to the statutory consents. Further information will be provided in the EIAR on the indicative construction programme and construction related traffic generation which will be used to inform relevant environmental assessments.

## 2.8 Construction Practices and Phasing

### Phase 1: Enabling Works

#### *Existing Distribution and Transmission Lines*

2.8.1 Works may be required to the existing network of lower voltage (275 kV and 132 kV) OHLs which have the potential to be crossed by the Proposed Development, particularly in the vicinity of the existing 400 kV Substation at Kintore and the proposed new 400 kV Emmock substation. These are likely to include some localised diversions of existing OHLs in proximity to the terminal substations to facilitate a clear path for installation of the Proposed Development.

#### *Access During Construction*

2.8.2 The commissioning by SSEN Transmission of experienced OHL contractors has enabled construction access considerations to be at the forefront during the design process. Whilst construction access details are yet to be finalised, an access track matrix will be developed by the project team considering both construction and operational access requirements, and with reference, where relevant, to NatureScot's good practice guide on constructing tracks in Scottish uplands<sup>27</sup>. Locating access tracks is also subject to landowner agreement. All new access tracks would be constructed in accordance with good practice working methods with watercourse crossings designed and constructed to comply with legislation set out in *The Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended)*. Typical access solutions are set out below with respect to the different technology types under consideration and will be subject to on-going review through the design process and EIA stages of the project.

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<sup>27</sup> Scottish Natural Heritage (2013, updated 2015) Constructed tracks in the Scottish Uplands (2<sup>nd</sup> Edition). Available at: <https://cairnforms.co.uk/wp-content/uploads/2019/09/CD039-Scottish-Natural-Heritage-Constructed-tracks-in-the-Scottish-Uplands-2015.pdf>

- 2.8.3 In general, proposed construction site access would be taken via the existing public road network and would make use of existing forest, farm and estate tracks as far as practicable, upgraded as required. Existing bellmouths would be utilised where possible, subject to improvements. New bellmouths would likely be required at some locations.
- 2.8.4 Access track design would likely range from All Terrain Vehicle (ATV) routes with no formal track to a stone road suitable for 4x4 and heavy goods vehicle (HGV) access. The selection of the type of track required will consider the proximity to a public road, tower structure type and potential OHL maintenance activities/vehicles required in future to a given location (taking health and safety requirements into account). Access track details will be finalised through the EIA stage of the project and presented to illustrate where each access type will be deployed, and the rationale for that selection.
- 2.8.5 Materials required for the construction of any new stone access tracks are likely to be obtained from on-site borrow pits, or imported from local quarries. The exact location of borrow pits would be dependent upon site surveys, availability of suitable material and proximity to the required location. If required, consent for borrow pits would be sought by the principal contractor for the OHL separately from the section 37 application. Further information will be presented in the EIAR on the assumed sources of track construction materials to inform the assessment of traffic and transport impacts of project construction.

#### *Steel Lattice OHL Construction Access*

- 2.8.6 Typically, new stone tracks are likely to be required to access each steel tower location, as well as the requirement for inline access between towers. Stone tracks are designed to suit the heavy plant loads required for construction works for steel towers, and to suit the varied ground conditions along the route. It is anticipated that stone tracks would be constructed to a minimum 4 m safe running surface width. On completion of construction, unless required for operational access, the stone tracks would be removed and the original material reinstated.
- 2.8.7 Where access to tower positions is difficult due to steep terrain, alternative methods would be proposed such as using smaller items of plant, specialist tracked plant, and in some cases using helicopters for moving materials.
- 2.8.8 Temporary trackways are an alternative method of providing access, dependent on ground conditions. Although there may be localised areas where trackway may be suitable, it is not considered an appropriate solution for the construction of steel lattice towers on this project in its entirety, due to the length of time they are required to be in place and the weight and size of construction plant that would be required to track over them. Stone tracks generally afford greater reliability and stability compared to trackway solutions. Similarly, the extensive use of wide tracked excavators and other plant without prior ground preparation are unlikely to be a viable solution for this project in its entirety, although they may be used for certain tasks during construction.
- 2.8.9 The use of helicopters for construction of steel lattice towers is feasible, however, the operational restrictions (eg weather, proximity to public roads and environmental factors), and the significant cost implications, for a project of this scale are key considerations. The use of helicopters is more likely to be required in more remote sections of the project, and where particular environmental or geographical constraints necessitate their use. Where helicopters are used, construction plant would still require access to each tower location to facilitate construction and erection of towers. Helicopter landing zones would also require to be identified.

#### *Access During Operation*

- 2.8.10 Permanent access tracks would only be required in more remote areas or where long term operational access is more challenging, such as on rough terrain or poor ground conditions. It is intended however to keep requirements for permanent access tracks to a minimum. Permanent access would be agreed with the landowner and the final permanent access width may be reduced or other mitigations applied to reduce the impact.

#### *Forestry Clearance*

- 2.8.11 Some sections of the Proposed Development would need to cross through woodlands, including some areas of commercial forestry (plantation woodlands typically dominated by conifer species and managed predominantly for timber extraction) and some areas of semi-natural woodland (ie woodland that does not obviously originate from planting which includes those woodland types listed on the Ancient Woodland Inventory (AWI)) ( which could not be avoided during the routeing and

alignment process. In these locations trees would need to be felled to create an Operational Corridor for construction and maintenance of the OHL. The width of this corridor would be variable depending on the nature of the woodland, however for the purposes of this scoping assessment, it is assumed that a corridor of approximately 90 m in width would be required (45 m either side of the indicative tower centre line) within areas of coniferous woodland, and a corridor of approximately 60 m would be felled in areas of lower and slower growing species such as those typical of broadleaved woodlands (30 m either side of the centre line).

#### *Site Compounds*

- 2.8.12 Temporary construction compounds will be required, the location and number of which would be determined through the ongoing design works and will be confirmed by the Principal Contractor.

#### Phase 2: OHL Construction

##### *Foundations*

- 2.8.13 Different approaches to forming foundations may be used for steel lattice towers, subject to ground conditions at each location. These are likely to comprise:

- Spread type eg concrete pad and chimney; or
- Piled type eg driven concrete, tube and micro pile or augered.

- 2.8.14 Foundation types and designs for each tower will be confirmed following detailed geotechnical investigation at each position.

##### *Steel Lattice Tower Construction*

- 2.8.15 Tower construction can typically commence two weeks after the foundations have been cast, subject to weather conditions and concrete curing rates. Tower steelwork would be delivered to each tower construction site either as individual steel members or as prefabricated panels, depending on the method of installation and the available access. A working area, up to approximately 100 m x 100 m, is required at each tower location to facilitate access, laydown and assembly.

##### *Conductor Stringing*

- 2.8.16 The conductors would be delivered to site on wooden drums in pre-determined pulling section lengths. Prior to stringing the conductors, temporary protection measures (eg netted scaffolds), would be required across public roads and existing access tracks.
- 2.8.17 Conductor stringing equipment (ie winches, tensioners and ancillary equipment) are set out at either end of pre-selected sections of the OHL, known as pulling locations/positions. Pulling locations are identified during the development of the project and a puller/tensioner will be set up at either end of the section. Typically, puller/tensioners will be situated between 1.5-2.5 times the height of the tower away from the tower, and where possible this will be done in line with the OHL. An equipotential zone (EPZ) will be required at the pulling locations to ensure safety for the construction teams. Future pulling locations (if/when required) are likely to be similar to those identified pre-construction however a pulling location has no additional permanent structure requirements when compared to a non-pulling location, other than a permanent access track.
- 2.8.18 Pilot wires would be pulled through the section to be strung. These would be hung on blocks (wheels) at each suspension tower and connected to a winch and tensioner at the respective end of the section. The winch, in conjunction with the tensioner, is used to pull the pilot wires between the structures. The conductor is pulled via the pilot wires through the section under tension to avoid contact with the ground and any underrunning obstacles. Once the conductor has been strung between the ends of the section it is then tensioned and permanently clamped at each tower.

#### Phase 3: Commissioning

- 2.8.19 The OHL and support towers would then be subject to an inspection and snagging process. This allows the OHL to be checked to ensure it has been built to specification and is fit to energise. The circuits would then be energised from the substations in a phased sequence.

#### Phase 4: Reinstatement

- 2.8.20 Following commissioning of the Proposed Development, it is anticipated that all construction sites would be reinstated. Reinstatement would form part of the contract obligations for the Principal Contractor and would include the removal of all temporary access tracks, all work sites around the tower locations and the re-vegetation of all construction compounds.

### **2.9 Construction Employment and Hours of Work**

- 2.9.1 The Applicant takes community responsibilities seriously. The delivery of a major programme of capital investment provides the opportunity to maximise support of local communities.
- 2.9.2 Employment of construction staff will be the responsibility of the Principal Contractor(s) but the Applicant encourages the Principal Contractor(s) to make use of suitable labour and resources from areas local to the location of the works.
- 2.9.3 It is envisaged that there will be a number of separate teams working at the same time at different locations along the length of the Proposed Development. The resource levels would be dependent on the final construction sequence and would be determined by the Principal Contractor(s).
- 2.9.4 Construction working is likely to be during daytime periods only. Working hours are currently anticipated to be between approximately 07:00 to 19:00 during British Summer Time (BST) and 07:00 to 18:00 during Greenwich Mean Time (GMT), seven days a week. Special measures and arrangements would be made for works in proximity to sensitive receptors. Working hour assumptions would be set out within the EIA and confirmed with the respective local planning authority.

### **2.10 Construction Traffic**

- 2.10.1 The construction of the Proposed Development would give rise to regular numbers of staff transport movements, with work crews travelling to work site areas. It is anticipated that the Principal Contractor(s) would identify compound areas, with a safe area for parking away from the public road system. Vehicle movements would be required for plant and materials to construct new or upgraded access roads; to deliver the foundation and tower components and conductor materials to site; and deliver and collect materials and construction plant from the main site compound and to individual tower locations. Where practicable helicopters may be utilised for delivery of construction materials, so as to minimise potential impacts upon soils and the landscape from conventional traffic, particularly in locations that are more sensitive or remote. The sourcing and implementation of helicopters for this purpose would be defined by the Principal Contractor(s).
- 2.10.2 The EIA would provide a summary of the total estimated traffic movements associated with construction of the Proposed Development.

### **2.11 Operation and Management of the OHL**

- 2.11.1 The operation of OHLs generally require very little routine maintenance. Regular inspections of the line are undertaken by transmission engineers to identify any unacceptable deterioration of components, so that they can be replaced. From time to time, inclement weather, storms or lightning can cause damage to the insulators and the conductors. If conductors are damaged, short sections may have to be replaced. Insulators and conductors are normally replaced routinely after approximately every 40 years, and towers are typically re-painted every 15-20 years or when poor condition is identified.
- 2.11.2 In addition to the removal of forestry to facilitate construction (see **Section 2.8: Construction Practices and Phasing**), it would be necessary to manage all vegetation along and in woodland areas up to approximately 45 m<sup>28</sup> either side of the OHL throughout operation, to maintain required safety clearance distances. Vegetation clearance required will be dependent on the height of the vegetation adjacent to the OHL, the type of (woodland) species, and the surrounding topography.
- 2.11.3 The OHL would be operated and maintained in accordance with relevant procedures and agreements to avoid the potential for interference of the electrical circuits with other utility and telecommunications operators. The operation of high voltage OHLs can generate electromagnetic fields (EMFs) over a range of frequencies. The Proposed Development would emit low level

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<sup>28</sup> This distance may be reduced to approximately 30 m either side of the OHL in woodland areas of lower and slower growing species such as those typical of native and semi-natural woodlands (see **Section 2.8: Construction Practices and Phasing**).

radio frequency interference however in practice radio and television interference would not be predicted, except in direct proximity to (under) the live OHL conductors.

- 2.11.4 The Applicant operates an extensive network of transmission line infrastructure and the new Kintore to Tealing OHL would be adopted and maintained within this network. It is not predicted that there would be significant technical issues with telecommunications, television and radio broadcasting or aviation systems interference caused by the Proposed Development and this issue is proposed to be scoped out from further consideration within the EIA process. Any necessary technical adjustments to the operation of the OHL would be agreed by the Applicant with the relevant telecommunications operators to avoid any significant interference.
- 2.11.5 Consultation to date with relevant utilities has identified that there are no significant concerns in relation to technical safeguarding for national en-route air traffic control. Initial correspondence with BT has indicated that further information is required to assess any potential interference with microwave radio links. Consultation will be continued through the EIA and pre-application process with telecommunications, aviation and other relevant broadcasting organisations to ensure that the proposals are designed, constructed and operated to avoid adverse impacts on communication networks.
- 2.11.6 It is SSEN Transmission’s understanding that there is no requirement for OHL towers to be lit at night. Further consultation will be undertaken with the Ministry of Defence (MoD) to confirm this once the design of the OHL is further progressed and final tower heights are confirmed.

## 2.12 Use of Natural Resources

- 2.12.1 The EIA Regulations require, to the extent relevant to the specific characteristics of the Proposed Development and the environmental features likely to be affected, the consideration of the likely significant effects of the development resulting from the use of natural resources, in particular land, soil, water and biodiversity, considering as far as possible the sustainable availability of these resources. The Proposed Development will use land and the permanent footprint of the Proposed Development will be described in the EIAR.
- 2.12.2 Other than the change of land use, given the nature of the Proposed Development, there would be a negligible demand for natural resources (including energy and materials) during the operational life of the OHL and therefore no likely significant effect on the sustainable availability of such resources is predicted for this phase.
- 2.12.3 Further discussion on the proposed EIA scope for the installation and operational phases of the Proposed Development is set out in **Chapter 4 to 15** of this Scoping Report and a summary of the EIA scope is presented in **Chapter 16: Summary of Proposed EIA Scope**.

## 2.13 Residues and Emissions

- 2.13.1 The EIA Regulations require that the EIAR provides an estimate, by type and quantity, of expected residues and emissions (such as water, air and soil and subsoil pollution, noise, vibration, light, heat, radiation and quantities and types of waste produced) resulting from the construction and operation of the Proposed Development, to the extent relevant to the specific characteristics of the Proposed Development and the environmental features likely to be affected.
- 2.13.2 **Table 2.1: Residues and Emissions** provides a summary of the principal residues and emissions for the purpose of informing the scope of the EIA. Further assessment of the potential and predicted environmental effects of these residues and emissions for the Proposed Development is set out in **Chapters 4 to 15** of this Scoping Report.

**Table 2.1: Residues and Emissions**

Topic	Potential Residues and Emissions
Water	<p><b>Construction:</b> Surface water runoff and discharge is likely during construction. In addition, occasional discharges may arise from pumping, or over-pumping to dewater foundation excavations for OHL towers. Pollution sources may arise as a result of soil erosion or from activities such as oil/fuel or chemical storage and use. Further assessment of environmental effects on the aquatic environment is presented in <b>Chapter 9: Hydrology, Hydrogeology, Geology and Soils</b>.</p> <p><b>Operation:</b> No water emissions or pollution sources have been identified for the operational phase.</p>

Topic	Potential Residues and Emissions
Air	<p><b>Construction:</b> The construction phase would require the transport of people and materials by road and potentially by air, with associated emissions to the atmosphere. There are no air quality management areas within the vicinity of the Proposed Development. No significant pollutant emissions to air are predicted and this is proposed to be scoped out of detailed assessment in the EIA as detailed in <b>Chapter 13: Air Quality</b>. The potential for emissions of greenhouse gas of the proposals are addressed in <b>Chapter 14: Climate Change</b>.</p> <p><b>Operation:</b> No significant point source or diffuse air emissions would be produced during OHL operation. The Proposed Development would contribute to connecting renewable electricity generation capacity to areas of demand, in turn displacing emissions associated with fossil fuel-based electricity generation elsewhere.</p>
Soil and Subsoil	<p><b>Construction:</b> Soil and subsoil excavation, handling and storage would be required during construction particularly for OHL towers and some access tracks. All soil and subsoil would be stored temporarily for use in reinstatement. The potential for environmental effects associated with soil handling during construction is presented in <b>Chapter 9: Hydrology, Geology, Hydrogeology and Soils</b>.</p> <p><b>Operation:</b> No requirement for soil or subsoil excavation or handling during operation has been identified. No significant sources of soil contamination have been identified for the operational phase.</p>
Noise and Vibration	<p><b>Construction:</b> Noise sources during the construction phase would include temporarily increased traffic flows and noise from construction plant at tower compounds and for forming access tracks. Further detail is provided in <b>Chapter 11: Noise and Vibration</b>.</p> <p><b>Operation:</b> High voltage transmission lines have some potential for noise impacts particularly during certain atmospheric conditions which can cause nuisance for people living in close proximity. The potential for significant operational noise effects is considered further in <b>Chapter 11: Noise and Vibration</b>.</p>
Light	<p><b>Construction:</b> The temporary construction compounds are likely to be equipped with lighting installations for use during low light conditions and passive infra-red sensor-controlled security lighting. Any effect would be temporary and is not predicted to be significant. The effects of lighting on visual receptors are considered further in <b>Chapter 5: Landscape and Visual Amenity</b>.</p> <p><b>Operation:</b> No light sources have been identified as being required during normal operation of the Proposed Development. However, Further consultation will be undertaken with the Ministry of Defence (MoD) to confirm this once the design of the OHL is further progressed and final tower heights are confirmed.</p>
Heat and Radiation	<p><b>Construction:</b> No heat or radiation sources have been identified during the construction phase which are predicted to have significant environmental effects and these sources of impact will not be considered further in the EIA.</p> <p><b>Operation:</b> Electromagnetic fields (EMFs) are emitted from the operation of OHLs as electricity is transmitted through the conductors. The potential effects on human health of EMFs are considered further in <b>Chapter 12: Population and Human Health</b>.</p>
Waste	<p><b>Construction:</b> The construction stage will require felling of woodland in some areas where it cannot be avoided through development of the OHL alignment. As such, there would be some forestry related residues (brush) resulting from tree felling operations. There is potential for non-marketable forest residues to be used to enhance soil and support the establishment of woodland habitat (eg for biodiversity purposes). Further detail on forestry is provided in <b>Chapter 4: Land Use and Recreation</b>.</p> <p>Construction operations would also generate some other arisings of waste such as domestic and commercial wastes and other material arisings, for example, wood, metals, plastics and stone. Waste will be managed in accordance with good practice guidance and implementation of Site Waste and Materials Management Plans<sup>29</sup>, to implement the waste management hierarchy<sup>30</sup>.</p>

<sup>29</sup> NetRegs (undated) Site waste management plans. Available at: <https://www.netregs.org.uk/environmental-topics/waste/waste-from-construction-and-demolition-sites/site-waste-management-plans/>

<sup>30</sup> Scottish Government (2017) Applying the waste hierarchy: guidance. Available at: <https://www.gov.scot/publications/guidance-applying-waste-hierarchy/pages/1/>

Topic	Potential Residues and Emissions
	<p><b>Operation:</b> Electricity transmission does not produce any waste. However, the general maintenance of the OHL has the potential to produce a small amount of waste. This is likely to be restricted to waste associated with employees and visiting contractors.</p> <p><b>Decommissioning:</b> The main material streams associated with the decommissioning of the OHL would include glass (from insulators), steel (towers and conductors) and aggregate material from access tracks. All construction and demolition materials and waste would be managed in accordance with the waste hierarchy to maximise opportunities for reuse and recycling and will comply with all relevant legislation.</p>

## 2.14 Disaster Resilience

- 2.14.1 The EIA Regulations require a description of the expected significant adverse effects of the development on the environment deriving from the vulnerability of the development to risks of major accidents and/or disasters which are relevant to the project. This requirement is interpreted as requiring the consideration of low likelihood but high consequence events which would result in serious harm or damage to environmental receptors.
- 2.14.2 Severe weather resilience is a core component of the network design, and includes consideration of flooding resilience, OHL design and vegetation management to reduce the risk of unplanned power cuts. Crisis management and continuity plans are in place across the Applicant's network. These are tested regularly and are designed for the management of, and recovery from, significant energy infrastructure failure events. Lessons learned will also be implemented following the recent high winds events to ensure the continual improvement of these crisis management systems.
- 2.14.3 Further assessment of the potential for significant environmental effects resulting from major accidents and disasters is set out in **Chapter 15: Major Accidents and Disasters** of this Scoping Report.

## 3. EIA APPROACH AND METHODOLOGY

### 3.1 Introduction

- 3.1.1 This chapter sets out the approach which has been taken to undertake a preliminary assessment of potential environmental effects of the Proposed Development at the scoping stage. It explains how feedback from consultation with EIA stakeholders has informed the assessment to date and how the findings set out in this Scoping Report take account of an initial mitigation framework. The chapter also sets out further details on the proposed approach to undertaking more detailed environmental impact assessment work as part the EIA process and the reporting of this work in an EIAR.
- 3.1.2 The EIAR will be prepared in accordance with the EIA Regulations, and *the Good Practice Guidance published by the Scottish Government's Energy Consents Unit in July 2022*<sup>31</sup>. Consideration will also be given to advice contained in Planning Advice Note 1/2013 and Planning Circular 1/2017 (Environmental Impact Assessment), and other good practice guidance documents where relevant.
- 3.1.3 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 within the EIAR will be incorporated as a separate chapter (pertaining to a particular 'section' as required, see **Section 3.2: Structure of the EIAR**), or included as an appendix if the assessment of the subject matter requires to be more detailed.
- 3.1.4 On receipt and consideration of this Scoping Report, the Energy Consents Unit (ECU) of the Scottish Government, following input by statutory and non-statutory consultees, will issue their Scoping Opinion confirming the scope of the EIAR. A scoping matrix will be included in the EIAR which will detail all relevant consultation responses from the consultation bodies and other relevant non-statutory public bodies related to scope, received during the scoping and subsequent EIA process, with reference to where these responses have been addressed in the EIAR. A schedule of mitigation measures will also be included and cross-referenced in the relevant assessment work.

### 3.2 Structure of the EIAR

- 3.2.1 Given the scale of the project, it is proposed to structure the EIAR in a manner which provides the reader with the opportunity to focus easily on any areas of particular interest. As such, it is anticipated that the EIAR will be structured as follows:
- Volume 1: Main Text
    - Glossary and Abbreviations
    - Preface
    - Chapter 1: Introduction and Background
    - Chapter 2: Project Need and Strategy
    - Chapter 3: Project Description
    - Chapter 4: The Routeing Process and Alternatives
    - Chapter 5: EIA Process and Methodology
    - Chapter 6: Scope and Consultation
  - Volume 2: Technical Chapters
    - Chapter 7: Land Use
    - Chapter 8: Forestry
    - Chapter 9: Landscape and Visual Amenity
    - Chapter 10: Cultural Heritage
    - Chapter 11: Ecology

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<sup>31</sup> Scottish Government (2022) Electricity Act 1989 – sections 36 and 37: applications guidance. Available at: <https://www.gov.scot/publications/good-practice-guidance-applications-under-sections-36-37-electricity-act-1989/>

- Chapter 12: Ornithology
  - Chapter 12: Hydrology, Hydrogeology, Geology and Soils
  - Chapter 14: Traffic and Transport
  - Chapter 15: Noise and Vibration
  - Chapter 16: Cumulative Effects
  - Chapter 17: Schedule of Mitigation
- Volume 3: Figures
  - Volume 4: Visualisations
  - Volume 5: Appendices
- 3.2.2 Separate, supporting documents for the section 37 application are likely to include a Non-Technical Summary, Planning Statement, Design and Access Statement and a Socio-Economic Assessment.
- 3.2.3 The final structure of the EIAR will be confirmed following receipt of the Scoping Opinion from ECU and on conclusion of relevant consultation with key consultees.

### 3.3 Consideration of Alternatives

- 3.3.1 The Proposed Development has been subject to a route selection process, informed by SSEN Transmission's guidance<sup>32</sup> which provides a framework to ensure environmental, technical and economic considerations are identified and appraised at each stage of the routeing and alignment processes (see **Section 1.7: OHL Contractor**). This has also included the consideration of alternative technology solutions.
- 3.3.2 The guidance splits the approach into four principal stages, as follows:
- Stage 0: Routeing Strategy Development;
  - Stage 1: Corridor Selection;
  - Stage 2: Route Selection; and
  - Stage 3: Alignment Selection.
- 3.3.3 Each stage is an iterative process and involves an increasing level of detail and resolution, bringing cost, technical and environmental considerations together in a way which seeks to achieve the best balance at each stage. The stages that are carried out can vary depending on the type, nature of and size of a project and consultation is carried out at each stage of the process.
- 3.3.4 The following documents have been prepared and published by SSEN Transmission for the corridor and route selection stages, and the alignment stage is still in progress:
- SSEN Transmission (May 2023) Kintore – Fiddes – Tealing 400 kV Overhead Line Connection Consultation Document – Corridor Selection<sup>33</sup>;
  - SSEN Transmission (May 2023) Kintore – Fiddes – Tealing 400 kV Overhead Line Connection Consultation Document – Route Selection<sup>34</sup>;

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<sup>32</sup> SSEN Transmission (2020). Procedures for routeing Overhead Lines and Underground Cables of 132 kV and above. PR-NET-ENV-501. Internal

<sup>33</sup> SSEN Transmission (2023) Kintore – Fiddes – Tealing 400 kV Overhead Line Connection – Consultation Document – Corridor Selection. Available at: <https://www.ssen-transmission.co.uk/globalassets/projects/east-coast-phase-2-may-2023-docs/ohl-consultation-doc/consultation-document-corridor-selection---kintore-fiddes-tealing-400kv-ohl-connection-090523.pdf>

<sup>34</sup> SSEN Transmission (2023) Kintore – Fiddes – Tealing 400 kV Overhead Line Connection – Consultation Document – Route Selection. Available at: <https://www.ssen-transmission.co.uk/globalassets/projects/east-coast-phase-2-may-2023-docs/ohl-consultation-doc/consultation-document---route-selection-may-2023.pdf>

- SSEN Transmission (November 2023) Kintore to Tealing, 400 kV Overhead Line, Report on Consultation<sup>35</sup>; and
- SSEN Transmission (February 2024) Kintore to Tealing 400 kV Overhead Line Consultation Document – New Overhead Line Routes: Laurencekirk to the Proposed Hurlie Substation (at Fetteresso), Proposed Hurlie Substation to Rickarton, River Dee to Coldstream, by Drumoak<sup>36</sup>.
- SSEN Transmission (August 2024) Kintore to Tealing, 400 kV Overhead Line, Report on Consultation<sup>20</sup>.

3.3.5 A summary of the alternatives considered will be set out within the EIAR, including the alternative technologies considered during the corridor, route and alignment selection process.

### 3.4 Mitigation

3.4.1 The Proposed Development design is an iterative process integrating electrical and civil engineering and environmental considerations. The design process has sought to reduce the potential for significant environmental effects at the outset taking account of environmental and technical information.

3.4.2 The process of mitigating impacts through design is referred to in this Scoping Report and will be referred to in the EIAR as 'Embedded Mitigation' and is the first of three levels of EIA mitigation which is applied to the EIA process, the second and third being, respectively:

- Applied Mitigation: The adoption of good practice measures and procedures relating to construction environmental management which are well understood with a high degree of confidence they would be implemented and effective.
- Additional Mitigation: Further bespoke measures required to mitigate likely residual (ie after the application of other mitigation) significant effects and which are identified through the EIA process.

3.4.3 In this Scoping Report, further reference to aspects of the design which has formed key Embedded Mitigation is set out briefly in the topic-based chapters to provide a context for the subsequent discussions on the potential effects of the Proposed Development.

3.4.4 In relation to Applied Mitigation, SSEN Transmission has adopted a Construction Environmental Management Plan (CEMP) template and a suite of General Environmental Management Plans (GEMPs) and Species Protection Plans (SPPs) which will be implemented as appropriate by the Proposed Development and will be incorporated into the EIA process and presented in the EIAR. In addition, the Applicant will require, as a condition of the Principal Contract, that the Contractor develops detailed Management Plans which conform to the approach and content of the CEMP, GEMPs and SPPs, and which will incorporate any Additional Mitigation arising out of the EIA process. It is assumed that these Plans will also be required as consent conditions and will be reviewed and approved by the consenting body as part of condition discharge. The content and effective implementation of the Plans by the Contractor during construction will also be assured by an audit process, the implementation of which is also assumed to be a consent condition. A list of the SSEN Transmission GEMPs and SPPs considered to be relevant to the Proposed Development is set out in **Appendix B: List of Applied Mitigation Documents**. The EIA will identify and assess potentially significant effects taking account of the Embedded and Applied Mitigation.

3.4.5 The focus of the EIA therefore will be to identify, predict and evaluate, on a discipline-by-discipline basis, the significance of any residual environmental effects remaining after the application of Embedded and Applied Mitigation, and to identify any Additional Mitigation which may be required to avoid or reduce the scale and significance of predicted residual effects to the extent possible. Where Additional Mitigation measures are required, these will be identified clearly within the relevant chapters of the EIAR and in a Schedule of Mitigation which will collate all mitigation commitments in a single chapter. Where there are opportunities for offsetting and/or positive and enhancing effects, these will be identified through the EIA process. It is acknowledged that these are not part of EIA mitigation and any proposals for compensation and enhancement as part of the planning application would be clearly and separately identified from mitigation measures.

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<sup>35</sup> SSEN Transmission (2023) Kintore to Tealing 400 kV Overhead Line – Report on Consultation. Available at: <https://www.ssen-transmission.co.uk/globalassets/projects/rocs/tkup-ohl/report-on-consultation---kintore-to-tealing-400kv-ohl.pdf>

<sup>36</sup> SSEN Transmission (2024) Kintore to Tealing 400 kV Overhead Line – Consultation Document. Available at: <https://www.ssen-transmission.co.uk/globalassets/projects/kintore---tealing-400kv-ohl-downloads/march-2024-consultation-docs/kintore-to-tealing-consultation-document-new-route-selection-february-2024.pdf>

### 3.5 Habitats Regulations Appraisal

- 3.5.1 The Proposed Development has the potential for adverse likely significant effects (LSE) on the qualifying interests of a number of designated European sites (Special Protection Areas (SPAs) and Special Areas of Conservation (SACs)). Habitats Regulations Appraisals (HRA) will be required to provide more detailed assessments of these effects in order to satisfy the requirement of the Habitats Regulations<sup>37</sup>. Through more detailed assessment and commitment to Additional Mitigation where required the intention would be to ensure that no adverse effects on the integrity of relevant European sites screened into the HRA are predicted.
- 3.5.2 The reports of the HRAs will be prepared to support the application for section 37 consent and submitted together with the EIAR, to allow Scottish Ministers to make an Appropriate Assessment of the proposals in accordance with the Habitats Regulations.
- 3.5.3 Further information on the potential effects of the Proposed Development on relevant designated sites is set out in **Chapter 7: Ecology** and **Chapter 8: Ornithology** of this Scoping Report.

### 3.6 Scoping Methodology

#### Assessment Methodology

- 3.6.1 The following **Chapters (4 to 15)** of this Scoping Report aim to provide sufficient detail to characterise the potential interactions between the Proposed Development and the environmental receptors identified so that the potentially significant environmental effects of the proposals are identified. At this stage of the project design and the EIA process, the specific alignment for the OHL has not been finalised. The scoping assessment has therefore been based on a broader conceptual design which draws on the findings of the OHL routeing process. The assessment has therefore been based on an indicative 'line' for the OHL following the Proposed Route through Sections A to F of the proposed OHL corridor. The Proposed Route is shown in **Figure 1.1: Location Plan**. The Proposed Route has been geographically defined as an approximate 1 km wide area within which the alignment of the OHL will be developed and therefore represents a spatial envelope for the Proposed Development at this stage.
- 3.6.2 In presenting a rationale for the proposed scope of environmental assessment, this Scoping Report has taken the sensitivity of the current state of the environment into account, based on an understanding of the baseline land use and environmental conditions within and in the environs of the Proposed Route. This has been informed by desk-based analysis and field surveys undertaken as part of work on OHL route options identification, preliminary work informing a Potential Alignment for the OHL and other appraisal work undertaken to date to inform selection of route and alignment options. For some assessment topics, a 'study area' has been assumed to capture the baseline that has been broadly considered for the relevant impact assessments. Where a study area has been defined this is explained within each of the assessment chapters of this report.
- 3.6.3 The approach to this preliminary impact assessment has taken account of baseline sensitivity and the potential magnitude of environmental impacts, considering the typical construction and operational activities, physical characteristics and the potential emissions and residues associated with the Proposed Development. The potential significance of effects has then been determined through professional judgement and with reference to relevant EIA best practice guidance. The potential significance of (residual) effects identified in this report has also taken account of key mitigation which is assumed to be 'embedded' in the design of the Proposed Development, and, standard protocols and best site management practices which are routinely committed to in the delivery of transmission infrastructure, particularly during its construction and maintenance (referred to as 'Applied Mitigation' – see **Section 3.4: Mitigation**).
- 3.6.4 Where there is sufficient evidence to support scoping a topic (or part topic) out of the EIA process, this is presented. Otherwise, where it is considered that there is the potential for significant environmental effects, the Scoping Report provides details of the proposed scope of the detailed impact assessment (to be undertaken in the EIA and the findings presented in the

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<sup>37</sup> HM Government (1994) The Conservation (Natural Habitats, &c.) Regulations 1994, as amended in Scotland. Available at: <https://www.legislation.gov.uk/uksi/1994/2716/contents/made>

EIAR), including where relevant the approach to further baseline data collection and brief details of the proposed methodology for impact assessment which would be employed for each topic.

- 3.6.5 Further information on the general approach to detailed environmental assessment and evaluation of significance of effects as part of the EIA is presented in **Section 3.8: Approach to Assessment of Significant Environmental Effects**.

#### Assumptions and Limitations

- 3.6.6 The Scoping assessment within this report has been undertaken with reference to the Proposed Route as shown in **Figure 1.1: Location Plan**. However, optioneering work is currently ongoing following consultation in March 2024, after which the Applicant issued a project update<sup>38</sup> confirming that overhead line alignments proposed by community representatives and landowners were being actively considered. One of these options lies outwith the Proposed Route and this option (which is located to the west of Durris Forest, in Aberdeenshire), is shown in **Figure 1.1: Location Plan**. The optioneering work will be subject to further consultation and the outcome of this work will not be concluded until later in 2024. In the event the ongoing optioneering and consultation process results in the selection of an alternative option which is materially beyond what has been assumed for the Proposed Route in this Scoping Report, the Applicant would revisit the findings of this Scoping Report and provide an update to the Energy Consents Unit (ECU) as appropriate. At this stage the Applicant considers that there are unlikely to be material changes to the scope of the EIA due to the nature of the Proposed Development, the potential significant effects, and the typical receiving environments associated with the other options which are similar to those which have been subject to a preliminary scoping assessment for the Proposed Route.
- 3.6.7 There is some inherent uncertainty in the assessments due to the potential for variation of the OHL alignment within the area defined for the Proposed Route. Where it is not possible to confirm the significance of potential effects of the OHL due to absence of an alignment, a precautionary approach has been taken to the assessment and effects have only been scoped out where there would clearly not be significant adverse effects on the receptors within and near to the route assessed.
- 3.6.8 The scoping assessment has drawn on Embedded and Applied Mitigation (see **Section 3.4: Mitigation**) which is routinely adopted in the design and construction of OHL transmission infrastructure, including standard measures deployed by SSEN Transmission to mitigate construction environmental impacts for all OHL contracts. These measures would form commitments in the delivery of the proposals and would be a condition of any construction contract. The scoping assessments have not included any further (additional) mitigation assumptions to help avoid any potential under estimation of residual effect significance.

### **3.7 Consultation**

- 3.7.1 Stakeholder engagement is a key part of the EIA process, and important for the successful delivery of an application for a development of this nature. Input from, and collaboration with, the consultation bodies aids in addressing concerns and in that way, provides support to the Applicant in its efforts to achieve Scottish and UK renewable energy targets to provide clean energy. It is also important to consult other non-statutory bodies, interested parties and the public, to take into consideration aspects that can affect specialist interests (such as recreational activities), livelihoods, employment and daily life activities.
- 3.7.2 This section briefly describes the key consultations undertaken to date for the Proposed Development and its EIA, and those which are proposed at the next stage.

#### Engagement to Date

- 3.7.3 A first round of stakeholder and public consultation on the Preferred Corridor and emerging Preferred Routes for the OHL was undertaken between May and July 2023. The consultation presented information on the options which had been appraised for the OHL corridor and route selection for the proposed Kintore to Tealing 400 kV OHL. The consultation included information regarding environmental, technical and cost considerations, the project development process, corridor options and route options (in Sections A to F), which were appraised as part of the detailed Route Selection Process.

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<sup>38</sup> SSEN Transmission: Project Update (1 May 2024) Available at: <https://www.ssen-transmission.co.uk/projects/project-map/kintore-tealing-400kv-ohl-connection/>

3.7.4 The consultation sought to capture views from:

- Statutory consultees (including EIA statutory consultees<sup>39</sup>);
- Non-statutory consultees;
- Community members and local organisations, including local elected members; and
- Landowners and land occupiers.

3.7.5 Project documentation prepared to inform this consultation is available on the SSEN Transmission project website: <https://www.ssen-transmission.co.uk/projects/project-map/kintore-fiddes-tealing-400kv-ohl-connection/>. The EIA statutory and non-statutory consultees were notified regarding the consultation and a number of these organisations provided written consultation responses to the Applicant. These responses have been taken into account in the preparation of this Scoping Report and where relevant to the different preliminary environmental technical assessments presented. Relevant EIA feedback is summarised in each of **Chapters 4 to 15**.

3.7.6 After the 2023 consultation period closed, feedback received was analysed as part of a review of each route option in Sections A to F of the Preferred Corridor for the OHL to check that all relevant consultation feedback and other data and information about constraints and issues identified was fully considered. This review resulted in some changes to the Preferred Options previously confirmed for routes in Sections B and F.

3.7.7 Alongside this activity, a similar review exercise was completed for the previously preferred substation site, close to Fiddes, to a new location at Hurlie in Fetteresso Forest. This change in location of the proposed substation site necessitated a new OHL routeing exercise to be implemented in Section D and in part of Section E to examine possible entry and exit points for the Kintore to Tealing OHL into the new substation location at Hurlie.

3.7.8 The consultation feedback from the 2023 engagement has been compiled and is presented within a Report on Consultation (RoC) which has been published by the Applicant. This report includes a schedule of all comments received from the EIA consultees and the Applicant's response to them. It also confirms the Proposed Route and the location of the new substation sites at Emmock and Hurlie.

3.7.9 In March and April 2024, a further round of public and stakeholder consultation was undertaken. Following the relocation of the proposed Fiddes substation to a location at Hurlie, new route options in Sections D and E of the OHL corridor were identified and appraised. The consultations were held to update stakeholders on these changes, together with proposed changes to the Preferred Route in Section B and F which took account of the feedback received from the 2023 consultation. SSEN Transmission have prepared a Report on Consultation<sup>20</sup> to summarise the feedback from this consultation and the decisions taken in relation to the Proposed Route in the sections where options were consulted on.

3.7.10 In addition to the consultation described above, the Applicant has engaged with the statutory EIA consultees (consultation bodies) through a periodic forum to provide updates to the organisations on progress with the project and with related environmental assessment processes. During the identification and appraisal of corridor and route options, LUC and the Applicant have also held meetings with a number of the consultation bodies including NatureScot and Historic Environment Scotland (HES) to discuss specific issues relating to route option identification and appraisal and on ecological and ornithological survey and assessment methodologies.

#### Planned Engagement

3.7.11 Further public consultation events are proposed to be held in autumn 2024 as the project moves to the next stage of development – Stage 3: Alignment Development. At these events, information will be provided on the alignment options for the Proposed Development for all sections of the OHL corridor.

3.7.12 When this Scoping Report is submitted to the Scottish Government Energy Consents Unit (ECU), all relevant statutory (ie the consultation bodies) and non-statutory EIA consultees (identified under Regulation 12(4)(b)) will be notified by ECU and invited

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<sup>39</sup> Those defined in the EIA Regulations as 'the consultation bodies' which is the planning authorities, Scottish Natural Heritage (now referred to as Nature Scot), the Scottish Environment Protection Agency (SEPA) and Historic Environment Scotland (HES).

to provide a response on the proposed scope of the EIA, which the ECU will use to formulate its Scoping Opinion to the Applicant.

### 3.8 Approach to Assessment of Significant Environmental Effects

#### *Prediction of Effects in the EIA*

- 3.8.1 The purpose of the EIA will be to focus the assessment on environmental effects which have the potential to be significant, drawing on the preliminary findings of the assessments undertaken in this Scoping Report. Effects will be predicted based on the Proposed Alignment for the OHL, including the indicative position of towers, access tracks and other ancillary infrastructure such as temporary compounds. The Proposed Alignment represents an outline design for the infrastructure and the assessments will also take into account that the grant of a section 37 consent would include LOD for the OHL (see **Section 2.4: Limits of Deviation**). The horizontal LOD would be approximately 100 m either side of the OHL alignment (this may be reduced or extended in areas of greater constraint) and along with the vertical LOD will be confirmed through the EIA process, therefore, the assessments will take into account the potential for variation in the magnitude of impacts within the LOD to allow for future flexibility in the final constructed alignment of the Proposed Development. This approach is consistent with EIA practice based on a 'Rochdale Envelope' approach to the potential parameters of the development to provide flexibility in the assessment as not all aspects of the design can be confirmed until later stages. The LOD may be refined through the EIA process and will ultimately seek to balance the need for flexibility in micro-siting with the desirability of avoiding, reducing or controlling the potential for environmental impact.
- 3.8.2 The assessments presented in the EIAR of the predicted environmental effects of the proposals will also take account of the required OHL connection to the Emmock, Hurlie and Kintore substations, and, for proposed re-arrangement of some existing OHLs in the vicinity of the existing Tealing and Kintore Substations which require to be relocated and/or placed underground for short sections (see **Section 2.8: Construction Practices and Phasing**). The predicted significant effects of the proposed Emmock and Hurlie substations will be considered closely with those from the proposed OHL as part of the 'Overall Project' principally through assessment of the potential for significant cumulative environmental effects (see section below on 'Cumulative Effects Assessment').
- 3.8.3 The assessment undertaken for each technical discipline in the EIA will consider potential impacts and evaluate the significance of residual predicted effects taking account of mitigation (see **Section 3.4: Mitigation**) and the sensitivity of receptors. The description of predicted effects will take account of the following characteristics:
- Direct, indirect and secondary;
  - Short-term, medium-term and long-term;
  - Permanent and temporary;
  - Beneficial and adverse; and
  - Permanent or reversible.
- 3.8.4 It is considered that there would be no potential for transboundary effects<sup>40</sup> associated with the Proposed Development, and therefore no further assessment of transboundary effects is proposed within the EIA. Cumulative effects will also be predicted and evaluated (see **paragraphs 3.8.14 to 3.8.30** below). The assessment will include effects predicted as a result of construction of the OHL. Many of these effects will be temporary and often short-term (eg those arising from the movement of construction traffic), although some effects will be longer-term such as those resulting from changes in land use associated with the construction works (eg habitat loss or changes in surface hydrology from establishment of new infrastructure).
- 3.8.5 The EIA will also address predicted effects from the retention of the installed OHL (and associated permanent access tracks) following construction, and those effects resulting from its operational use for the transmission of electricity including maintenance activity. These effects are generally referred to as 'operational' although they include consideration of the

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<sup>40</sup> Transboundary effects under the EIA Directive are effects of certain projects implemented in one Member State, likely to have significant effects on the environment of another Member State.

impacts resulting from the infrastructure itself (regardless of whether it is operating in terms of electricity transmission), such as on landscape and visual receptors and on the setting of key cultural heritage sites.

3.8.6 The effects predicted for the construction phase would generally be considered as being representative of worst-case decommissioning effects. At this stage, the requirement for decommissioning of the OHL assets has not been defined by the Applicant. This represents an area of uncertainty for the prediction of effects in the EIA, particularly given the likely long operational life of the asset (which also affects the certainty of predicting future baseline conditions, for example). The EIAR will therefore provide comment on decommissioning effects wherever possible, and with reference to the effects predicted for construction as an indication of the worst-case for decommissioning. It is likely that the grant of a section 37 consent would include a condition requiring a decommissioning strategy and management plan. Consequently, an outline mitigation strategy for decommissioning will be included in the EIAR relevant to informing such future requirements and to help avoid the potential for significant effects associated with this project stage.

Evaluation of Effect Significance

- 3.8.7 The EIA Regulations require significant environmental effects to be described but do not define significance. In this assessment, a significant effect has been defined as one which in isolation or combination with others is considered to be material to the environment and should be taken into account in decision making. The evaluation of significance of predicted environmental effects takes into account the predicted magnitude of change (from the impact) and the sensitivity of the receptor.
- 3.8.8 The sensitivity of the receptor/receiving environment to change will be determined using professional judgement, taking into account the presence and proximity of existing designations (such as Sites of Special Scientific Interest (SSSI)) and using quantifiable data and information from field surveys where relevant. Determination of baseline sensitivity is a topic and/or a discipline specific process and each relevant chapter of the EIAR will set out the baseline with commentary on its sensitivity and susceptibility to change.
- 3.8.9 Prediction of impact magnitude (adverse and beneficial) will generally follow an approach based on a four point scale (high, medium, low or no change/negligible) drawing on relevant criteria in applicable guidance and from the professional judgement of the assessment team. It will also take account of a range of characteristics of the changes in the environment anticipated including their spatial and temporal scale and the impact types listed above in **paragraph 3.8.3**.
- 3.8.10 The process of evaluating significance is often guided with reference to a significance matrix such as that shown in **Table 3.1: Matrix for Determining the Significance of Effects**. This approach to determining significance will be adopted in combination with the professional judgement and experience of the assessor.

**Table 3.1: Matrix for Determining the Significance of Effects**

Magnitude of Change/Impact	Sensitivity of Receptor/Receiving Environment			
	High	Medium	Low	Negligible
High	Major	Major	Moderate	Negligible
Medium	Major	Moderate	Minor	Negligible
Low	Moderate	Minor	Minor	Negligible
Negligible	Negligible	Negligible	Negligible	Negligible

- 3.8.11 Major and moderate effects are considered to be significant in the context of EIA Regulations. Minor and negligible effects are not considered significant.
- 3.8.12 For certain technical topics, such as ecology, widely recognised significance criteria and associated terminology have been published by the relevant professional body. Where these are adopted for such topics, information on their use will be presented in the technical chapters and associated appendices of the EIAR where relevant.
- 3.8.13 An overview of the guidance and methodology proposed to be adopted for each technical study at the EIA stage is provided at the end of each respective technical chapter of this Scoping Report (see **Chapters 4 to 15**).

### Cumulative Effects Assessment

3.8.14 There are two categories of cumulative effects: in-combination effects and interactive effects. These are defined below with reference to the methodology to be adopted in the EIA for assessing cumulative effects.

#### In-combination Cumulative Effects

3.8.15 Consideration will be given to predicted cumulative environmental effects, which have the potential to arise from the effects associated with the Proposed Development when considered in addition to, and in combination with, other reasonably foreseeable<sup>41</sup> development projects. An initial study area of 10 km from the Proposed Route was defined for the in-combination effects assessment through review of the likely zones of influence of the Proposed Development in relation to key sensitive receptors and the likely significant effects of the proposals for each topic-specific assessment. This study area is considered to be a maximum zone of influence based on the indicative study areas for potential effects on designated ecological sites, in particular those for potential effects on qualifying bird species for Special Protection Areas (SPAs). The reasonably foreseeable development proposals identified in planning and those proposals reasonably known to the Applicant within this initial study area were compiled into a long list of potential projects for the cumulative assessment.

3.8.16 This study area was subsequently refined on the basis of the likely significant cumulative effects identified in this Scoping Report. A revised study area of 3 km is proposed for in-combination cumulative assessment in the EIAR following review of the potential for significant environmental effects from the Proposed Development taking account of committed Embedded and Applied Mitigation. This is also consistent with the extent of the proposed Landscape and Visual Impact Assessment (LVIA) study area drawing from review of the initial Zone of Theoretical Visibility (ZTV) and is considered to encapsulate the majority of study areas for other technical disciplines, taking account of the nature of both the Proposed Development and Associated SSEN Transmission Developments at Emmock and Hurlie substations (see below) and the receiving environment.

3.8.17 The potential for cumulative effects will be considered in relation to an agreed schedule of reasonably foreseeable developments shortlisted from the starting long list. The criteria used to inform selection of these developments include:

- Development proposals of more than local scale (ie national or major development) located within 3 km of the Proposed Development; and/or
- Development proposals of local scale where EIA is required, or where there is considered to be potential for significant effects on key receptors, and which are located within 2 km of the Proposed Development; and
- Where planning applications (or equivalent consent applications under other consent regimes) have been submitted but not yet determined or where requests for EIA scoping opinions have been submitted; or
- Where development consents have been granted but where construction has not commenced at the time of preparation of the EIAR for the Proposed Development.

3.8.18 The basis for this is that the development categories listed above are more likely to have potentially significant environmental effects in their own right and therefore greater potential to result in significant cumulative effects in combination with those predicted for the Proposed Development. There is also likely to be publicly available information on the predicted effects for most of the projects, for example through published EIARs.

3.8.19 Development proposals at the pre-application stage (eg those where a Proposal of Application Notice (PAN) has been lodged with the ECU or LPA) are generally not proposed to be included as developments to be considered for the purposes of assessing predicted cumulative effects (as they are not considered to be reasonably foreseeable). However, the cumulative assessment would include reference to other electricity transmission projects known to the Applicant, which are not yet the subject of an application or consent (but are foreseeable to the Applicant and relevant to the EIA) (see below).

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<sup>41</sup> Reasonably foreseeable refers to development proposals which are considered to have sufficient certainty of consent and construction to be considered for inclusion in the in-combination cumulative effects assessment. In EIA practice these typically include projects for which development consent has been applied for or granted, for development proposals within a study area where there is potential for significant cumulative environmental effects.

- 3.8.20 The shortlist of cumulative developments for the EIA will be agreed with the ECU drawing on advice provided in the Scoping Opinion. The following types of project would typically be included:
- The proposed substations at Emmock and Hurlie;
  - Relocation of short sections of existing OHL connections in the vicinity of the existing 275 kV Substation at Tealing and the existing 275 kV and 400 kV Substations at Kintore;
  - Proposals for new or extended onshore wind farm developments;
  - Energy transmission and storage proposals known to the Applicant and those promoted by other developers typically in close proximity to the existing and proposed substations (eg proposals for onshore connections and substations for offshore wind farms and larger scale battery energy storage sites); and
  - 
  - Other types of development proposal of national or major scale (albeit given the predominantly rural nature of the Proposed Route for the OHL these are considered unlikely).
- 3.8.21 The schedule of other developments to be considered in the cumulative effects assessment would be finalised approximately four months prior to submission of the section 37 application to allow sufficient time to compile the EIAR. Each EIA topic lead would undertake an assessment of potentially significant cumulative effects as part of their assessment of the Proposed Development, with the findings reported in each technical chapter of the EIAR. The cumulative effects assessment will be presented in a 'tiered' approach in the EIA Report to reflect firstly the predicted in-combination effects of the Proposed Development and associated substations (Emmock and Hurlie) and then the effects predicted when other cumulative projects are considered.
- 3.8.22 Since the proposed new 400 kV substations at Emmock and Hurlie would be connected with, and integral to, the Proposed Development, they will form a key focus for the assessment of in-combination cumulative effects and will be addressed in each relevant EIAR chapter in a discrete section specific to consideration of likely significant cumulative effects associated with the 'Associated SSEN Transmission Developments'. The key findings of the EIAs being undertaken for the substations<sup>42</sup> in relation to their predicted significant effects will be closely considered in combination with the predicted effects of the OHL in the vicinity of the substations, for each relevant topic, and the predicted cumulative effects will be reported in detail where required to ensure that a comprehensive approach is taken to considering the combined effects of the Proposed Development with the Associated SSEN Transmission Developments.
- 3.8.23 The second part of the cumulative effects assessment reported in each topic-based chapter will then capture the predicted in-combination effects of the Proposed Development and Associated SSEN Transmission Developments together with other reasonably foreseeable development proposals (SSEN Transmission and third party developments) which have been shortlisted for further consideration. These developments will include other electricity transmission infrastructure projects known to the Applicant and other third party development applications and consented developments. The areas around the substations where the OHL would form connections to the substation platforms, together with other changes to relocate existing transmission infrastructure will be a particular spatial focus for consideration of in-combination effects.
- 3.8.24 Significant projects (ie major developments and national developments) which are under construction at the point of carrying out the cumulative assessment would be considered as part of the future EIA baseline and not as cumulative developments.
- 3.8.25 Since the Proposed Development is a significant length, there is also some potential for a contribution of effects on some receptors between different sections of the OHL. For example, the OHL may span a series of watercourses which form part of the same river catchment which may act with a greater overall impact on the receptor (eg water quality) than 'only' from the individual watercourses in each section. Similar effects may be predicted between consecutive geographic sections of the proposals, for example the potential for visual impacts at a particular location being affected by several (separate) visible sections of the OHL. Each topic-based assessment will therefore consider, as required, the effects from adjacent OHL sections

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<sup>42</sup> Separate EIARs will be prepared for both substations to support applications for planning consent for these proposed developments to the relevant local planning authorities (Angus Council for Emmock substation and Aberdeenshire Council for Hurlie substation). The EIAR for the Proposed (OHL) Development will draw on the findings of these EIAs and provide a complete cumulative assessment for the Proposed Development and Associated SSEN Transmission Developments.

of the Proposed Development on receptors and where appropriate at a regional scale. These are not specifically cumulative effects as they arise as a result of contributory impacts of the same project (the Proposed Development) and they will therefore be captured in the reporting of the project effects in each technical chapter and prior to the presentation of predicted cumulative effects.

- 3.8.26 It should be noted that different approaches may be taken to defining developments and their proximity to the proposed OHL for the cumulative landscape and visual impact assessment (CLVIA) based on established practices (see **Chapter 5: Landscape and Visual Amenity**).

#### *Interactive Cumulative Effects*

- 3.8.27 This assessment will consider the effects from the interaction of different impact types of the Proposed Development (including the Associated SSEN Transmission Developments) on key receptors such as communities, designated areas and sensitive area wide ecosystems (eg river catchments), which may collectively cause more significant effects than individually. It will take into consideration effects at the site preparation and earthworks, construction and operational phases. A theoretical example is the cumulation of disturbance from dust, noise, vibration, artificial light, human presence and visual intrusion on sensitive fauna and sensitive human receptors (eg amenity of people in properties) adjacent to a construction site.
- 3.8.28 This assessment will also consider cumulative interactions from the predicted environmental effects of the proposed new 400 kV substations (Emmock and Hurlie) on potentially vulnerable receptors with the interaction of cumulative effects from the Proposed Development.
- 3.8.29 A schedule of key receptors potentially vulnerable to interactive effects will be defined through review of the relevant baseline information from each EIA topic and discussion with the technical leads. Receptors will typically include areas designated or otherwise identified as having more than local significance and sensitivity in relation to ecological, landscape and cultural criteria together with important groupings of properties and community locations.
- 3.8.30 The assessment of interactive cumulative effects will draw from the key findings of the separate topic-based assessments for the Proposed Development including predicted significant effects from the in-combination cumulative assessment, and the assessment findings will be reported as part of a standalone chapter on cumulative assessment in the EIAR.

### **3.9 The EIA Report (EIAR)**

- 3.9.1 The EIAR would be prepared to meet the requirements of the EIA Regulations, relevant guidance prepared by the Scottish Government and the ECU and in accordance with the Institute of Environmental Management and Assessment (IEMA) Quality Mark criteria.
- 3.9.2 The EIAR will comprise a series of environmental impact assessments targeted to assess the potential and residual predicted significant effects which the Proposed Development is likely to have on the environment. Each topic included in the EIA will be incorporated as a separate chapter in the main body of the EIAR, with supporting technical appendices used where required to present more detailed information such as survey reports and calculations.
- 3.9.3 On receipt and consideration of this Scoping Report, the ECU will issue the report to the consultation bodies and other non-statutory public bodies identified by the Scottish Ministers under regulation 12(4)(b) for comment and will prepare a review of the proposed scope of the EIA to be communicated to the Applicant in a Scoping Opinion document.
- 3.9.4 The EIAR will make clear reference to where a point raised in the Scoping Opinion has been addressed. This will include a scoping matrix which will detail the consultation responses received from the consultation bodies and other relevant non-statutory public bodies which are provided in the Scoping Opinion, with a reference to where responses have been addressed.
- 3.9.5 Each assessment chapter will include:
- A detailed methodology covering the approach to establishing the current state of the relevant baseline scenario used in the assessment (which may be the current baseline or a future baseline scenario) and the criteria used to identify and assess the likely significant effects;
  - A description of how the assessment deals with the LOD;

- A description of the relevant aspects of the current state of the environment (baseline conditions) and an outline of likely evolution of the baseline conditions in the absence of the Proposed Development for the purpose of defining the 'future baseline' scenario as a basis for the impact assessment;
- A description of the likely significant effects of the Proposed Development;
- A description of the measures proposed to avoid, prevent, reduce, or, if possible, offset any likely significant effects (mitigation measures) and where appropriate, any proposed monitoring arrangements; and
- A description of predicted residual effects remaining following the implementation of proposed mitigation measures.

3.9.6 Each chapter will also identify any data limitations and uncertainties relevant to the assessment.

3.9.7 It is proposed that the cumulative effects chapter of the EIAR would report a summary of the predicted inter-project effects (drawing from the respective cumulative assessments to be captured in each relevant topic chapter) and then present the intra-project cumulative effects assessment.

## 4. LAND USE AND RECREATION

### 4.1 Introduction

4.1.1 This chapter sets out a preliminary assessment and the proposed approach in the EIA to the assessment of potential significant effects on land use and recreation during construction and operation of the Proposed Development. The following aspects of land use are addressed in this chapter:

- Land use, including agriculture which is the predominant land use in the Proposed Route and other key land uses including areas of settlement and built development;
- Forestry, focusing on key areas of commercial woodland<sup>43</sup>; and
- Recreation, including areas used for recreation such as core paths and National Cycle Network (NCN) routes, rivers used for recreational fishing and key land uses associated with tourism.

4.1.2 An assessment of the effects of the Proposed Development on recreational and residential visual amenity during construction and operation relating to visibility is considered in **Chapter 5: Landscape and Visual Amenity**. Where relevant, this Scoping Chapter describes the likely indirect effects of the Proposed Development predicted on the general amenity of users of recreational routes and tourism attractions. **Chapter 11: Noise and Vibration** covers effects on settlements and properties in relation to noise.

4.1.3 Consultation responses<sup>44</sup> relevant to this land use assessment from Aberdeen City Council, Aberdeenshire Council, Scottish Forestry, Dee District Salmon Fisheries Board, Esk Rivers and Fishery Trust, Scotways, MSP Angus North and Mearns, various community councils and National Farmers Union Scotland (NFUS). Reference was made in these responses to potential for impacts on agricultural land, particularly, prime agricultural land and requests that restoration of the land and mitigation measures should be considered. Suggestions include utilisation of field margins/boundaries for infrastructure to minimise fragmenting the land. There were also concerns raised over the potential for biosecurity issues, with appropriate prevention measures needed. Concerns were identified relating to the level of impact on tree and woodland cover, and further surveys were suggested to be undertaken that may be beneficial to identify particularly sensitive and important areas. Consultees noted that woodland removal alongside watercourses could alter geomorphology resulting in loss of fish habitat. In relation to woodland removal, consultees noted, only where significant and clearly defined additional public benefits are clear should removal be considered. Where woodlands are removed, compensatory planting would be required. Consultees noted the importance of public open spaces and green spaces. Consideration of outdoor access was also raised, including for rights of way, NCN routes and core paths.

4.1.4 In the UK there is a strong presumption against permanent deforestation unless it addresses other environmental concerns. In Scotland, such deforestation is dealt with under the Scottish Government's 'Control of Woodland Removal Policy' (Forestry Commission Scotland, 2009)<sup>45</sup>. The purpose of the policy is to provide direction for decisions on woodland removal in Scotland where this can be justified. The requirements of the Policy will be taken into account in the design of, and mitigation measures proposed for, the Proposed Development.

### 4.2 Baseline Conditions

#### Summary of Baseline

4.2.1 The study area used for Scoping considers direct (physical) effects on land cover, forestry and informal and formal recreation and tourism assets within the Proposed Route. Indirect effects on formal and informal recreation and tourism have also been

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<sup>43</sup> Ecological characteristics and designations of woodlands and potential effects associated with forestry and woodland are considered in **Chapter 7: Ecology**.

<sup>44</sup> Responses received to date from consultation events in May 2023 and March 2024.

<sup>45</sup> Forestry Commission Scotland (2009) The Scottish Government's Policy on the Control of Woodland Removal.

considered for the wider surrounding area of 3 km to either side of the Proposed Route<sup>46</sup> as it is considered unlikely that amenity effects on these land uses would occur beyond this distance.

Land Use

4.2.2 The Proposed Route is predominantly rural in nature with much of it in agricultural use for a mix of arable and lowland grazing land uses with a few smaller areas of upland grazing. Prime agricultural land is categorised as Class 1, 2 and 3.1 (as defined below)<sup>47</sup> and shown in **Figure 4.1: Land Capability for Agriculture**. The Proposed Route is classified in the Land Capability for Agriculture (LCA) maps of Scotland<sup>48</sup> as follows:

- Section A:
  - Class 2 (land capable of producing a wide range of crops);
  - Class 3.1 (land capable of producing consistently high yields of a narrow range of crops and/or moderate yields of a wider range);
  - Class 3.2 (land capable of average production though high yields of barley, oats and grass can be obtained);
  - Class 4.1 (land capable of producing a narrow range of crops, primarily grassland with short arable breaks);
  - Class 4.2 (land capable of producing a narrow range of crops, primarily on grassland with short arable breaks of forage crops); and
  - Class 5.1 (land capable of use as improved grassland. Few problems with pasture establishment and maintenance and potential high yields).
- Section B:
  - Class 2;
  - Class 3.1;
  - Class 3.2; and
  - Small areas of Class 4.2 and Class 5.1.
- Section C:
  - Class 2;
  - Class 3.1;
  - Class 3.2; and
  - Small area of Class 4.2.
- Section D:
  - Class 2;
  - Class 3.1; and
  - Class 3.2.
- Section E:
  - Class 3.1;
  - Class 3.2;
  - Class 4.1;
  - Class 4.2;
  - Class 5.1;

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<sup>46</sup> Distances have been taken from the edge of the Proposed Route to the closest point of the receptor and which generally aligns with the **Chapter 5: Landscape and Visual Amenity** study area.

<sup>47</sup> Scotland's soils (2017) National scale land capability for agriculture. Available at: <https://soils.environment.gov.scot/maps/capability-maps/national-scale-land-capability-for-agriculture/>

<sup>48</sup> Land Capability for Agriculture maps of Scotland at a scale of 1:250,000. Macaulay Institute for Soil Research, Aberdeen.

- Class 5.2 (Route E4) (Land capable of use as improved grassland. Few problems with pasture establishment but may be difficult to maintain);
- Class 5.3 (land capable of use as improved grassland, pasture deteriorates quickly);
- Class 6.2 (land capable of use as rough grazing with moderate quality plants); and
- Class 6.3 (Route E4) (Land capable of use as rough grazings with low quality plants).
- Section F:
  - Class 3.1;
  - Class 3.2; and
  - Small areas of Class 4.1 and Class 4.2.

4.2.3 There are a number of small settlements, scattered communities and individual properties located in the Proposed Route. With the exception of Drumoak and Echt<sup>49</sup> in Section F, the majority of larger settlements (defined as towns and villages with a population of over 500 inhabitants) are located over 1 km from the Proposed Route as outlined below and are shown on **Figures 4.2 (A-F): Forestry and Recreation – Sections A-F:**

- Section A:
  - Dundee, a city with a population of approximately 148,000 located approximately 2.5 km south; and
  - Tealing, a village with a population of just over 500 located approximately 2 km east.
- Section B:
  - Forfar, a town with a population of approximately 16,000 located approximately 2 km east; and
  - Kirriemuir, a town with a population of approximately 6,000 located approximately 1.8 km west.
- Section C:
  - Brechin, a town with a population of approximately 7,000 located approximately 3 km to the southeast;
  - Edzell, a village with a population of approximately 840 located approximately 8 km to the north; and
  - Laurencekirk, a small town with a population of approximately 3,000 located approximately 3 km to the southeast.
- Section D:
  - Auchenblae, a village with a population of just over 500 located approximately 1 km north.
- Section E:
  - Stonehaven, a town with a population of approximately 11,600 located approximately 5.5 km southeast.
- Section F:
  - Drumoak, a village with a population of approximately 950 is located inside the southern half of the Proposed Route;
  - Peterculter, a suburb of Aberdeen with a population of approximately 4,400 is located approximately 3 km to the northeast;
  - Banchory, a town with a population of approximately 7,400 located approximately 4.5 km to the west;
  - Westhill, a town with a population of approximately 12,100 located approximately 5.5 km to the east;
  - Echt, a village with a population of approximately 300 is located in the eastern half of the Proposed Route;
  - Blackburn, a village with a population of approximately 3,000 is located approximately 5 km to the west;
  - Kemnay, a town with a population of approximately 4,500 is located approximately 2.5 km to the northwest; and
  - Kintore, a town with a population of approximately 4,900 is located approximately 1.2 km to the north.

4.2.4 The Proposed Route runs parallel to the A90 trunk road with an approximate distance of between 1.5 km and 3 km from the southern section of the Proposed Route in Section A near Tealing, to the end of Section D, west of Stonehaven. Route Section E

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<sup>49</sup> Although this village isn't defined as a larger settlement as it has under 500 inhabitants it has been included as it is an expanding village (with 25 new homes proposed to be built on the eastern edge of the village) located within the Proposed Route.

runs parallel to the A90 trunk road at an approximate distance of 4.5 km and Route Section F runs parallel to the A90 trunk road at approximate distances of 4.5 km to 10 km. The A96 trunk road is located approximately 1.5 km from the northern end of route Section F, south of Kintore.

4.2.5 The Proposed Route runs parallel or across or close to a number of existing OHLs. The Proposed Route does not cross the East Coast Main Line railway but is located within 500 m from it in Section D near Fordoun. The route crosses a dismantled railway line in Section B, west of Forfar. There are also a number of operational wind farms located up to 500 m from the Proposed Route boundary which include:

- Section A:
  - Two wind turbines at Balkemback Farm, west of Tealing.
- Section B:
  - One wind turbine at Broom Farm, northwest of Finavon.
- Section C:
  - One wind turbine at Steelstrath Farm, east of Edzell, located approximately 180 m west of the Proposed Route.
- Section D:
  - One wind turbine at Fordoun Sawmill, north of Fordoun;
  - Two wind turbines at Droop Hill, northwest of Glenbervie; and
  - Three wind turbines at Jacksbank, north of Glenbervie. One is located within the route boundary. Two are located adjacent to and approximately 300 m southeast.
- Section E:
  - Meikle Carewe wind farm consisting of 12 wind turbines is located to the east, northwest of Stonehaven. Three turbines are located within approximately 500 m of the Proposed Route.

#### Forestry

4.2.6 Some sections of the Proposed Route include areas of woodland which may not be avoidable. In this chapter, the term 'woodland' has been used generically to describe the forestry receptors including woodland of any description (ie vegetation dominated by trees more than 5m high when mature, forming a distinct, although sometimes open, canopy.) A desk based review has identified that the woodlands in this area are typically fragmented in nature and scattered across the Proposed Route. The woodlands typically consist of a mixture of commercial forestry and some areas of broadleaved or mixed woodland as shown on **Figure 4.2 (A-F): Forestry and Recreation**.

4.2.7 There are several areas of woodlands scattered throughout the Proposed Route. Some of these woodlands are semi-natural woodlands which are defined as being comprised of locally native trees and shrubs which derive from natural regeneration or coppicing rather than planting. Due to their natural features and appearance, semi-natural woods are often valuable for nature conservation and in the landscape, and many are important for recreation and for historical and cultural interest. Semi-natural woodlands, which have developed from natural colonisation of open ground sometime within the last few centuries, are also normally of high environmental value, particularly in the uplands, although they are not usually so valuable as ancient semi-natural woodlands because of their shorter history. Ancient Woodland (as defined on the Scottish Ancient Woodland Inventory) are considered higher value due to their long continuous history. Designations associated with this type of woodland, including those listed on the Scottish Ancient Woodland Inventory<sup>50</sup> are addressed further in **Section 7.2: Baseline Conditions of Chapter 7: Ecology**.

4.2.8 The key areas of woodland within the Proposed Route from south to north that may not be avoidable through development of the OHL alignment are described as follows (from south to north):

- Section A:

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<sup>50</sup> Scotland's environment (undated) Scotland's environment map (with Scottish Natural Heritage (2010) Ancient Woodland Inventory Scotland layer applied). Available at: <https://map.environment.gov.scot/sewebmap/>

- No key areas of woodland have been identified in Section A.
- Section B:
  - Woodland is present along the banks of the Noran Water which spans the width of the Proposed Route in the section north of Tannadice.
  - Following the crossing of the Noran Water, to the north of the Proposed Route there is an area of woodland comprising Wayne Moor Wood, Roughmount Wood, Windsor Woods, Weiris Wood, Duns Wood, North Wood and Lochty Wood which extends approximately one-third to half of the width of the Proposed Route for approximately 4.8 km.
- Section C:
  - Woodland at Belliehill Wood and Little Brechin Wood spans the route north of Little Brechin.
  - Woodland is present along the banks of West Water and the River North Esk which spans the width of the Proposed Route in this section north of Inchbare and Stracathro, respectively.
  - Woodland identified as part of the National Forest Estate formed of the Capo and Muirton Plantations span approximately half of the width of the route north of Stracathro and North Water Bridge, respectively.
  - Woodland is present across approximately half to two thirds of the Proposed Route width at Lady Jane’s Plantation and Greenbottom Wood in an area located southeast of Fettercairn.
- Section E:
  - Woodland identified as part of the National Forest Estate comprising part of Fetteresso Forest at the end of Section D and beginning of Section E spans the full width of the Proposed Route for approximately 3 km.
  - Woodland alongside the Cowie Water, north of Fetteresso Forest spans the majority of the width of the route in this Section.
  - Woodland is present along the banks of Rumbleyond Burn across the width of the Proposed Route north of the A957.
  - Further woodland identified as part of the National Forest Estate comprising part of Durriss Forest which spans the majority of the width of the route for approximately 2 km and also includes an area of woodland at Craiglug south of the River Dee.
  - Route E4 intersects the centre of a woodland block identified as part of the National Forest Estate comprising part of Durriss Forest for approximately 4 km to the north of Slug Road and also includes small areas of woodland on the edges of Kirkton Wood and Free Church Wood to the south of the B9077.
- Section F:
  - Woodland at Coldstream Plantation spans approximately two-thirds of the route northwest of Drumoak. To the west of this woodland a small area of the Collonach Plantation is located within the Proposed Route which is identified as being part of the National Forest Estate.
  - Woodland blocks at Marketmuir Wood, Backstrip Wood, North Kirkton Wood and Myriewell Wood span half the Proposed Route southeast of Echt.
  - Woodland blocks at Scour Wood, Tillyfoddle Wood, Tillybrig Wood, and Corskie Wood span approximately half of the width of the route west of Dunecht.

4.2.9 Some areas of woodland in the study area are recorded in the Scottish Ancient Woodland Inventory (AWI) Scotland as shown on **Figure 7.1 (A-F) Ecological Designated Sites**. Woodland areas classified on the AWI fall into the following categories:

- Ancient Woodland (categories 1a and 2a) is interpreted as semi-natural woodland from maps of 1750 (1a) or 1860 (2a) and continuously wooded to the present day. If planted with non-native species during the 20<sup>th</sup> century they are sometimes referred to as Plantations on Ancient Woodland Sites (PAWS).
- Long Established woodlands of Plantation Origin (LEPO) (categories 1b and 2b) are interpreted as plantation from maps of 1750 (1b) or 1860 (2b) and continuously wooded since. Many of these sites have developed semi-natural characteristics, especially the oldest ones, which may be as rich as Ancient Woodland.

- Other woodlands on 'Roy' woodland sites (category 3) are shown as unwooded on the first edition maps but as woodland on the Roy maps. Such sites have, at most, had only a short break in continuity of woodland cover and may still retain features of Ancient Woodland.

- 4.2.10 The majority of woodland recorded in the AWI within the Proposed Route is categorised as LEPO, however there are some limited areas classed as semi-natural origin (categories 1a and 2a on the AWI) which would be considered 'Ancient Woodland' in accordance with the Applicant's guidance<sup>51</sup>.
- 4.2.11 Some areas of woodland are also recorded on the Native Woodland Survey of Scotland (NWSS)<sup>52</sup>. The NWSS identified and mapped the location, extent, type and condition of all of Scotland's native woodlands. Launched in 2014, it was the first authoritative inventory of Scotland's native woods and created a baseline for future monitoring of change. There is a degree of overlap between the AWI and the NWSS, but the latter also includes new native woodland that does not appear on the AWI and may have been created as part of woodland expansion over the last 100 years.
- 4.2.12 The commercial forestry within and close to the Proposed Route include areas identified as part of the National Forest Estate, owned by Scottish Ministers on behalf of the nation, and managed by Forestry and Land Scotland (FLS). The principal forest of this type crossed by the Proposed Route is Fetteresso Forest in the northern part of Section D and the southern part of Section E. This is a large area of commercial forestry in an upland area managed for its timber resource and with some recreational trails.
- 4.2.13 In addition to woodlands recorded on the National Forestry Inventory Scotland<sup>53</sup> there may be other smaller areas of woodland, hedgerows and individual trees, including veteran trees<sup>54</sup>, within the Proposed Route which may also have significant biodiversity value and which can make important contributions to landscape character and quality. These should be protected wherever possible from adverse impacts resulting from the Proposed Development.

#### Recreation

- 4.2.14 The Proposed Route does not intersect with any known long-distance footpaths or any of Scotland's Great Trails<sup>55</sup>. The nearest Scotland's Great Trails are located more than 10 km from the Proposed Route including the Cateeran Trail (located 15 km west of Section A at its closest point) and Formartine & Buchan Way (located 10 km north of Section F). Section F crosses National Cycle Network (NCN) Route 195 near Drumoak along the north bank of the River Dee (known as the Deeside Way which follows the line of the former Deeside Railway between Aberdeen to Ballater)<sup>56</sup>. NCN Route 1 is located along the east coast, however, it is not crossed by the Proposed Route. NCN route 195, core paths and recreational routes in the wider landscape are shown on **Figure 4.2 (A-F): Forestry and Recreation**.
- 4.2.15 All parts of the Proposed Route, with the exception of Section E, cross short sections of core paths. In Section A the Proposed Route crosses two core paths, one located to the west of Tealing and another to the east of Glamis. A core path located to the west of Forfar is crossed by the northern part of the OHL in Section A and the southern part of Section B. In Section B the Proposed Route also crosses a core path to the north of Tannadice. In Section C the OHL would cross a core path to the south of Edzell as well as a small section of two core paths to the northwest of Brechin and to the east of Inchbare. In Section D the OHL would cross one core path between Monboddoo and Fordoun and in Section F three core paths would be crossed, to the east and west of Drumoak and at Echt.

<sup>51</sup> SSEN Transmission (2023) BN-NET-ENV-501 Ancient Woodland – Approach to Assessment and Reporting: Available at: <https://www.ssen-transmission.co.uk/globalassets/projects/skye-reinforcement---section-37-application/section-37-application---volume-1---main-report/volume-1---chapter-4---the-routeing-process-and-alternatives.pdf>

<sup>52</sup> Scottish Forestry (2014) Native Woodland Survey of Scotland (NWSS). Available at: <https://www.forestry.gov.scot/forests-environment/biodiversity/native-woodlands/native-woodland-survey-of-scotland-nwss>

<sup>53</sup> Forestry Commission Open Data (2020) National Forest Inventory Woodland Scotland 2020. Available at: [https://data-forestry.opendata.arcgis.com/datasets/0681a879417b42dfb6d7825ef791cd5a\\_0/explore](https://data-forestry.opendata.arcgis.com/datasets/0681a879417b42dfb6d7825ef791cd5a_0/explore)

<sup>54</sup> Trees usually classified due to their age or for their biological, aesthetic or cultural interest. They are often considered as a classification alongside ancient trees and to be an irreplaceable habitat.

<sup>55</sup> Scotland's Great Trails website. Available at: <https://www.scotlandsgreattrails.com/>

<sup>56</sup> Sustrans (undated) National Cycle Network routes in North and North East Scotland. Available at: <https://www.sustrans.org.uk/find-a-route-on-the-national-cycle-network/national-cycle-network-routes-in-north-and-north-east-scotland>

- 4.2.16 Consultation information from Scotways confirmed that there are rights of way as recorded in the Catalogue of Rights of Way which are crossed by the Proposed Route. Two rights of way would be crossed to the west of Tealing in Section A and one crossed to the west of Forfar located within Sections A and B. In Section B, two paths would be crossed to the west of Forfar, together with two further rights of way located to the northeast of Careston. In Section C the OHL would cross three rights of way, one to the northwest of Brechin and to the southeast of Edzell. The proposals in Section D would cross a small section to the south of Fetteresso Forest and in Section E a right of way to the west of Meikle Carewe Hill which is also noted as a Scottish Hill Track and a Heritage Path would be crossed. The Proposed Route in Section F would cross a Heritage Path<sup>57</sup> located between the River Dee and the A93 public road.
- 4.2.17 There are some small scale tourism facilities located along the Proposed Route, the majority of which are holiday accommodation properties. Planning consent has also been granted for a site consisting of six glamping pods at Durie Mains Farm, near Laurencekirk in Section C. Fetteresso Forest, which is in part of Sections D and E, is used for informal recreational purposes such as walking and mountain biking. There are relatively few larger-scale recreation and tourism sites located within 1 km of the Proposed Route. Those identified include:
- Section A:
    - Balnuith Alpacas, a farm located approximately 500 m east of the Proposed Route, offering walks and talks about animals.
  - Section C:
    - Edzell Golf Course, which is located approximately 600 m north of the Proposed Route, at its closest point; and
    - Royal Arch Riverside Park, a holiday park comprising leisure homes, is located approximately 500 m east of the Proposed Route.
  - Section D:
    - Auchenblae Golf Course, which is located approximately 800 m from the edge of the Proposed Route, 200 m east of the village of Auchenblae; and
    - Pitrennie Mill Caravan and Motorhome Club, which is located approximately 500 m north of the Proposed Route.
  - Section F:
    - Drum Castle is located approximately 470 m east of the Proposed Route at its closest point.
- 4.2.18 The Proposed Route intersects with a number of rivers used for recreational fishing, these include:
- Section A: Trout and grayling fishing along Kerbet Water and Dean Water.
  - Section B: A fishing beat for salmon and sea trout is located on the River South Esk, west of Oathlaw.
  - Section C: A fly fishing beat for sea trout and salmon is located on the River North Esk, north of Stracathro.
  - Section D: A fishing beat is located on Bervie Water to the west of Glenbervie, used for salmon, sea trout and brown trout fishing. Fishing rights have also been identified on the north bank of Bervie Water between Milton of Dellavaird Farm and the Burn of Guinea.
  - Section E: A fishing beat is located on the Cowie Water.
  - Section F. Three fly-fishing fishing beats for sea trout and salmon are located on the River Dee within Route F1.3:
    - The Upper Drum and Lower Durriss fishing beat, located to the east of Drumoak;
    - The Tilbouries fishing beat located to the east of Drumoak; and
    - The Middle Drum fishing beat located to the east of Drumoak.
  - Two fly-fishing fishing beats for sea trout and salmon are located on the River Dee within Route F3:
    - The Lower Crathes/West Durriss fishing beat, located to the north of Kirkton of Durriss; and

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<sup>57</sup> A Heritage Path is a historic route that forms part of the transport heritage of Scotland which reflect the cultural and social development, and include Roman roads, drove roads, pilgrim routes, military roads and trade routes'. Scotways (undated) Heritage Paths. Available at: <https://scotways.com/heritage-paths/> Scotways data cannot be included on Figures due to copyright.

- The Park fishing beat, located to the southwest of the Netherpark Quarry.

### 4.3 Sensitive Receptors

#### Land Use

- 4.3.1 Prime agricultural land (represented in the Proposed Route by areas of Class 2 and Class 3.1 soils), which is present in varying extents in each section of the Proposed Route, is considered to be of higher sensitivity to development than areas of land with lower agricultural classifications due to its higher productivity for agriculture and its relative scarcity as a resource.
- 4.3.2 Residential properties and settlements which are located in the Proposed Route are considered to be of high sensitivity as they represent land uses where people live and which form communities potentially susceptible to amenity and other effects associated with land use changes from new development. Effects on visual amenity are covered in **Chapter 5: Landscape and Visual Amenity** and other effects on communities are addressed in chapters addressing Traffic and Transport (**Chapter 10**), Noise and Vibration (**Chapter 11**), Population and Human Health (**Chapter 12**), Air Quality (**Chapter 13**) and Major Accidents and Disasters (**Chapter 15**).

#### Forestry

- 4.3.3 Woodlands are considered to be sensitive receptors and therefore, the forestry chapter of the EIA will consider the potential need for changes in management and operation of commercial woodlands as a result of the potential effects of the Proposed Development. Woodlands with a higher conservation value (such as those identified on the AWI and/or of native character) are considered as a sensitive receptor and their ecological importance and sensitivity is addressed further in **Chapter 7: Ecology**.
- 4.3.4 Woodland designations and other identified constraints, in conjunction with site-based information on the condition of woodlands from surveys, will be used to inform the sensitivity of the woodland areas and reported within the baseline section of the forestry chapter of the EIA.

#### Recreation

- 4.3.5 Sensitive recreational receptors include users of national cycle routes and core paths which are located within the Proposed Route, as well as people visiting and using tourism facilities. Recreation and tourism sites located beyond the Proposed Route are considered to be of lower sensitivity than those located within the Proposed Route. An initial assessment of the potential effects of the Proposed Development on recreational amenity during construction and operation relating to visibility is considered in **Chapter 5: Landscape and Visual Amenity**. People accessing rivers used for recreational fishing are also considered to be sensitive receptors.

### 4.4 Potential Effects

#### Land Use

- 4.4.1 There is potential for significant effects on land use associated with the following:
- Impacts on agricultural land and agricultural land management including from permanent loss of limited areas of agricultural land associated with the development of the OHL tower bases and from permanent access tracks;
  - Deterioration in soil classification of agricultural land in areas affected by temporary works;
  - Cumulative loss of agricultural land, particularly prime land, from the scheme as a whole at a regional/national level;
  - Temporary disruption to agricultural operations during construction works and permanent changes in access to areas of agricultural land once the OHL is installed; and
  - Temporary and permanent changes in other land uses including utilities, wind turbines and commercial and residential properties associated with the development of the OHL tower bases and access tracks.

#### Forestry

- 4.4.2 There is potential for significant effects on woodland areas associated with the following:
- The permanent loss of woodland area from felling required to construct and maintain the OHL;

- Consequential effects on the wider future forest management plans within individual woodlands;
- The loss or damage to areas of woodland of high conservation value, such as Ancient Woodland or veteran trees; and
- The potential for consequential effects from woodland fragmentation and isolation eg increased risk of windblow where felling exposes new woodland edges.

#### Recreation

4.4.3 There is potential for significant effects on recreation associated with the following:

- During construction, temporary diversions or closures to recreational routes (including key cycle routes, core paths and rights of way)<sup>58</sup>;
- Temporary loss of amenity resulting from construction traffic and activity close to recreational routes and tourism facilities;
- Permanent changes in amenity for people undertaking recreational activities and trips to tourism facilities in the vicinity of the OHL once it is constructed; and
- Changes in access to, and use of, short sections of river banks used for recreational fishing from construction and operation of the OHL.

4.4.4 As outlined in **Section 3.8: Approach to Assessment of Significant Environmental Effects**, the effects predicted for the construction phase would generally be considered to be representative of worst-case decommissioning effects and therefore these effects are proposed to be scoped out of further assessment.

## 4.5 Mitigation

4.5.1 In-line with the hierarchy of mitigation set out in **Section 3.4: Mitigation**, the following section describes the Embedded and Applied Mitigation which is considered relevant to the Proposed Development in the context of this land use assessment. The mitigation outlined below has been considered and applied when determining the potential for likely significant effects arising from the construction and operation of the Proposed Development as described in **Section 4.4: Potential Effects**.

#### Land Use

4.5.2 Embedded Mitigation as part of the project design will seek to avoid siting infrastructure (towers and permanent access tracks) on areas of prime agricultural land where possible through the development of the OHL alignment. In addition, the alignment of the OHL will seek to avoid interaction with existing infrastructure (roads, railway lines, wind turbines etc) as far as possible. During the alignment design stage, a distance buffer of 170 m between the OHL and residential properties will be maintained wherever possible, with a 100 m buffer the minimum distance to be achieved as far as possible, to reduce the potential for adverse effects on amenity of people and communities.

4.5.3 As Applied Mitigation, construction of the project would accord with implementation of a CEMP (An outline CEMP will be provided as part of the EIAR) which will include relevant provisions such as:

- Utilisation of field margins/boundaries for siting of temporary working areas to minimise fragmenting the land, wherever possible in areas where agricultural land cannot be avoided altogether.
- Implementation of biosecurity measures to limit the risk of the spread of invasive species, pests and soil borne diseases.
- Continuing engagement and meetings with landowners or their agents to ensure that disruption to farming and land management activities are kept, where possible, to a minimum.
- Land will be inspected, and a detailed record of its condition noted, including private roads, gateways and fences so that it is reinstated to its pre-construction condition.

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<sup>58</sup> The Energy Networks Association (ENA) guidance advises angling no closer than 30 m from an OHL that crosses or runs parallel to a watercourse. A section of up to approximately 80 m of a river could be sterilised from use by anglers taking account of this buffer distance and the width between the OHL conductors. Therefore, the construction of the OHL could result in permanent direct loss of small areas of river bank used for recreational fishing.

- Measures will be taken to prevent the disturbance of livestock. In the interests of security, all field gates would be kept shut unless otherwise requested. If any fences are removed, they would be replaced, as appropriate.
- Where required, crossing points will be installed and maintained in suitable places in order that livestock and farm vehicles can maintain access during construction.

#### Forestry

- 4.5.4 The identification of the required forestry works includes a degree of Embedded Mitigation. Complete felling of woodlands may be proposed in a number of instances where it is unviable, from a practical forestry point of view, to fell only part of the woodland. This approach seeks to reduce the overall effect on the total woodland area.
- 4.5.5 Embedded Mitigation measures will be developed wherever possible to mitigate against any predicted moderate or major adverse effects through OHL alignment and access track design. These may include proposals to amend the alignment. Where this is not considered possible then additional measures will be put forward to minimise the scale, significance or degree of the effect.
- 4.5.6 The potential for disturbance to woodland users and managers during construction of the Proposed Development will be mitigated where possible through measures set out in the CEMP and agreed where appropriate with forestry managers.
- 4.5.7 Measures will be proposed to compensate for the loss of woodlands through on and/or off-site compensatory planting to satisfy the requirements of the Control of Woodland Removal Policy.
- 4.5.8 Other Chapters within the EIAR, eg **Chapter 5: Landscape and Visual Amenity; Chapter 6: Cultural Heritage, Chapter 7: Ecology and Chapter 8: Ornithology**, will identify the sensitive receptors relevant to their disciplines and report on the indirect effects of the Proposed Development’s forestry plans. This will include, where relevant, the incorporation of enhancement measures to ensure that the Applicant’s commitments to BNG are achieved in an integrated manner and incorporate appropriate non-commercial woodland planting proposals (see **Chapter 7: Ecology, Paragraph 7.7.6 and 7.7.7: Biodiversity Net Gain (BNG)**).

#### Recreation

- 4.5.9 As Embedded Mitigation, the project design will seek to avoid direct effects on key recreational facilities (including key cycle routes, core paths and rights of way), tourism attractions and rivers used for fishing wherever possible through careful alignment of the OHL. Design of the OHL in the landscape will also seek to avoid or reduce effects on general amenity of users of recreational facilities as far as possible (see **Chapter 5: Landscape and Visual Amenity**). All construction activities will be managed within the requirements of the *Construction (Design and Management) (CDM) Regulations 2015* and will not conflict with the *Health and Safety at Work Act 1974*. The design of the Proposed Development will continue to take full account of these regulations.
- 4.5.10 Applied Mitigation will include the provision of an Access Management Plan (see **Chapter 10: Traffic and Transport**). The Access Management Plan (AMP) will be written in line with the requirements set out in the SNH (now NatureScot) “*Guidance for the Preparation of Outdoor Access Plans*”<sup>59</sup>. Applied Mitigation measures included within the AMP would include:
- During construction, access into the area of the site where the OHL towers are to be located will be restricted for the general public on health and safety grounds.
  - Access gates may be installed in certain locations along access tracks to limit unauthorised vehicles from entering the Site.
  - There may be the requirement for temporary closures or diversions of part of the recreational routes. Route crossing points with signage advising on the development construction activity (plant, vehicles, and machinery) and the temporary changes to baseline access provision would be installed as required.
  - There may be the need for consideration of temporary traffic lights/temporary management systems.
  - Route users would have the right of way.

<sup>59</sup> NatureScot (2010). Guidance for the preparation of outdoor access plans. Available at: <https://www.nature.scot/sites/default/files/2017-06/B639282%20-%20A%20Brief%20Guide%20to%20Preparing%20Outdoor%20Access%20Plans%20-%20Feb%202010.pdf>

- It may be deemed appropriate to provide separation of plant and pedestrian mechanisms (for example including Heras fencing as a barrier).
- There may be consideration of a temporary vehicle restraint systems (VRS) will be undertaken for higher risk areas to provide additional protection to route users if construction works will be undertaken whilst the paths remain open.
- There would be enforcement of speed limit on tracks for all construction vehicles and plant.
- Speed limit advisory signage would be included on the exit of the site access tracks to remind drivers of local speed limits.
- Use of hazard/flashing beacons on all construction vehicles when using access tracks would be enforced.
- There would be regular delivery of Toolbox Talks to all site workers to ensure awareness of potential presence of path users.
- Specific training may be given for drivers on the protocols when encountering horse riders to increase awareness and to ensure safety of these route users.

4.5.11 These measures will ensure that access is enabled as far as possible without the health and safety of the route users being compromised. If for any reason there are times when safe access is not possible, this will be communicated to the public through onsite and off-site public information including, for example, onsite information boards, the Applicant's project website and liaising with local community councils.

4.5.12 The Applicant will consult with tourism businesses including those who manage/let fishing beats affected by the Proposed Development and consider feedback in relation to project design and required mitigation.

#### Mitigation Summary and Next Steps

4.5.13 The Applicant is committed to delivering both Embedded and Applied Mitigation as set out in **Section 3.4: Mitigation** and as described above in relation to this scoping assessment. The mitigation described above has been applied when considering the potential for the Proposed Development to result in likely significant effects.

4.5.14 The impact assessment will, therefore, assess the potential for likely significant residual effects to arise and identify any further mitigation (referred to as 'Additional Mitigation'), in addition to the Embedded and Applied Mitigation, necessary to reduce the significance of effects as far as practicable.

4.5.15 Embedded, Applied and any Additional Mitigation will be set out in a Schedule of Mitigation as a chapter of the EIAR. It is assumed that implementation will be assured by consent conditions.

## **4.6 Preliminary Assessment of Likely Significant Effects**

### Land Use

4.6.1 The Proposed Development would be predicted to result in the permanent loss and (in some locations) fragmentation of land used for agricultural production, including some small areas of prime agricultural land as a result of construction of the OHL tower foundations and permanent access tracks.

4.6.2 The alignment design would avoid areas of prime agricultural land as far as practicable, and the areas of land permanently lost to the Proposed Development (eg from OHL tower footings/foundations and permanent access tracks) would be predicted to be small in the context of each farm unit or land holding affected (towers are typically only sited every 350 m). Some rearrangement of agricultural activities may be needed where towers are unavoidably placed within cultivated areas. It is not predicted that these changes would have significant adverse effects on agricultural activities as it is considered that material changes to farm unit operation or viability can be avoided.

4.6.3 There may also be temporary impacts on some agricultural operations as a result of the requirement to construct and use access tracks, and to establish working compounds during the construction period including those around tower bases. Whilst there would be potential for some temporary disruption to some farm activities during construction, this would be limited to the relatively short periods necessary to establish access, to construct the OHL towers, and, string the conductors in each land holding. With the provision of effective mitigation measures to minimise the disturbance as far as possible it is not predicted that these effects would be significant for farm units and their management.

- 4.6.4 Compensation would also be payable for temporary disruption during construction and for permanent land-take for the above-ground installations. Compensatory payments would be dealt with separately from the planning and EIA process and are not directly considered here as mitigation. However, it is not predicted that there would be significant adverse effects on agricultural land use and farm unit or land holding viability as a result of the Proposed Development and these effects are therefore proposed to be scoped out of the EIAR.
- 4.6.5 Whilst land take, particularly for prime agricultural land, is predicted to be minor at a farm or land unit level, there is some potential for significant effects associated with the overall loss of land at a regional or sub-national level from the Proposed Development. The loss of prime agricultural land from the development as a whole will therefore be considered further as part of a concise land use assessment to be included in the EIAR.
- 4.6.6 As part of the alignment design the OHL will avoid existing infrastructure including utilities, communications masts, wind turbines and residential and commercial buildings wherever possible. A buffer distance of 170 m from residential properties would be maintained wherever possible through the OHL alignment design process. This would help to avoid and reduce temporary and permanent adverse effects on residential properties and the associated communities. In some locations this separation distance may not be achievable, however the Applicant endeavours to achieve a minimum distance of 100 m as far as possible and the land use assessment in the EIAR will report the predicted effects of the Proposed Development on these sensitive receptors in relation to land use and general effects on amenity, where relevant.
- 4.6.7 There is some potential for temporary loss of amenity resulting from construction traffic and activity close to properties and settlements. Construction and operational effects on visual amenity are considered in **Chapter 5: Landscape and Visual Amenity** and will be scoped into the EIAR. During construction, the maximum distance possible will be maintained from properties to avoid effects on general amenity. Working hours are currently anticipated to be between 07.00 to 19.00 during British Summer Time (BST) and 07.00 to 18.00 during Greenwich Mean Time (GMT), seven days a week. Special measures and arrangements would be made for works in proximity to sensitive receptors. Working hour assumptions would be set out within the EIAR and confirmed with the respective local planning authority. Adherence to working hours within these periods would help to avoid disturbance to receptors during more sensitive periods (eg early morning and evening). The construction Traffic Management Plan will also include measures which will avoid and reduce adverse effects to amenity during construction (eg from construction vehicles movements, idling vehicles etc, see **Chapter 10: Traffic and Transport**). No significant adverse land use effects from construction activities on residential and other sensitive receptors are predicted.

#### Forestry

- 4.6.8 The following residual effects are currently identified as a result of the Proposed Development:
- The permanent loss of woodland areas from the felling required to construct the OHL Operational Corridor (OC), access, working areas and tower platforms has the potential for significant residual effects in some areas where woodland may not be avoidable and will be considered further in the EIAR;
  - Consequential effects on the wider future forest management plans and operations of individual woodlands outside of the OC are generally not predicted to have a significant residual effect as the implications for future management, including the increased risk of wind blow, would typically be addressed through the relevant landowner wayleave agreements; and
  - The loss or damage to areas of woodland of high conservation value, such as Ancient Woodland or veteran trees is not predicted to have significant residual effects. Such woodlands would be avoided, wherever possible, in line with the Applicant's internal guidance on their approach to assessment and reporting on Ancient Woodland.
- 4.6.9 Wider predicted effects of any loss of semi-natural and LEPO woodland will be considered within other relevant parts of the EIAR (including the assessments of effects on ecology, landscape and visual assessment etc).

#### Recreation

- 4.6.10 During construction there is the potential for temporary diversions or closures on some recreational routes. However, mitigation would be implemented to manage access during construction. Recreational routes would be avoided as far as possible during design of the OHL alignment. Where avoidance is not possible, then an Access Management Plan would be implemented and would ensure safe access and diversions are put in place to minimise effects on users of affected

recreational routes. Any closures to recreational routes during the works would be temporary in nature and the paths would be returned to original use as quickly as possible following construction. These effects are not predicted to be significant and are scoped out from further assessment in the EIA.

- 4.6.11 During OHL operation any access to recreation routes, if disrupted during construction work, would be returned to baseline conditions. Therefore, land use effects on the recreational routes as physical assets and on the general recreational amenity of their users are not predicted to be significant and are proposed to be scoped out of the land use assessment. Some further consideration of the landscape and visual amenity of users of key recreation routes will be considered within the landscape and visual assessment of the EIA.
- 4.6.12 The OHL could result in the permanent sterilisation of short sections of recreational fishing areas along the banks (beats) of rivers which are crossed by the Proposed Route in order to maintain a safe buffer zone between anglers and the live conductors of the OHL. However, given the mitigation which will be put in place, it is considered that effects would be reduced through liaison with businesses who let and manage areas used for recreational fishing to minimise affected areas and changes to fishing activities. The affected areas along the banks of rivers crossed by the OHL which would have some potential restrictions from their use for fishing, are likely to represent a small proportion of the overall area available for fishing. It is not predicted that effects would be significant in relation to recreational users including fishing uses, and further assessment is proposed to be scoped out of the EIAR.

#### Issues Scoped Out

##### *Land Use*

- 4.6.13 Impacts on agricultural land including deterioration of soil classification, disruption of agricultural operations and effects on farm units are scoped out of the EIAR. Effects would be reduced by designing the OHL to avoid prime agricultural land wherever possible and through siting of tower platforms on field margins where practical. Additional Mitigation measures have been detailed in this scoping assessment which would reduce potential adverse effects associated with construction activities as outlined in **Section 4.5: Mitigation**. During operation, some agricultural and land management operations would be able to continue around tower platforms and underneath conductors.
- 4.6.14 Temporary and permanent changes in other land uses, including utilities and commercial and residential properties, are scoped out of the assessment. Embedded Mitigation in the form of OHL design will seek to avoid interaction with existing infrastructure (roads, railway lines, wind turbines etc) that would result in significant effects on its viability or operation.
- 4.6.15 The OHL alignment design stage will aim to achieve a separation distance of 170 m from residential properties wherever possible with a minimum separation distance of 100 m to be achieved as far as possible. Since significant adverse effects on land use for residential properties, communities and commercial properties are not predicted, this effect is scoped from further assessment. Effects on residential visual amenity are discussed in **Chapter 5: Landscape and Visual Amenity**.
- 4.6.16 Whilst the effects described here are not generally predicted to be significant, it is proposed that a land use chapter will be included in the EIAR to provide a land use context for the Proposed Development. This would also allow for some commentary on the overall changes from the OHL on land use, including on the total loss of prime agricultural land from the proposals in a national/regional context which recognises the importance of this resource.

##### *Forestry*

- 4.6.17 Forestry management issues during the operational phase are scoped out of the EIA. It is considered that implications for future forest management outside of the OC in terms of planned woodland felling phases, risk of windblow, replanting on site and wayleave maintenance can be adequately addressed through wayleave agreements with the relevant landowners.
- 4.6.18 The potential effects of the proposals on forestry and woodlands are considered to be site specific and relate principally to the permanent loss of woodland required in areas where the OHL alignment cannot avoid forestry. The EIAR will therefore include further assessment of these potentially significant effects and will be reported within a dedicated forestry chapter.
- 4.6.19 The EIA scope will not address any felling or woodland management undertaken beyond the OC which would be under the control of the landowner over which the Applicant would have no influence or control.

### *Recreation*

- 4.6.20 Embedded Mitigation in the design and the implementation of an Access Management Plan will ensure that no significant effects on users of recreational routes would be predicted during construction, and any minor adverse effects would be temporary in nature. It is not predicted that once the OHL is operational that any significant impact to the use or general amenity of the key routes such as core paths and cycle routes would occur and therefore these effects are scoped out of further detailed land use assessment.
- 4.6.21 Construction of the OHL and associated access tracks may result in some disruption to the fishing beats that are crossed by the OHL. A small proportion of the overall fishing beats could be permanently lost however it is not likely that this would materially affect the use of the river for angling.

## **4.7 EIA Assessment Scope and Methodology**

### Proposed Scope of Assessment

- 4.7.1 The study area for this topic will consider direct effects on land use and forestry within the horizontal Limit of Deviation (LOD) on either side of the OHL alignment and either side of the proposed access tracks. The LOD will be confirmed as part of the EIA Process (see section 2.4).
- 4.7.2 A concise assessment of the overall permanent land take effects of the proposals will be reported in a land use chapter of the EIAR. This will focus on consideration of the loss of prime agricultural land associated with the permanent use of areas for OHL infrastructure (tower bases and permanent tracks) at a regional level.
- 4.7.3 The assessment will also consider the potential effects of the Proposed Development on forestry and woodlands. This will include an assessment of the sensitivity of the principal woodland areas likely to be affected and an assessment of the predicted significance of effects which would arise from the Proposed Development, with particular emphasis on changes to forest structure and management resulting from felling required to construct the OHL.
- 4.7.4 The assessment will consider the direct effects of woodland loss from the requirement to form an Operational Corridor (OC) for future maintenance of the OHL through each affected woodland while recognising other potential effects on broader woodland management from the Proposed Development (for example from changes to wind throw risk along newly opened forest edges). The scope will not address any felling or woodland management undertaken beyond the OC which would be under the control of the landowner over which the Applicant would have no influence or control.

### Assessment Methodology

#### *Land Use*

- 4.7.5 A focused assessment will be undertaken of the predicted permanent change in land use from the main elements of OHL infrastructure with a specific focus on overall loss of prime agricultural land. The calculated loss of land will be compared with relevant regional and national estimates of prime agricultural land present to contextualise the predicted changes.
- 4.7.6 There are no specific criteria for assessing these impacts or evaluating their significance. However, the assessment will draw on and recognise the importance of the soil resource as reflected in key planning policy at the national (NPF4<sup>60</sup>) and regional (local development plan) levels.
- 4.7.7 The assessment will be presented in a concise land use chapter of the EIAR which will also allow for presentation of all the key Embedded and Applied Mitigation measures required to ensure that the construction and operation of the proposals do not have significant adverse effects on agricultural operations at the farm unit/land holding level. Mitigation to address other relevant aspects of the land use assessment set out in this scoping report (eg on land use generally and on recreational facilities and receptors) will also be presented in this EIAR chapter.

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<sup>60</sup> National Planning Framework 4. Available at: <https://www.gov.scot/publications/national-planning-framework-4/>

*Forestry*

- 4.7.8 The forestry baseline will describe the woodlands existing at the time of preparation of the EIAR. This will include current species; planting year; any felling and replanting plans; and other relevant woodland information. The baseline will be compiled from a desk-based assessment and targeted field surveys together with information on existing and future woodland management which has been made available by landowners.
- 4.7.9 The desk-based assessment will include reference to landowner crop databases; the Native Woodland Survey of Scotland; the National Forest Inventory; aerial photography; Scottish Forestry (SF) publicly available databases; and with reference to relevant policy, legislation and good practice guidance.
- 4.7.10 The field surveys will consist of a site walkover to verify and update baseline data as necessary; assess the woodlands with respect to integration of the Proposed Development and identify the potential for mitigation measures to avoid or reduce the potential for significant effects on each woodland (where relevant drawing on information provided on woodland management).
- 4.7.11 The magnitude of the impacts of the proposals on the woodlands will be assessed. The first stage will identify and describe any forestry works required to enable construction of the Proposed Development and the creation of the required OC for maintenance. The second stage will be to evaluate the significance of predicted residual effects of any such works on the specific woodlands taking account of mitigation commitments, the character and sensitivity of the woodland receptor and the relevant forestry management regimes in place. This includes any immediate effect on the woodland and any longer-term effects including the risk that the long-term viability of the woodland may be compromised through fragmentation of the wood, consequential windblow or restrictions on future operational activities.
- 4.7.12 The woodland receptor sensitivity and predicted magnitude of impacts on each receptor will be evaluated and the significance of the effects will be assessed and quantified by cross-reference to a matrix of potential effects and drawing on professional judgement of the forestry specialist.

*Cumulative Assessment*

- 4.7.13 The assessment of land use and forestry effects will be based on a two stage approach as outlined in **Section 3.8: Approach to Assessment of Significant Environmental Effects**. The combined effects on land use receptors from the Proposed Development will be first assessed in combination with those predicted from the equivalent assessments in the EIARs for the proposed Emmock and Hurlie substations, to provide a cumulative assessment for the Proposed Development and Associated SSEN Transmission Developments. A further assessment of the potential significant cumulative effects of other reasonably foreseeable developments in combination with those of the Proposed Development and Associated SSEN Transmission Developments will be undertaken and reported in the relevant chapter of the EIAR for the Proposed Development.

**4.8 Summary**

- 4.8.1 On the basis that no significant adverse effects on identified sensitive receptors are predicted during construction and operation, taking account of proposed Embedded and Applied Mitigation measures, it is proposed to scope out most land use and recreation effects as discussed above. There is some potential for significant effects from the overall loss of prime agricultural land associated with permanent development of the towers and access tracks for the Proposed Development and these will be considered further in the EIAR.
- 4.8.2 The Applicant will continue to consult with landowners and businesses who may be affected by the Proposed Development. The EIAR will include a concise land use chapter to capture the findings of further consideration of aggregate loss of prime agricultural land and to set out the mitigation commitments necessary to ensure that significant adverse effects on land use and recreation are avoided or reduced in line with the findings of this scoping assessment.
- 4.8.3 There is the potential for significant effects on forestry in some woodland locations as a result of the requirement to create an Operational Corridor for the Proposed Development and this will be assessed in a dedicated forestry chapter in the EIAR. The forestry chapter will be supported with a series of technical appendices which will provide supporting information on the key woodland units affected by the Proposed Development following the Applicant's standard approach to reporting.

## 5. LANDSCAPE AND VISUAL AMENITY

### 5.1 Introduction

- 5.1.1 The purpose of the Landscape and Visual Impact Assessment (LVIA) chapter of the EIA is to identify and predict likely significant landscape and visual effects arising from the Proposed Development. The scale and location of the Proposed Development is such that it will be widely visible from locations across the study area. Consequently, there is potential for significant effects on landscape character and visual amenity. The LVIA chapter of the EIA will describe and assess the predicted effects on landscape and visual receptors within the study area.
- 5.1.2 Consultation has been undertaken with statutory and non-statutory consultees and responses relevant to this topic have been received from NatureScot, Aberdeenshire Council, Angus Council, Aberdeen City Council and various community councils along the route<sup>61</sup>.
- 5.1.3 During consultation, NatureScot noted that the Proposed Development is likely to avoid impacts on National Scenic Areas and Wild Land Areas. As such, these receptors will not be considered within the LVIA. NatureScot also noted that several Special Landscape Areas<sup>62</sup> (SLAs) will be affected. SLAs that are within the study area are noted within **Section 5.2: Baseline Conditions** of this chapter.
- 5.1.4 During consultation, Aberdeenshire Council expressed concerns relating to special qualities of the Braes of Mearns SLA and views from within and outside the SLA where *“appreciation of the contrast between the Highland Boundary Fault and the Howe of Mearns is strongest”*. Aberdeenshire Council also noted the Dee Valley SLA and the need to minimise effects on the special qualities of the SLA including *“integrity of woodland on valley sides and along the river’s banks and views and landscape perception experienced from recreational routes”*. The potential for effects on the special qualities of SLAs is considered in **Section 5.4: Potential Effects** of this scoping report chapter.
- 5.1.5 Consultation responses from Aberdeen City Council stated that *“Regardless of which corridor or route is selected, the proposed overhead line (OHL) will have a negative impact on landscape quality and character”*. The potential for effects on landscape character is considered in **Section 5.4: Potential Effects** of this chapter.

#### Study Area

- 5.1.6 Identification of the study area for the LVIA is informed by the type and scale of steel lattice support tower. A typical average height has been assumed of approximately 57 m, although tower heights may be increased where local topography dictates in order to achieve sufficient clearance distances. For the purposes of the Scoping Report, the LVIA study area comprises a 3 km wide offset to either side of the Proposed Route. The study area is presented in **Figure 5.1: LVIA Study Area and Preliminary Viewpoint Locations**.
- 5.1.7 Based on professional judgement and experience of assessing transmission infrastructure, significant effects on landscape character and visual amenity are unlikely to occur beyond 3 km from the OHL. However, more distant viewpoints up to 5 km from the Proposed Development are considered where there is, in the assessor’s professional opinion, the potential for significant visual effects to arise beyond the 3 km study area, for example where the topography allows more far-reaching views, or where receptor sensitivity is particularly high. The location of these viewpoints will be informed by Zone of Theoretical Visibility (ZTV) mapping, which indicates the areas from which the OHL would be theoretically visible, and supplemented by field work as the LVIA progresses.

<sup>61</sup> Responses received to date from consultation events in May 2023 and March 2024.

<sup>62</sup> Local planning authorities identify and designate Local Landscape Areas (LLAs) for areas where scenery is highly valued locally. LLAs are typically included within Local Development Plans (LDPs) which show their locations and associated policy. Angus Council is currently consulting on the designation of a number of LLAs. Aberdeenshire Council includes a series of Special Landscape Areas (SLAs) in the Aberdeenshire LDP (2023). For the purposes of this assessment, the terms LLA and SLA are considered to be representative of the same type of local landscape designation.

## 5.2 Baseline Conditions

### Summary of Baseline

- 5.2.1 The study area crosses through Angus and Aberdeenshire and comprises a largely rural landscape with scattered settlements and existing infrastructure. The southern part of the study area extends from the Sidlaw Hills to the northeast across Strathmore and the Mearns. Strathmore and Mearns is a landscape comprising rolling lowland farmland with large open fields, occasional lines of broadleaved trees, small pockets of broadleaved or mixed woodland, and small blocks of largely commercial forestry. The study area continues northwards through the central and northern parts of Strathmore and the Mearns before crossing the Howe of the Mearns area, which lies approximately between Edzell and Glenbervie. Further north, the study area extends across the eastern edge of the Mounth, an upland landscape formed by the foothills of the Grampian Mountains. The northern extent of the study area crosses the Dee Valley and rolling Aberdeenshire farmland, which is punctuated by pockets of estate woodland and small settlements.
- 5.2.2 Views and visibility across the study area vary due to topographic changes and features which provide screening, or filtering, such as woodland, forestry and buildings. Hills within the study area, such as Balkello Hill in the southern part of the study area (Section A) and Barmekin Hill in the northern part of the study area (Section F), offer open elevated long-distance views across the surrounding landscape. Views from lower lying landscapes within the study area vary, with open long-distance views across agricultural land or along valleys contrasted by contained or foreshortened views, often the result of the way layers of vegetation are seen within the landscape.

## 5.3 Sensitive Receptors

### Landscape Character

- 5.3.1 The study area extends across a number of Landscape Character Types (LCTs), identified as part of *NatureScot's 2019 National Landscape Character Assessment*<sup>63</sup> and shown in **Figure 5.2 (A-F): Landscape Character Types**. The key characteristics of LCTs taken forward for detailed assessment in the LVIA, as described in this National Landscape Character Assessment, have been considered in the assessment of landscape effects.

### Landscape Designations

- 5.3.2 There are no nationally designated landscapes or Wild Land Areas within the study area.
- 5.3.3 The Proposed Development would cross the Dee Valley SLA, a locally designated landscape, at the River Dee within the northern part of the study area. The Braes of the Mearns SLA is also located within the study area, approximately 1 km north of the Proposed Route at its closest point near Laurencekirk. The potential for effects on the special qualities of these SLAs will be assessed in the LVIA due to their proximity to the Proposed Development. The locations of these landscape designations are shown in **Figure 5.3: Designated Landscapes**.
- 5.3.4 At the time of writing, Angus Council had completed public consultations in relation to a number of proposed Local Landscape Areas<sup>64</sup> (LLAs). Three of these proposed LLAs are located or partially located within study area, including the proposed Sidlaw LLA at the southern end of the Proposed Route, the proposed Angus Glens LLA to the northwest of Kirriemuir and Brechin and the proposed River South Esk & Aberlemno LLA to the south of Brechin which is crossed by the Proposed Development. Since these LLAs had yet to be formally adopted at the time of writing, they have not been considered further in the scoping report. The progress of the formal adoption of the proposed LLAs will be monitored throughout the EIA process, and adopted or finalised LLAs will be included in the LVIA as appropriate. The Angus Council LLAs are shown on **Figure 5.3: Designated Landscapes**.

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<sup>63</sup> NatureScot (2019) National Landscape Character Assessment. Available at: <https://www.nature.scot/professional-advice/landscape/landscape-character-assessment/scottish-landscape-character-types-map-and-descriptions>

<sup>64</sup> Local planning authorities identify and designate Local Landscape Areas (LLAs) for areas where scenery is highly valued locally. LLAs are typically included within Local Development Plans (LDPs) which show their locations and associated policy. Angus Council have completed public consultation on the designation of a number of LLAs which, at the time of writing, were yet to be formally adopted. Aberdeenshire Council includes a series of Special Landscape Areas (SLAs) in the Aberdeenshire LDP (2023). For the purposes of this assessment, the terms LLA and SLA are considered to be representative of the same type of local landscape designation.

### Visual Receptors

5.3.5 There are a large number of potentially highly sensitive visual receptors in the study area including those listed below:

- People living in and moving around settlements, including (but not limited to) Forfar, Kirriemuir, Brechin, Edzell, Laurencekirk, Fordoun, Drumoak, Echt, Dunecht and Kintore, as well as a number of other smaller settlements, scattered communities and individual houses within the study area;
- People engaged in outdoor recreation such as those using core paths and National Cycle Network (NCN) routes or those at hill summits and promoted viewpoints, as well as those walking or cycling in rural areas more generally;
- People at promoted tourist destinations and recreation grounds such as Glamis Castle and Drum Castle; and
- People travelling along the road and rail network, including (but not limited to) the A90 and the East Coast Main Line railway, as well as a number of other major and minor roads within the study area.

## 5.4 Potential Effects

5.4.1 The assessment of landscape and visual effects will be based on the project description as outlined in **Chapter 2: Description of the Proposed Development**. Sources of effects during the construction and operation of the Proposed Development include:

- Introduction of construction activity and vehicular/personnel movements along the OHL route and on local roads;
- Construction work associated with track upgrades and construction of temporary and new tracks;
- Construction of site compounds, as well as lighting of these when operational during hours of darkness;
- Construction of tower foundations and towers;
- Conductor stringing operations; and
- The permanent introduction of tall vertical structures (steel lattice towers), connected by conductors.

5.4.2 Potential significant landscape and visual effects likely to arise during the construction and operation of the Proposed Development, and therefore scoped into the LVIA, include:

- Landscape:
  - Effects during construction on the physical elements of the landscape;
  - Effects during construction and operation on landscape character and locally designated landscapes; and
  - Cumulative effects during operation on landscape character and locally designated landscapes with other existing or proposed developments.
- Visual:
  - Effects on the views and visual amenity of people within settlements and communities;
  - Effects on views experienced by walkers and cyclists using core paths, NCN routes, promoted tourist and/or recreational locations or routes, hill summits and promoted viewpoints;
  - Effects on people travelling along the road and rail network;
  - Effects on residential visual amenity as experienced by people at properties which are very close to the OHL; and
  - Cumulative visual effects associated with the Proposed Development when seen in combined, successive or sequential views with other existing or proposed developments.

5.4.3 **Table 5.1: Preliminary LVIA Viewpoints** and **Figure 5.1: LVIA Study Area and Preliminary Viewpoint Locations** set out a preliminary list of proposed representative viewpoints to be assessed in the LVIA. The viewpoint list was issued to NatureScot, Angus Council, Aberdeenshire Council and Aberdeen City Council for comment in April 2024. Responses from the consultees in relation to the viewpoint list below have been received and comments and additional viewpoint requests will be considered further. The final viewpoint list will be agreed with consultees through further consultation.

**Table 5.1: Preliminary LVIA Viewpoints**

VP	Viewpoint Name	Easting	Northing	Reason for Selection
1	Myreton of Claverhouse, southwest of Tealing	339412	736749	Represents views to the north and northwest experienced by recreational receptors and road users around to the southwest of Tealing.
2	Cairns, Balkello Hill	336176	739447	Represents views experienced by recreational receptors at the promoted viewpoint at the summit of Balkello Hill where expansive panoramic views are available.
3	A928 near Lumley Den	339897	741772	Represents views experienced by road users travelling along the A928 where open elevated views across the southern part of Strathmore and the Mearns to the west and northwest are available.
4	A94, near Jericho, east of Glamis	340785	747140	Represents views to the north and south experienced by residential receptors in and around Jericho, Douglstown and Glamis and those travelling along the A94.
5	Core path north of Tannadice	347509	758717	Represents views to the northwest experienced by recreational receptors travelling along the core path north of Tannadice and residential receptors in and around Tannadice.
6	White Caterthun	354787	766038	Represents views to the south-southeast and southwest experienced by recreational receptors at the White Caterthun hill fort.
7	Inveriscandye Road, southeastern edge of Edzell	360474	768509	Represents views to the east, southeast and northeast experienced by residential receptors in and around Edzell.
8	B9120, western edge of Laurencekirk	370767	771463	Represents views to the northwest experienced by residential receptors and road users at the western edge of Laurencekirk.
9	Minor road, northwest of Fordoun	374779	776155	Represents views to the southwest and northwest experienced by residential receptors in and around Fordoun.
10	Glenbervie Road, west of Glenbervie	375281	780187	Represents open elevated views to the north experienced by residential receptors to the west of Glenbervie and those travelling along Glenbervie Road, as well as cumulative effects with existing vertical elements in the landscape.
11	Slug Road (A957), west of Rickarton	381413	788988	Represents views to the south experienced by residential receptors along Slug Road to the northeast of the Proposed Route around near Rickarton, and road users travelling along the Slug Road.
12	NCN Route 195, River Dee, southeast of Drumoak	380275	798846	Represents views to the north and south experienced by residential receptors in and around Drumoak and from those travelling along NCN route 195 within the Dee Valley Special Landscape Area (SLA).
13	Barmekin Hill	372603	807137	Represents open elevated views to the east experienced by recreational receptors at the summit of Barmekin Hill.
14	Hill of Garvock	373878	770626	Represents views to the northwest experienced by visitors to this documented roadside viewpoint and picnic area which offers views across the Howe of the Mearns towards the Mounth and the Highland Boundary Fault.
15	Dunecht near the Primary School	374642	809311	Represents views to the west experienced by residential receptors in Dunecht, and road users travelling along the A944.
16	Footpath north of Echt	373871	805873	Represents views to the east experienced by residential receptors in Echt, and those travelling along the minor footpath to the village (adjacent to the B977).

VP	Viewpoint Name	Easting	Northing	Reason for Selection
17	Meikle Tap	372245	802553	Represents elevated views to the east experienced by recreational receptors at the summit of Meikle Tap.
18	Sunnyside Drive, North Drumoak	379161	799467	Represents views to the north experienced by residential receptors in Drumoak, and road users travelling along Sunnyside Drive.
19	Minor road between Netherley and Borrowfield	383965	793319	Represents views to the west experienced by scattered properties between Netherley and Borrowfield. Also representative of more scattered properties in the wider area north of Hawkhill Wood.
20	Footpath off Hill View Road, Auchenblae	372940	779027	Represents views to the east experienced by residential receptors at the village of Auchenblae, accessed via a footpath off Hill View Road.
21	Minor road, west of Mains of Balnakettle	362171	774301	Represents views to the south experienced by scattered residential properties at a more elevated location, and within the Brae of Mearns SLA.
22	Western edge of Little Brechin	357588	762470	Represents views to the northwest experienced by residential receptors at the village of Little Brechin.
23	B957, near Kirriemuir	339319	754418	Represents views to the southeast experienced by residential receptors at the town of Kirriemuir and road users travelling along the B957.
24	Padanaram	342600	751564	Represents views to the northwest experienced by residential receptors at the village of Padanaram.
25	Nether Wyndings	381601	785337	Represents views to the northwest experienced by residential receptors along the minor road to the south of the Proposed Route around Nether Wyndings, and road users travelling along the minor road.

## 5.5 Mitigation

- 5.5.1 In-line with the hierarchy of mitigation set out in **Section 3.4: Mitigation**, the following section describes the Embedded and Applied Mitigation which is considered relevant to the Proposed Development in the context of this landscape and visual amenity assessment. The mitigation outlined below has been considered and applied when determining the potential for likely significant effects arising from the construction and operation of the Proposed Development as described in **Section 5.4: Potential Effects**.
- 5.5.2 The mitigation of potential landscape and visual effects will continue to be approached through the Embedded Mitigation of alignment and the design of the OHL and ancillary infrastructure. The LVIA will inform modifications and refinements to the detailed design of the Proposed Development, including consideration of individual tower locations during the design and assessment process. The Holford Rules have been, and will continue to be, used to inform the siting and design process to minimise potential landscape and visual effects.
- 5.5.3 In addition to the Embedded Mitigation, inherent in the design of the Proposed Development, the Applicant is committed to implementation of Applied Mitigation which comprises a suite of SSEN Transmission standard management plans and contractor authored documentation, which details general and site-specific measures which will be implemented to avoid or mitigate likely significant effects. See **Section 3.4: Mitigation** and **Appendix B: List of Applied Mitigation Documents**. The Applied Mitigation considered relevant to this technical assessment, draws on but is not limited to GEMP TG-NET-ENV-511 Soil Management GEMP and includes, but is not limited to the following:
- Avoid major earthworks wherever possible to reduce effects on the physical fabric of the landscape;
  - Retain natural features to mitigate effects on landscape character;
  - Avoid loss of mature trees to mitigate the loss of trees and woodland that contribute to landscape character and provide screening;

- Site tracks and micro-site route around groups of trees to leave natural features rather than dissecting groups/copses; and
- When crossing hedges or walls plan to use existing gaps to mitigate damage to such features.

#### Mitigation Summary and Next Steps

- 5.5.4 The Applicant is committed to delivering both Embedded and Applied Mitigation as set out in **Section 3.4: Mitigation** and as described above in relation to this scoping assessment. The mitigation described above has been applied when considering the potential for the Proposed Development to result in likely significant effects.
- 5.5.5 The impact assessment will, therefore, assess the potential for likely significant residual effects to arise and identify any further mitigation (referred to as 'Additional Mitigation'), in addition to the Embedded and Applied Mitigation, necessary to reduce the significance of effects as far as practicable.
- 5.5.6 Embedded, Applied and any Additional Mitigation will be set out in a Schedule of Mitigation as a chapter of the EIAR. It is assumed that implementation will be assured by consent conditions.

## **5.6 Preliminary Assessment of Likely Significant Effects**

- 5.6.1 A preliminary assessment of likely significant effects of the Proposed Development on landscape and visual receptors is set out below.

#### Landscape Character

- 5.6.2 The construction and operation of the Proposed Development has the potential to affect landscape character both physically and perceptually.
- 5.6.3 During construction, effects on landscape character are likely to arise from the introduction of construction activities (including vehicle movement and lighting), presence of construction equipment and the physical loss or fragmentation of distinctive landscape elements. Permanent loss of physical landscape features such as woodland and vegetation to accommodate the construction of the Proposed Development is most likely to result in significant effects, as this will result in permanent physical changes to the landscape. Other construction effects will be temporary and will cease at the end of construction works. Reinstatement of land cover, hedges, etc may take longer but over time would eliminate construction stage effects.
- 5.6.4 During operation, effects would arise from the introduction of above ground infrastructure elements in the landscape such as the steel towers, OHLs, and any permanent access tracks. Long-term effects may also arise from the requirement for permanent tree clearance beneath or alongside the OHL to maintain necessary wayleaves. There is potential for these effects to result in significant adverse effects on landscape character across a number of LCTs within the study area.

#### Landscape Designations

- 5.6.5 The Proposed Development has the potential to both physically and perceptually affect the defining characteristics and 'special qualities' and setting of landscape designations within the study area during both construction and operation.
- 5.6.6 There is potential for significant but temporary adverse effects on the special qualities of designated landscapes located in proximity to the Proposed Route during construction, due to the intrusive nature of the construction works associated with installing the OHL. During operation, significant adverse effects could arise due to longer-term effects on the special qualities of landscape designations from the presence of the permanent OHL infrastructure.
- 5.6.7 At the time of writing, Angus Council had completed public consultations in relation to a number of proposed Local Landscape Areas (LLAs). Since these LLAs have yet to be formally adopted at the time of writing, they have not been considered further in this Scoping Report. The progress of the formal adoption of the proposed LLAs will be monitored throughout the EIA process, and adopted or finalised LLAs will be included in the LVIA as appropriate.

#### Visual Amenity

- 5.6.8 There would be likely significant adverse effects during both construction and operation on views experienced by residents within the ZTV particularly those in closer proximity to the Proposed Route. Significant effects may occur on views from residential communities, settlements and some residential properties located within the Proposed Route, as well as residential

communities and settlements outside of the Proposed Route within the study area. Potential effects will continue to be considered as the design of the Proposed Development evolves through OHL alignment design.

- 5.6.9 There would be likely significant effects on the visual amenity of some people visiting and/or taking part in recreational activities within the ZTV including use of core paths, NCN routes, promoted tourist/recreational routes and people at promoted tourist destinations, hill summits and promoted viewpoints. There is potential for significant adverse effects, during both construction and operation, on views experienced by recreational receptors within the Proposed Route, as well as those outside of the Proposed Route within the study area.
- 5.6.10 There would be likely significant effects on the visual amenity of some people travelling along parts of the road network within the ZTV. Routes where receptor sensitivity may be greater include promoted tourist routes or quiet lanes, and parts of the East Coast Main Line railway. There is potential for significant adverse effects during both construction and operation.
- 5.6.11 The LVIA will set out the nature and extent of the likely significant effects on visual receptors, which will be assessed with reference to a number of representative viewpoints, listed in **Table 5.1: Preliminary LVIA Viewpoints**.
- 5.6.12 Likely significant visual effects of the Proposed Development on residents within their own homes will be reduced through the iterative design process, where practicable. Where there is no alternative to placing permanent elements of the Proposed Development within proximity to residential properties, the potential for effects on residential visual amenity will be considered, in addition to effects on views. The need for residential visual amenity assessment (RVAA) will be considered on a case-by-case basis, but generally will be limited to properties within 170 m of the OHL (approximately 3x the height of the proposed support structures).

Issues Scoped Out

- 5.6.13 Properties located at a distance greater than 170 m from the Proposed Development will not generally be assessed as part of the RVAA.
- 5.6.14 Significant effects on visual amenity at night are not anticipated. The temporary construction compounds are likely to be equipped with lighting installations for use during low light conditions, as well as passive infra-red sensor-controlled security lighting. As such, any visual effects at night would be temporary and are not predicted to be significant. No light sources have been identified during normal operation of the Proposed Development. It is therefore proposed that the assessment of night-time effects in relation to visual amenity will be scoped out of the LVIA, during construction and operation.

**5.7 EIA Assessment Scope and Methodology**

Scope

- 5.7.1 The landscape and visual receptors that are proposed to be scoped into and out of the LVIA are set out in **Table 5.2: Proposed Scope of LVIA**.

**Table 5.2: Proposed Scope of LVIA**

Receptor	Phase	Scoped In/Out	Justification
Landscape Character	Construction and Operation	Scoped In	Physical effects on local LCTs that intersect with/are crossed by the Proposed Development and perceptual effects upon LCTs in the study area from which potential visibility is indicated by ZTV maps.
The Dee Valley SLA	Construction and Operation	Scoped In	Physical effects on the key characteristics and special qualities of this SLA. Theoretical inter-visibility with the Proposed Development would be described in the assessment and used as a means of identifying which special qualities require assessment if significant effects are deemed likely.
The Braes of the Mearns SLA	Construction and Operation	Scoped In	Perceptual effects on the key characteristics and special qualities of this SLA. Theoretical inter-visibility with the Proposed Development would be described in the assessment and used as a means of identifying

Receptor	Phase	Scoped In/Out	Justification
			which special qualities require assessment if significant effects are deemed likely.
Representative viewpoints	Construction and Operation	Scoped In	<p>Effects on visual receptors within the study area, ie people who may be affected by changes in views resulting from the Proposed Development. Visual receptors to be considered would include:</p> <ul style="list-style-type: none"> <li>• People within settlements;</li> <li>• People using walking routes (core paths and promoted tourist and/or recreational routes) and cycle routes, people at hill summits and promoted viewpoints;</li> <li>• People visiting areas of interest such as visitor attractions; and</li> <li>• People travelling on major roads and railways.</li> </ul> <p>A list of indicative preliminary viewpoints can be found in <b>Table 5.1: Preliminary LVIA Viewpoints</b>. Further consultation would be sought to agree viewpoint locations and visualisation types.</p>
Visual receptors at settlements/communities/residential properties	Construction and Operation	Scoped In	ZTV analysis and field work would determine which settlements and residential properties within the study area are to be included in the assessment.
Residents in closest proximity to the OHL	Operation	Scoped In	Properties within approximately 170 m of the OHL will be considered for inclusion within a residential visual amenity assessment (RVAA). ZTV analysis and field work would help to determine which properties need to be examined in the RVAA.
Recreational receptors, including core paths, hill summits and visitor attractions	Construction and Operation	Scoped In	ZTV analysis and field work would determine which recreational routes/locations within the study area are to be included in the assessment.
Receptors travelling on roads and railway	Construction and Operation	Scoped In	Desk top study and ZTV analysis and field work would determine which roads and railways within the study area are to be included in the assessment.
Landscape character, designated landscapes and visual amenity at night	Construction and Operation	Scoped Out	No likely significant effects on landscape character, designated landscapes or views at night.

### Methodology

5.7.2 The LVIA, Cumulative LVIA and presentation of landscape and visual effects will be carried out in line with relevant standards and guidance as follows:

- *Landscape Institute and the Institute of Environmental Assessment (2013) Guidelines for Landscape and Visual Impact Assessment (3<sup>rd</sup> Edition) ('GLVIA3');*
- *Scottish Natural Heritage (2018) A Handbook on Environmental Impact Assessment, Appendix 2: Landscape and Visual Impact Assessment (Version 5);*
- *NatureScot (2021) Assessing the cumulative impact of onshore wind energy developments*<sup>65</sup>;
- *Landscape Institute (2019) Technical Guidance Note 2/19: Residential Visual Amenity Assessment (RVAA);*
- *Landscape Institute (2019) Advice Note 01/11: Photography and photomontage in landscape and visual impact assessment;*

<sup>65</sup> Although the guidance concentrates on the particular issue of assessing the cumulative effects of wind energy development, the methods are also useful when considering the cumulative landscape and visual effect of other forms of development.

- *Landscape Institute (2019) Technical Guidance Note 06/19: Visual Representation of Development Proposals;*
- *Scottish Natural Heritage (2017) Visual Representation of Wind Farms (Version 2.2)*<sup>66</sup>; and
- *The Holford Rules: Guidelines for the Routing of New High Voltage Overhead Transmission Lines (with National Grid Company plc (NGC) 1992 and Scottish Hydro-Electric Transmission plc (SHETL) 2003 Notes).*

5.7.3 The following information and data sources will be used to inform the LVIA:

- OHL design data including design models of towers;
- Ordnance Survey (OS) Maps;
- Aerial photography, Google Earth and Google Maps Street View;
- Scottish Natural Heritage (2012) Landscapes of Scotland – descriptions;
- NatureScot (2019) Scottish Landscape Character Types, Map and Descriptions; and
- Aberdeenshire Council (2017) Aberdeenshire Local Development Plan, Supplementary Guidance, Aberdeenshire SLAs.

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

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

#### Field Surveys

5.7.5 Surveys would be undertaken during summer and winter months to fully understand the maximum level of visibility of the Proposed Development as part of the landscape and visual baseline. Visual site surveys would be undertaken for a selection of agreed representative viewpoints for a variety of receptor types and at a range of distances from the Proposed Development. Surveys would include capturing viewpoint photography to assist in the creation of wireframes and photomontages following relevant guidance (eg *GLVIA3*) (a list of indicative preliminary viewpoints can be found in **Table 5.1: Preliminary LVIA Viewpoints** and set out on **Figure 5.1: LVIA Study Area and Preliminary Viewpoint Locations**).

#### Viewpoints and Visualisations

5.7.6 The identification of visual receptors will be informed by ZTV mapping, which will indicate the areas from which the Proposed Development is theoretically visible. Field work will be undertaken to ground truth the ZTVs. The assessment will not consider effects on visual receptors that are located wholly outside the ZTV, as they will not experience views of the OHL. Effects upon visual receptors would be considered through the use of representative assessment viewpoints. **Table 5.1: Preliminary LVIA Viewpoints** and **Figure 5.1: LVIA Study Area and Preliminary Viewpoint Locations** set out the list of indicative preliminary viewpoints to be used in the LVIA, however additional viewpoints will be required to inform the assessment. Additional viewpoints will be discussed and agreed with the relevant consultation bodies, including NatureScot, Angus Council, Aberdeenshire Council and Aberdeen City Council. The selection of the final viewpoints would be informed by the ZTV analysis, field work, desk-based research on access and recreation, tourism including popular vantage points, and by the distribution of the different groups of visual receptors.

5.7.7 Wireframes and photomontages would be used to consider and illustrate changes to views. Visualisations would be prepared in accordance with the Landscape Institute's TGN 06/19 Visual Representation of Development Proposals. A number of the viewpoint locations would be illustrated with photomontages. Photomontages show more detail than wireframes, including buildings, vegetation, colour, texture and lighting conditions.

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<sup>66</sup> Although the guidance relates to the production of visualisations of wind farm development, elements of the methodology and approach are applicable for other types of development.

### Judging Levels of Effect and Significance

- 5.7.8 Judging the significance of landscape and visual effects requires consideration of the nature of the receptor and the nature of the effect on the receptor. *GLVIA3* states that the nature of receptors, commonly referred to as their sensitivity, should be assessed in terms of the susceptibility of the receptor to the type of change proposed, and the value attached to the receptor. Sensitivity judgements would be recorded as high, medium or low. The nature of the impact on each receptor, referred to as its magnitude, should be assessed in terms of size and scale; geographical extent; duration and reversibility. Magnitude of change would be recorded as high, medium, low or negligible.
- 5.7.9 Judgements of sensitivity and magnitude are then combined to form a judgement regarding the overall significance of effect. Levels of landscape or visual effect would be categorised as major, moderate, minor or negligible/no effect. 'Moderate' and 'major' effects are considered significant in the context of the EIA Regulations. The nature of effects would be described as positive (beneficial), neutral or negative (adverse).
- 5.7.10 This determination requires the application of professional judgement and experience to balance the many different variables which need to be considered, and which are given different weight according to site-specific and location-specific considerations. Judgements of the potential landscape and visual effects which may arise from the Proposed Development, either individually or cumulatively when considered in combination with other existing, consented or proposed developments, are made on a case-by-case basis.

### Residential Visual Amenity

- 5.7.11 A key aim of the ongoing design of the Proposed Development will be to avoid the placement of individual structures in close proximity to dwellings. The alignment design stage for the project seeks to avoid siting infrastructure in a 170 m radius around all residential properties as far as possible and the Applicant endeavours to maintain a minimum distance of 100 m wherever possible. Should the final alignment result in towers located within 170 m of a residential property, such properties may need to be considered within a Residential Visual Amenity Assessment (RVAA) which will be undertaken in accordance with the Landscape Institute's (LI) Technical Guidance Note<sup>67</sup>. The guidance recommends that the study area for RVAA "*should be determined on a case-by-case basis taking both the type and scale of proposed development, as well as the landscape and visual context, into account*". The LI guidance does not offer prescriptive guidance but does note that "*For example, when assessing effects of overhead transmission lines, generally only those properties within 100 – 150 metres of the finalised route are potentially considered for inclusion in a RVAA*". The 170 m distance has been selected based on guidance and represents a distance between 2-4 times the nominal height of the towers. The RVAA will only assess in detail properties within this distance where the effect of the Proposed Development on residential visual amenity is likely to be of "*such nature and / or magnitude that it potentially affects 'living conditions' or Residential Amenity*"<sup>68</sup>. As such, not all properties within 170 m will need to be assessed in detail within the RVAA due to property specific elements or considerations that may reduce the visual impact of the Proposed Development. Properties for inclusion in the RVAA will therefore be considered on a case-by-case basis, with the 170 m offset applied as a guide.
- 5.7.12 For each property or group of properties that require RVAA, the assessment will be informed by ZTVs, aerial photography, wirelines and fieldwork undertaken from publicly accessible locations within the vicinity to determine the scale of visual effects. Aspects such as successive effects and encirclement will be considered.
- 5.7.13 The RVAA will aim to determine whether visual effects on the property are considered to breach the 'residential visual amenity threshold'.
- 5.7.14 The methodology can be summarised as follows:
- Step 1: Identification of properties to be considered (defining the study area and scope).
  - Step 2: Evaluation of baseline visual amenity from each property/property group.
  - Step 3: Assessment of likely change to visual amenity of properties.

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<sup>67</sup> Landscape Institute (2019) Technical Guidance Note 2/19: Residential Visual Amenity Assessment (RVAA). Available at: <https://landscapewpstorage01.blob.core.windows.net/www-landscapeinstitute-org/2019/03/tgn-02-2019-rvaa.pdf>

- Step 4: Formation of the RVAA judgement (the Residential Visual Amenity Threshold), in line with *RVAA Technical Guidance Note 2/19*.

#### Cumulative Assessment

- 5.7.15 There is the potential for cumulative effects to arise throughout the study area from the addition of the OHL components of the Proposed Development alongside other developments which are either operational, under construction, consented or the subject of a valid application for consent (proposed).
- 5.7.16 Operational developments, such as wind farms and other vertical infrastructure (eg OHLs and telecommunications masts), form part of the existing baseline environment. The landscape and visual cumulative effects of the Proposed Development in addition to these existing, operational features will be considered within the LVIA. The main LVIA will consider the relationship of the Proposed Development in relation to existing operational schemes present nearby.
- 5.7.17 A further cumulative assessment will consider the potential for the Proposed Development to have significant landscape and visual effects in relation to other consented and proposed developments that together form a future cumulative scenario. This future scenario may include a range of development types, but the assessment will focus on those which are likely to result in a similar type, scale and extent of landscape and visual effects as the Proposed Development. For example, other electricity infrastructure, wind turbines, or telecommunications masts.
- 5.7.18 A list of consented and proposed developments to be considered in the Cumulative LVIA will be agreed with the ECU. A preliminary list is included below:
- The proposed Hurlie and Emmock substations that will be linked to the Proposed Development but which are subject to separate consent applications for planning permission under *the Town and Country Planning (Scotland) Act 1997* and which together form the Associated SSEN Transmission Developments (see **Section 3.8: Approach to the Assessment of Significant Environmental Effects**);
  - The proposed tie-ins connecting the proposed Hurlie and Emmock substations with existing OHLs;
  - The proposed Tealing Battery Energy Storage System;
  - The proposed Stracathro Battery Energy Storage System; and
  - The consented Craigneil Wind Farm (11 turbines, 135 m tip height).
- 5.7.19 The assessment of these cumulative effects will be based on a two-stage approach as outlined in **Section 3.8: Approach to Assessment of Environmental Effects**. The combined effects on landscape and visual receptors from the Proposed Development will be first assessed in combination with those predicted from the equivalent assessments in the EIARs for the proposed Emmock and Hurlie substations, to provide a cumulative assessment for the Proposed Development and Associated SSEN Transmission Developments. A further assessment of the potential significant cumulative effects of other reasonably foreseeable developments in combination with those of the Proposed Development and Associated SSEN Transmission Developments will be undertaken and reported in the landscape and visual chapter of the EIAR for the Proposed Development.

## 5.8 Summary

- 5.8.1 The LVIA will identify and evaluate the predicted residual effects of the Proposed Development on landscape and visual receptors within 3 km of the Proposed Development. This will be undertaken via desk study and through analysis of information obtained from field surveys.
- 5.8.2 The effects of the Proposed Development on landscape character, landscape designations and on views and visual amenity would be assessed and Embedded Mitigation measures, where appropriate, would be adopted through the siting and design of the OHL to avoid, reduce, or offset any likely significant adverse effects identified wherever possible. Cumulative effects from the Proposed Development in combination with other relevant consented and proposed developments, including the associated proposed Hurlie and Emmock substations, would also be undertaken and reported in the CLVIA section of the LVIA Chapter of the EIAR.

## 6. CULTURAL HERITAGE

### 6.1 Introduction

6.1.1 This chapter of the Scoping Report provides an overview of the cultural heritage baseline relevant to the Proposed Development, describes the potential effects associated with the construction and operation of the Proposed Development, presents a preliminary assessment of effects, and presents the assessment methodology to be used in the Cultural Heritage Impact Assessment.

#### Consultation

- 6.1.2 Consultation to inform the assessment has been undertaken with Historic Environment Scotland (HES), Angus Council, and Aberdeenshire Council from an early stage in the project. Pre-application advice and consultation responses from May 2023 and March 2024 relevant to heritage matters has been provided to date by HES, Aberdeenshire Council, Aberdeenshire Council Archaeology Service (ACAS) and National Trust for Scotland (NTS).
- 6.1.3 HES advised in their pre-application advice on the Route Selection process of 28 July 2023 that detailed assessment of the impacts on the historic environment would be required to gain a clear understanding of the potential level of those impacts. HES recommended that the project should aim to avoid direct impacts on any nationally important historic environment assets and advised that all works associated with the proposals must avoid direct impacts on Scheduled Monuments. HES further advised that potential impacts on historic environment assets should be assessed using the HES 'Managing Change in the Historic Environment: Setting' Guidance and that any adverse impacts should be mitigated in line with the guidance, with mitigation measures, to lessen any adverse impacts explored at an early stage.
- 6.1.4 Aberdeenshire Council in their pre-application advice on the Route Selection process of 17 July 2023 advised that impacts on Listed Buildings, Conservation Areas and Gardens and Designed Landscapes should be considered as part of the route appraisals and EIA, and that it is important to understand and consider all Listed Buildings equally and not just Category A Listed Buildings. Aberdeenshire Council stated that further information would be required to assess fully the impacts on the historic environment and to advise on appropriate mitigation, and the Council requested that public benefits should be considered where any archaeological works are proposed.
- 6.1.5 A further response from Aberdeenshire Council's built heritage and archaeology team on 24 May 2024 as part of their pre-application advice also confirmed that the main factors relevant to built heritage were suitably considered by desk-based assessment and provided a link to HES guidance to be used as part of the assessment<sup>68</sup>. They asked that all historic assets within a 5 km search area of the alignment should be considered and that mitigation should be included where there is a potential impact on setting. With regards to viewpoints, the exact locations of the towers need to be identified to ensure all relevant viewpoints are considered. In relation to this, they asked for viewpoints and photomontages to show the asset within the context of the Proposed Development (not views to and from the asset). They asked for clear methodology and conclusions within the Scoping Report, including rationale for dismissal of certain solutions, for example grounding areas of cabling Garlogie, Kirkton of Fetteresso and Auchenblae were noted as Conservation Areas which may be impacted by the Proposed Development. Similarly, the Garden and Designed Landscapes (GDL) Castle Fraser, Dunecht House, Drum Castle, Park House, Glenbervie House and Fasque House were noted as being in close proximity to the Proposed Route which should be considered in terms of setting impacts, including individual listed buildings within the GDLs.
- 6.1.6 Further consultation meetings with HES have been undertaken, to inform the route selection and alignment selection assessments, to seek their advice on key cultural heritage issues and potential mitigation. Engagement with HES, Angus Council and Aberdeenshire Council, to inform the cultural heritage and archaeology assessment will be maintained as the Proposed Development design progresses.

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<sup>68</sup> Historic Environment Scotland (2016) Managing Change in the Historic Environment Setting. Available at: <https://www.historicenvironment.scot/archives-and-research/publications/publication/?publicationId=80b7c0a0-584b-4625-b1fd-a60b009c2549>

## 6.2 Baseline Conditions

6.2.1 The cultural heritage baseline has been identified through a desk-based study and site visits carried out during the route and alignment selection stages of the project, drawing on data from the Angus, Aberdeenshire and City of Aberdeen Councils' Historic Environment Records (HER), and designation lists held by HES. That data was augmented by targeted site visits directed to identified heritage assets, in respect of which their settings may potentially be affected by the Proposed Development. The purpose of the site visits was to assess the character and sensitivity of the heritage assets.

6.2.2 For the purpose of the Scoping Report, the initial cultural heritage and archaeology study area comprises the Proposed Route and 1 km to either side of the Proposed Route to provide information on the wider archaeological and historic environment context, and to identify designated heritage assets in immediate proximity to the Proposed Route that may have their settings affected by the Proposed Development. Designated heritage assets in the wider landscape were also assessed to identify any beyond the initial 1 km study area that have settings that may be especially sensitive to impacts from the Proposed Development. The study area is presented in **Figure 6.1 (A-F) Cultural Heritage and Archaeology**.

### Summary of Baseline

6.2.3 The historic landscape character of the Proposed Route comprises largely of 18<sup>th</sup> to 19<sup>th</sup> century enclosed improved farmland, with small pockets of rough grazing/moorland and 20<sup>th</sup> century commercial forestry scattered throughout. There are no large urban centres within the Proposed Route and settlement consists mainly of scattered small villages/hamlets and farmsteads.

### Designated Heritage Assets within the Proposed Route

#### *Scheduled Monuments*

6.2.4 The Scheduled Monuments are mainly of prehistoric date and include upstanding remains of prehistoric burial cairns (ie SM 389 and SM 3375), stone circles (ie SM 2868, SM 6074 and SM 12350) and standing stones (ie SM 135). Many of the burial cairns and stone circles stand on hill slopes and/or summits and have extensive views that are important aspects of their settings. Many are also prominent landscape features and landmarks, where views towards them from the wider landscape are also important to appreciation of their cultural significance.

6.2.5 Eight of the Scheduled Monuments (the remains of two Roman Camps (SM 3208 and SM 2829), a prehistoric barrow site (SM 6367), a prehistoric cursus site (SM 6373), two unenclosed settlements (SM 6368 and SM 6423), a ring ditch (SM 6472) and souterrains (SM 6315)) survive as cropmark sites, visible on aerial photographs.

6.2.6 Overall, the Scheduled Monuments within the Proposed Route are (See **Figure 6.1 (A-F) Cultural Heritage and Archaeology**):

- Section A: Balkemback Cottages, Stone Circle (SM 2868), Arniefoul Cairn (SM 389), Nether Arniefoul, Unenclosed Settlement (SM 6423) and Kirkton, Homestead Moat (SM 6070).
- Section B: Battledykes, Roman Camp (SM 2308), Law of Baldoukie, Barrow (SM 6314), Baldoukie, Souterrains (SM 6315), Vayne Castle (SM 4015), Vayne, Standing Stone (SM 135) and Law of Windsor, Cairn (SM 3375).
- Section C: Mill of Balrownie, Ring Ditch (SM 6472), A small group of monuments (cropmark sites) clustered around the West Water at Inchbare (SM 2829, SM 6367, SM 6368 and SM 6373).
- Section D: Droop Hill, Cairns (SM 4778).
- Section F: Tillyorn, moated homestead (SM 12161), New Wester Echt, Stone Circle (SM 6074) and South Leylodge Steading, Stone Circle (SM 12350).

#### *Listed Buildings*

6.2.7 The Listed Buildings are generally scattered throughout the Proposed Route, with a small cluster around Kirkton and Douglastown, in the southern end of the Proposed Route (Section A). Two Category A Listed Buildings are present within the Proposed Route, these are South Balluderon Farm (LB 17458), standing in farmland present at the southern end of the Proposed Route (Section A), and Echt Parish Church (LB 3152), standing within Echt village, towards the northern end of the Proposed Route (Section F). The Category B and Category C Listed buildings largely comprise small residential properties (ie farmhouse/cottages), agricultural buildings (ie stables, dovecots, mills), bridges, or small churches.

*Inventory Gardens and Designed Landscapes*

- 6.2.8 Drum Castle designated landscape (GDL 00141) is located to the north of the settlement of Drumoak and is intersected by the edge of the southern section of the Proposed Route (Section F). This designed landscape forms the setting for the Category A Listed Drum Castle (LB 3113), which is located approximately 470 m to the north of the Proposed Route, includes a number of associated listed buildings and comprises woodland policies.
- 6.2.9 Dunecht House designated landscape (GDL 153) is located just west of the settlement Westhill and is intersected by the edge of the northern section of the Proposed Route (Section F). This 19<sup>th</sup> century designed landscape forms the setting for Category A Listed Dunecht House (LB 3133), which is located approximately 600 m to the east from the Proposed Route and includes a number of other associated listed buildings and structures. It comprises woodland policies, open parkland, formal gardens, and water features.

*Non-designated Heritage Assets within the Proposed Route*

- 6.2.10 The HER includes 17 sites which are located within the Proposed Route that are classified in the HER as being ‘Regionally Significant’ (**Figure 6.1 (A-F) Cultural Heritage and Archaeology**). These mainly comprise prehistoric settlement remains, including ring ditches, enclosures, and pit alignments, that survive as crop mark sites visible on aerial photographs.
- 6.2.11 The HER also contains 547 other entries located in the Proposed Route that are classified as being of ‘Standard Significance’. These entries include records of previously recorded archaeological sites, features and find-spots which range in date from the early prehistoric (Mesolithic) to the post-medieval period and are of heritage value at a local level and of low sensitivity, and which are not significant constraints for the Proposed Development. A large number of these ‘Standard Significance’ HER entries relate to records of archaeological events (desk-based assessments, walk-over surveys, archaeological evaluations and excavations and watching briefs etc) which are not constraints for the Proposed Development. Given the high number of such entries, and the wide range in the type and nature of the entries, all ‘Standard Significance’ entries are excluded at this stage and have been omitted from **Figure 6.1 (A-F) Cultural Heritage and Archaeology**.
- 6.2.12 The ‘Standard Significance’ archaeological and historic environment sites and features include:
- Early prehistoric lithic scatters;
  - Prehistoric funerary remains (burial cairns and barrow sites);
  - Prehistoric stone circles;
  - Prehistoric settlement remains and field systems (field banks, rig and furrow and clearance cairns);
  - Roman temporary camps;
  - Pictish standing stones;
  - Medieval and post-medieval farmsteads and associated agricultural structures; and
  - Medieval castles and moated homesteads.
- 6.2.13 Many of the heritage assets, particularly the prehistoric settlement remains (including ring ditches, unenclosed settlement remains, enclosures, pits and souterrains (an underground prehistoric chamber or passage associated with Iron Age settlement)), survive as cropmark sites visible on aerial photographs with no upstanding remains surviving.
- 6.2.14 The HER sites are largely scattered throughout the Proposed Route, although clusters of sites, particularly cropmark sites, are present within river valleys, including the River Dee, River North Esk, River South Esk and Bervie Water. The recorded remains attest to extensive prehistoric to medieval settlement and activity along the Proposed Route.
- 6.2.15 The HER also records four Non-Inventory Designed Landscapes (NIDLs) (Brighton House, Inshewan House, Auchenreoch House, and Durriss House) within the Proposed Route. These comprise the fragmentary remains of 17<sup>th</sup> to 19<sup>th</sup> century designed landscapes (woodland policies and parkland) associated with country houses and have some residual heritage value as the settings for Listed Buildings and their contribution to the character of the historic landscape. The NIDLs are thinly scattered throughout the Proposed Route and have heritage value at a regional level and are of medium sensitivity.
- 6.2.16 Taking into account the historic landscape character and the abundant evidence for occupation and activity, from the early prehistoric period to the post-medieval period, particularly noting the number of recorded cropmark sites of prehistoric date, it

is considered that there is a high likelihood for hitherto undiscovered archaeological remains to be present within certain areas of the Proposed Route (See **Section 6.7: EIA Assessment Scope and Methodology, paragraphs 6.7.6 to 6.7.8**).

Designated Heritage Assets in the Wider Landscape

- 6.2.17 In relation to the wider landscape (please refer to **Figure 6.1 (A-F) Cultural Heritage and Archaeology**), inside a 1 km buffer from the outer edge of the Proposed Route, and Routes E4 and F3, there are:
- 33 Scheduled Monuments of heritage value at the national level and of high sensitivity;
  - 132 Listed Buildings (seven Category A Listed, of heritage value at the national level and of high sensitivity, 64 Category B Listed, of heritage value at the regional level and of medium sensitivity and 61 Category C Listed, of heritage value at the local level and of low sensitivity);
  - Three GDLs (Glamis Castle (GDL 189), Glenbervie House (GDL 194), and Park House (GDL 309)), of heritage value at the national level and of high sensitivity; and
  - One Conservation Area (Tannadice (CA 539)) of heritage value at the regional level and of medium sensitivity.
- 6.2.18 The majority of the Scheduled Monuments are remains of prehistoric funerary, ritual and settlement sites, including burial cairns and barrows, stone circles, standing stones, hillforts, unenclosed settlements and souterrains. Other sites associated with later settlement and activity are also represented, including the remains of Roman temporary camps, medieval homestead moats and castles (tower houses) and World War II Anti-tank defences. The Scheduled Monuments are generally well scattered throughout the wider landscape, with no specific clusters present. Many of the prehistoric hillforts and stone circles stand high on hill slopes or on hill summits and have extensive views out to the surrounding landscape that are an important aspect of their settings. Intervisibility between these monuments and views towards them from the surrounding landscape may also be important aspects of their settings.
- 6.2.19 The majority of the Listed Buildings within the wider landscape are either small residential properties, such as cottages, farmsteads, or buildings that stand in urban centres including Echt, Tannadice, Douglastown and Kirkton. These have mainly localised settings, and it is their relationship with the surrounding farmland or other surrounding historic buildings that are important aspects of their settings.
- 6.2.20 A number of the Listed Buildings are either individual country houses (such as Category A Stracathro House (LB 17804) and Category B Listed Ballindarg House (LB 11689), Auchenreoch House (LB 17798) and House or Redhall (LB 9652)) or are grouped together within designed landscapes (GDLs and NIDLs), such as Glamis Castle (GDL 189), Stracathro House NIDL (NO66NW0187), Glenbervie House (GDL 194), and Arbuthnott House (GDL 153).
- 6.2.21 The closest GDL to the Proposed Route is Park House (GDL 309), which lies approximately 60 m from the eastern boundary of Route F3 to the south of the A93. The designated landscapes contribute to the scenic value of the surrounding area and form the settings for the various listed and unlisted buildings and other structures within them and which contribute to their cultural significance. Views from these designed landscapes (designed vistas for example), and views looking towards or over the designed landscapes from the surrounding landscape, are important to understanding and appreciation of their cultural significance and their settings.
- 6.2.22 The closest Conservation Area to the Proposed Route, is Tannadice Village (CA 539), which is located 150 m from the southern boundary of the Proposed Route in Section B. The Conservation Area is set down within the River South Esk valley, immediately north of the river surrounded by undulating landscape.
- 6.2.23 There are no World Heritage Sites or Inventory Historic Battlefields within 1 km of the Proposed Route, or in the wider landscape along the Proposed Route and these designations will therefore form no part of the assessment.
- 6.2.24 To the west of the Proposed Route and beyond the 1 km study area are the Brown and White Caterthun Hillforts (SM 90096). These two substantial Iron Age hillforts, that occupy the summits of two adjacent hills, command extensive views across the low-lying coastal plain of Strathmore and are notable features of the landscape when seen from the low-lying plain to their east. The hillforts are also a Property in Care of the Scottish Ministers and attract many visitors. The extensive views afforded from the hillforts across Strathmore, forms an important aspect of their setting and the hillforts have been identified as having settings particularly sensitive to change.

### 6.3 Sensitive Receptors

6.3.1 An initial review of the cultural heritage and archaeology within the Proposed Route suggests that those sites most sensitive to physical (direct) impacts from the Proposed Development are:

- Buried archaeological remains, principally prehistoric settlement remains, represented by cropmark sites that are crossed by the route of the Proposed Development and where construction works (groundbreaking works) could affect surviving buried remains; and
- Non-Inventory Designed Landscapes, assessed as being of regional significance, crossed by the route of the Proposed Development and where construction works (particularly tree felling works) could affect areas of managed woodland associated with the former designed landscapes.

6.3.2 In the wider landscape those designated heritage assets that are likely to be most sensitive to change (effect on their setting) resulting from the introduction of the Proposed Development are:

- Scheduled Monuments: Particularly those which are prominent visual components of the landscape or local landmarks, and where views across the surrounding landscape and visibility within the landscape are important aspects of their settings, for example stone circles, standing stones, burial cairns and castles. Intervisibility between these monuments may also be important aspects of their settings.
- Inventory Gardens and Designed Landscapes: That have long distant views and vistas that contribute to their cultural significance.
- Listed Buildings: That stand in rural, unenclosed, settings, and which have key views or designed vistas (to and from their locations) across the landscape and which the Proposed Development would cross.

6.3.3 These heritage assets will be carefully considered during the EIA design and mitigation process, to ensure that the potential effects are avoided or reduced to as low a level as possible.

### 6.4 Potential Effects

6.4.1 With consideration of the development description in **Chapter 3: EIA Approach and Methodology**, the construction and operation of Proposed Development have the potential for a range of potentially significant effects which are briefly presented in this section.

#### Construction

##### *Direct (Physical) Effect*

6.4.2 Construction of the Proposed Development could potentially directly (physically) affect designated or non-designated heritage assets within the Proposed Route. Direct impacts are likely to occur where the physical fabric of the asset is damaged or removed. It is also possible that there could be other, as yet unrecorded or unknown and buried remains of archaeological interest within the LOD that could be directly affected by construction of the Proposed Development.

6.4.3 It should be possible to mitigate any potential direct impacts through Embedded Mitigation to avoid structural remains of former buildings and other standing structures. As the project progresses through to the alignment stage, direct impacts on all Scheduled Monuments and Listed Buildings would be avoided.

6.4.4 Where it is not possible to avoid direct impacts upon (non-designated) heritage assets through avoidance in design (for example extensive cropmark sites or large areas of cultivation remains), impacts can be reduced through adoption of Applied Mitigation measures for sensitive construction techniques, such as the use of low ground pressure vehicles and the sensitive routing of temporary access tracks. A focussed programme of supporting archaeological work, such as topographic survey and recording, would help to further mitigate any potential impacts.

##### *Indirect Effects*

6.4.5 Construction of the Proposed Development could potentially indirectly affect designated and non-designated heritage assets within the Proposed Route. Indirect impacts can occur where the fabric of an asset, or buried archaeological remains, is removed or damaged as an indirect result of the Proposed Development even though the asset may lie some distance from the

Proposed Development, for instance through hydrological changes, or from vibration and seismic events (eg blasting for borrow pits).

- 6.4.6 Given the nature of the Proposed Development it is unlikely that significant indirect effects on standing archaeological remains or structures and buried archaeological remains or deposits would arise from the construction of the Proposed Development. It is unlikely that blasting would be required for borrow pits for the Proposed Development and if required any borrow pits would be sited away from heritage assets wherever possible.

#### Operation

##### *Setting Effects*

- 6.4.7 The Proposed Development could give rise to potentially adverse impacts on the settings of designated heritage assets within the wider landscape surrounding the Proposed Development. The effects on the setting of cultural heritage assets result from the Proposed Development causing change within the setting of a heritage asset that affects its cultural significance or the way in which it is understood, appreciated, and experienced, principally resulting from intervisibility between the asset and the Proposed Development.
- 6.4.8 The built elements (particularly steel lattice towers) of the Proposed Development are likely to be visible from many of the designated heritage assets (ie Scheduled Monuments, Listed Buildings and Inventory Gardens and Designed Landscapes). The built environment would afford long-term screening particularly for those Listed Buildings that are located within urban townscapes. Woodland would also afford some long-term screening and commercial forestry may afford short/medium-term screening, at certain times during the cyclical felling and replanting regime. The natural topography of the landscape would afford screening in some cases.
- 6.4.9 Based on the current understanding of the Proposed Development, the designated heritage assets that are most likely to receive a significant adverse impact on their settings are Scheduled Monuments, particularly those that are prominent landmarks and/or have long views across the landscape as important aspects of their settings. Such sites include hillforts, burial cairns and stone circles.
- 6.4.10 Key assets identified to date include Balkemback Cottages Stone Circle (SM 2868) (Section A), Arniefoul Burial Cairn (SM 389) (Section A), Glamis Castle GDL (GDL 189) (Section A), The Caterthuns Hillforts (SM 90069) (Sections B and C), Barmekin Hillfort (SM 57) (Section F), Drum Castle (GDL 141) (Section F) and New Wester Echt Stone Circle (SM 6074) (Section F). Others may be identified during the alignment stage and through consultation that will need to be considered. Engagement will be maintained with HES and Aberdeenshire Council Archaeology Service (ACAS), cultural heritage advisors to Angus Council and Aberdeenshire Council, throughout the design stage and addressed in the EIA.

## **6.5 Mitigation**

- 6.5.1 In-line with the hierarchy of mitigation set out in **Section 3.4: Mitigation**, the following section describes the Embedded and Applied Mitigation which is considered relevant to the Proposed Development in the context of this cultural heritage scoping assessment. The mitigation outlined below has been considered and applied when determining the potential for likely significant effects arising from the construction and operation of the Proposed Development as described in **Section 6.4: Potential Effects**.

#### Embedded Mitigation

- 6.5.2 Embedded Mitigation through the routeing and alignment stages has sought to and continues to seek to minimise the potential for adverse direct and indirect impacts on cultural heritage assets through avoidance which is embedded in the OHL design.
- 6.5.3 Further mitigation measures to minimise or offset adverse effects on cultural heritage will be developed through the EIA stage, such as those measures outlined below.

#### Pre-construction Phase Applied Mitigation

- 6.5.4 A Written Scheme of Investigation (WSI) would be included in the CEMP laying out the scope of archaeological works, the content of which will be prepared in consultation with ACAS.
- 6.5.5 Measures which may be adopted as pre-construction mitigation include:

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- Archaeological investigation through trial trench evaluation in sensitive areas within the Proposed Development LOD to a scope of work and strategy to be agreed with ACAS;
- Archaeological evaluations or set piece excavations of specific heritage assets where these cannot be avoided through design or micrositing; and
- Archaeological recording in advance of construction activities where avoidance of sites or features is not feasible.

Construction Phase Applied Mitigation

- 6.5.6 A professionally qualified Archaeological Contractor would be appointed to act as an Archaeological Clerk of Works (ACoW) for the duration of the construction phase. The ACoW would advise on site-based implementation all archaeological mitigation measures and ensure compliance with any relevant conditions of consent. The activities of the ACoW would be carried out according to the scope of work and terms specified under the WSI approved by ACAS.
- 6.5.7 Construction phase archaeological guidelines will be provided to the Principal Contractor for dissemination to all construction contractors, outlining the need to avoid causing unnecessary damage to known heritage assets, advising on the need to avoid adverse effects on buried archaeological remains and to inform the ACoW if any suspected archaeological remains are uncovered. This will reduce the potential for accidental impacts from uninformed contractors. The guidelines will make clear the legal responsibilities placed upon those who disturb artefacts or human remains.
- 6.5.8 The details and scope of any further, construction phase, mitigation that may be warranted to offset any identified adverse effects arising from the Proposed Development would be agreed through consultation with ACAS. Measures which may be adopted include:
- Fencing off/marketing out areas of constraint within the Proposed Development for avoidance during the construction phase;
  - Watching briefs/archaeological monitoring in archaeologically sensitive areas; and
  - Implementation of a working protocol should unrecorded archaeological features be discovered.

Post-excavation Assessment and Reporting

- 6.5.9 If new, archaeologically significant discoveries are made during archaeological monitoring of construction works, and it is not possible to preserve the discovered remains in situ, provision will be made for the excavation where necessary, of any archaeological deposits encountered. The provision will include the consequent production of written reports on the findings, with post-excavation analysis and publication of the results of the works, where appropriate.

Mitigation Summary and Next Steps

- 6.5.10 The Applicant is committed to delivering both Embedded and Applied Mitigation as set out in Section **3.4: Mitigation** and as described above in relation to this scoping assessment. The mitigation described above has been applied when considering the potential for the Proposed Development to result in likely significant effects.
- 6.5.11 The impact assessment will, therefore, assess the potential for likely significant residual effects to arise and identify any further mitigation (referred to as 'Additional Mitigation'), in addition to the Embedded and Applied Mitigation, necessary to reduce the significance of effects as far as practicable.
- 6.5.12 Embedded, Applied and any Additional Mitigation will be set out in a Schedule of Mitigation as a chapter of the EIAR. It is assumed that implementation will be assured by consent conditions.

## 6.6 Preliminary Assessment of Likely Significant Effects

Construction

- 6.6.1 Following the adoption of proposed mitigation (see **Section 6.5: Mitigation**) to avoid, reduce and offset potential direct impacts, it is likely that any significant effects predicted to arise from construction activities within the inner study areas (See **paragraph 6.7.2**) would be reduced to a level that is not significant in EIA terms. Archaeological investigation and recording of upstanding remains and buried features, to a level acceptable to the relevant council, would result in the acquisition of archaeological knowledge and result in preservation by record, thereby offsetting the predicted effects and reducing the significance of the predicted adverse impacts. That being the case, no significant residual adverse effects are predicted.

Operation

6.6.2 Given the nature and length of the Proposed Development it is likely that there would be some significant effects on the setting of designated heritage assets from introduction of the Proposed Development into the wider landscape, particularly from the OHL towers. Whilst Embedded Mitigation will act to reduce these effects as far as practically possible (for example through avoidance of effects on setting through design where possible), it is predicted that there would be some residual significant effects on some designated heritage assets which cannot be further offset by any mitigation. Due to the nature of the Proposed Development, unavoidable examples might include where the OHL passes through key views from Scheduled Monuments, Listed Buildings or Inventory Gardens and Designed Landscapes, or, where the OHL crosses intervisibility between associated Scheduled Monuments and affects the important relationships between these monuments.

Issues Scoped Out

6.6.3 Based on the work undertaken to date, the professional judgement of the cultural heritage team, and experience from other similar projects, the following effects are proposed to be scoped out:

- Direct effects on heritage assets beyond the inner study areas (see **paragraph 6.7.2**). There will be no construction works beyond the inner study areas.
- Indirect effects on standing archaeological remains or structures and buried archaeological remains or deposits. The Proposed Development is unlikely to give rise to significant adverse effects through hydrological changes or from vibration and seismic events (eg quarry blasting).
- Temporary setting effects on cultural heritage assets resulting from construction activities such as the presence of pull-through/machine positions, erection of scaffolding and creation of temporary access tracks and working areas. These construction activities would be temporary, resulting in short-term/minor effects on heritage assets in close proximity to the Proposed Development and would have no permanent effects.
- Assessment of the effect of the Proposed Development on the settings of Listed Buildings in urban settings would be scoped out of the assessment. These all have localised townscape settings and relationship with other historic buildings around them and there are no sections of the Proposed Route where it is predicted there would be significant effects on the settings of such designations.
- Assessment of direct operational effects from OHL maintenance or replacement works would be scoped out. As a consequence of design and pre-construction mitigation there are no heritage assets likely to receive a direct effect during operation of the Proposed Development and any required maintenance or replacement works would use the as-built tracks and infrastructure to facilitate such works.

## 6.7 EIA Assessment Scope and Methodology

Proposed Scope of Assessment

6.7.1 The assessment will cover impacts predicted to occur during the construction phase (direct effects) and those remaining through the operation phase (setting effects).

Assessment MethodologyStudy Areas

6.7.2 The following study areas will be adopted for the cultural heritage assessment:

- Inner study areas:
  - The Proposed Alignment horizontal LOD working corridor: A horizontal corridor nominally 200 m wide centred on the Proposed Alignment will form the study area for the identification of cultural heritage assets that could be directly affected by construction of the Proposed Development, including on-line construction access between tower positions.
  - Off-line construction access routes: A horizontal LOD corridor approximately 50 m wide (to allow for potential micrositing) centred on the routes of proposed new access tracks (temporary and permanent) or existing tracks or paths that would be upgraded to facilitate access to the Proposed Development will form the study area for the identification of cultural heritage assets that could be directly affected by access requirements.

- Proposed associated infrastructure (including compounds areas, laydown areas, and any proposed borrow pit areas): The proposed associated infrastructure area plus an approximate 100 m horizontal buffer around the infrastructure area will form the study area for identification of cultural heritage assets that could be directly affected by infrastructure associated with construction of the Proposed Development.
- Public road and access track junction widening: an approximately 50 m horizontal radius around public road junctions proposed for widening (to allow for potential micrositing) will form the study area for the identification of cultural heritage assets that could be directly affected by public road widening requirements.

6.7.3 The extent of the LOD will be confirmed as part of the EIA Process (see Section 2.4).

- Outer study area:
  - A wider study area: Extending up to 3 km either side of the Proposed Alignment which is consistent with what is proposed for the LVIA study area (See Chapter 5: Landscape and Visual Amenity), will be used, in combination with the Proposed Development Zone of Theoretical Visibility (ZTV) model, to identify those heritage assets with statutory or non-statutory designations (Scheduled Monuments, Listed Buildings, Conservation Areas, Garden and Designed Landscapes, etc) that could have their settings adversely affected by the Proposed Development.

#### *Desk-based Assessment*

6.7.4 Detailed desk-based assessment will be carried out covering the Proposed Alignment LOD working corridor (including the on-line access routes) and the Proposed Development off-line construction access routes and proposed associated infrastructure. The purpose will be to identify all known heritage assets, designated or otherwise, that could be directly affected by the Proposed Development, and to inform an assessment of the archaeological potential (ie the potential for previously unrecorded archaeological remains to survive subsurface) of the Proposed Development.

6.7.5 Sources to be consulted for the collation of data will include:

- Angus, Aberdeenshire, and Aberdeen City Councils' Historic Environment Record (HER), to provide up to date information on the locations and extents of designated and non-designated heritage assets previously recorded within the study areas;
- HES on-line GIS Spatial Data Warehouse, to provide up-to-date data on the locations and extents of Scheduled Monuments, Listed Buildings, Conservation Areas, Inventory Gardens and Designed Landscapes, and Inventory Historic Battlefields;
- The National Record of Historic Environment (NHRE) database (Canmore), for any information additional to that contained by the HER;
- Historic maps held by National Library of Scotland, for Ordnance Survey maps and other historic map resources;
- Historic aerial photographic imagery (vertical and oblique) available through the National Collection of Aerial Photography (NCAP), to identify and record the locations of sites and features of archaeological and historic environment interest;
- Modern aerial photographic imagery available online through Google Earth and Bing Maps in order to provide current land-use of the inner study areas;
- Historic Land-Use Assessment Data for Scotland (HLAmap), for information on the historic land-use character of the inner study areas and the surrounding area;
- Scottish Remote Sensing Portal, for LIDAR Digital Terrain Model (DTM) data coverage for the inner Study Areas (where available); and
- Other readily accessible published sources, including any reports reference in HER/NHRE records, to provide background and historic information.

6.7.6 Data will be gathered for the Outer Study Area to identify designated heritage assets that may be subject to effects on their settings and to provide baseline information for the assessment of setting effects.

#### *Field Survey*

6.7.7 The Proposed Route mostly crosses areas of pasture or arable fields, where there is little or no potential for upstanding remains to be present. It is proposed that such areas will not be subject to detailed field survey.

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- 6.7.8 Targeted site visits will be undertaken in specific areas focused on unmanaged grassland and heathland where the desk-based assessment indicates that there is more potential for previously unrecorded remains to survive as upstanding earthworks. The site visits will cover the area of the LOD between and around the proposed OHL towers and associated infrastructure to allow for identification of heritage assets that might be impacted by micro-siting.
- 6.7.9 Field survey will not be carried out through areas of commercial forestry unless sites of interest are identified through the desk-based assessment. In such instances, efforts will be made to access those sites, where practicable, in order to assess their baseline condition. Where access is not possible, this will be recorded in the gazetteer of sites and reported in the EIAR chapter.
- 6.7.10 The walkover surveys will have the following aims:
- Assess the baseline character and condition of the heritage assets identified through the desk-based assessment, and to accurately record their locations.
  - Identify any further features of cultural heritage interest in areas of higher archaeological potential not detected from the desk-based assessment that could be directly or indirectly affected by construction of the Proposed Development.
  - Assess the inner study area for its potential to contain current unrecorded, buried archaeological remains that could be directly affected by the construction of the Proposed Development.
- 6.7.11 No geophysical surveys or archaeological trial trench investigations are proposed as part of the survey work to inform the EIA.
- 6.7.12 Identified sites will be recorded on pro-forma monument recording forms and by digital photography, and their positions (and where appropriate their extents) logged using a Global Positioning System (GPS). The survey data will be compiled in a GIS and used during the design phase. The results of the survey work will be provided to ACAS, for inclusion in the HERs following completion of the project.
- 6.7.13 Site visits to key heritage assets in the outer study area will be carried out, where necessary and in as far as access is possible, to assess the predicted effects of the Proposed Development on their settings. Site visits will include any assets specifically identified by consultees as requiring assessment and those identified through analysis of the Proposed Development's Zone of Theoretical Visibility (ZTV), where it is considered, on the basis of professional judgement, that the effect on their settings could be significant.

*Consultation*

- 6.7.14 Consultation will be carried out with HES and with ACAS to confirm the assessment methodology and scope of the cultural heritage assessment, to identify and address cultural heritage issues as they arise, and to confirm approaches to mitigation. This will build on consultation held to date through the early stages of the project and on feedback provided as part of the Scoping Opinion.

*Guidance*

- 6.7.15 The cultural heritage and archaeological assessment will be carried out with reference to the following guidance documents:
- *Scottish Natural Heritage and Historic Environment Scotland (2018) Environmental Impact Assessment Handbook;*
  - *Chartered Institute for Archaeologists (2019) Standard and Guidance for Historic Environment Desk-Based Assessment;*
  - *Institute of Environmental Management and Assessment, Institute of Historic Building Conservation and Chartered Institute for Archaeologists (2021) Principles of Cultural Heritage Impact Assessment;*
  - *Historic Environment Scotland (2019) Designation Policy and Selection Guidance;*
  - *Historic Environment Scotland (2016, updated 2020) Managing Change in the Historic Environment: Setting;*
  - *Planning Advice Note 1/2013: Environmental Impact Assessment (PAN 1/2013); and*
  - *Planning Advice Note 2/2011: Planning and Archaeology (PAN 2/2011).*

*Assessment Criteria*

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

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

#### *Assessment of Effects of Setting*

- 6.7.17 The *SNH/HES EIA Handbook (2018)* Appendix 1, paragraph 42 advises that *"In the context of cultural heritage impact assessment, the receptors are the heritage assets and impacts will be considered in terms of the change in their cultural significance"*.
- 6.7.18 HES's guidance document, *'Managing Change in the Historic Environment: Setting' (HES, 2016)*, notes that *"Setting can be important to the way in which historic structures or places are understood, appreciated and experienced. It can often be integral to a historic asset's cultural significance"* and *"Setting often extends beyond the property boundary or 'curtilage' of an individual historic asset into a broader landscape context"*.
- 6.7.19 The guidance recommends that there are three stages in assessing the impact of a development on the setting of a historic asset or place:
- Stage 1: Identify the historic assets that might be affected by the Proposed Development.
  - Stage 2: Define and analyse the setting by establishing how the surroundings contribute to the ways in which the historic asset or place is understood, appreciated, and experienced.
  - Stage 3: Evaluate the potential impact of the proposed changes on the setting, and the extent to which any negative impacts can be mitigated.
- 6.7.20 The *SNH/HES EIA Handbook (2018)* Appendix 1, paragraph 43 advises that *"When considering setting impacts, visual change should not be equated directly with adverse impact. Rather the impact should be assessed with reference to the degree that the proposal affects those aspects of setting that contribute to the asset's cultural significance"*.
- 6.7.21 Following these recommendations, the ZTV for the Proposed Development will be used to identify those heritage assets from which there could be theoretical visibility of the Proposed Development.
- 6.7.22 Scheduled Monuments, where long-distance views and intervisibility are an important aspect of their settings, Listed Buildings, Inventory Gardens and Designed Landscapes and Conservation Areas within the outer study area will be included in the assessment. There are no World Heritage Sites or Inventory Historic Battlefield Sites within the outer study area.
- 6.7.23 Consideration will also be given to designated heritage assets beyond 3 km where long-distance views and intervisibility are considered to be an important aspect of their settings.
- 6.7.24 Consideration will be given to designated heritage assets where there is no predicted visibility from the asset but where views of or across the asset are important factors contributing to its cultural significance. In such cases, consideration will be given to whether the Proposed Development could appear in the background to those views.

### Assigning Sensitivity to Heritage Assets

- 6.7.25 Cultural heritage assets are assigned value/importance through the designation process. Designation ensures that sites and places are recognised by law through the planning system and other regulatory processes. The level of protection and how a site or place is managed varies depending on the type of designation and the laws and policies that apply to it (HES, 2019<sup>69</sup>).
- 6.7.26 **Table 6.1: Sensitivity of Heritage Assets** summarises the relative sensitivity of heritage assets (including their settings) relevant to the Proposed Development, based on the guidance set out in the *SNH/HES EIA Handbook*<sup>70</sup>.

**Table 6.1: Sensitivity of Heritage Assets**

Sensitivity of Asset	Definition/Criteria
High	Assets valued at an international or national level, including: <ul style="list-style-type: none"> <li>Scheduled Monuments;</li> <li>Category A Listed Buildings;</li> <li>Inventory Garden and Designed Landscapes;</li> <li>Inventory Historic Battlefields; and</li> <li>Non-designated assets that meet the relevant criteria for designations.</li> </ul>
Medium	Assets valued at a regional level, including: <ul style="list-style-type: none"> <li>Archaeological sites and areas that have regional value (contributing to the aims of regional research frameworks);</li> <li>Category B Listed Buildings; and</li> <li>Conservation Areas.</li> </ul>
Low	Assets valued at a local level, including: <ul style="list-style-type: none"> <li>Archaeological sites that have local heritage value;</li> <li>Category C Listed Buildings; and</li> <li>Unlisted historic buildings and townscapes with local (vernacular) characteristics.</li> </ul>
Negligible	Assets of little or no intrinsic heritage value, including: <ul style="list-style-type: none"> <li>Artefact find-spots (where the artefacts are no longer in situ and where their provenance is uncertain); and</li> <li>Poorly preserved examples of particular types of features (eg quarried and gravel pits, dilapidated sheepfolds, etc).</li> </ul>

### Criteria for Assessing the Magnitude of Impact

- 6.7.27 The magnitude of impact (adverse or beneficial) will be assessed in the categories, high, medium, low, and negligible and with reference to the criteria described in **Table 6.2: Magnitude of Impact**.

**Table 6.2: Magnitude of Impact**

Magnitude of Impact	Definition/Criteria	
	Adverse	Beneficial
High	Changes to the fabric or setting of a heritage asset resulting in the complete or near complete loss of the asset's cultural significance. Changes that substantially detract from how a heritage asset is understood, appreciated, and experienced.	Preservation of a heritage asset in situ where it would otherwise be completely or almost completely lost. Changes that appreciably enhance the cultural significance of a heritage asset and how it is understood, appreciated, and experienced.
Medium	Changes to those elements of the fabric or setting of a heritage asset that contribute to	Changes to important elements of a heritage asset's fabric or setting, resulting in its

69 Historic Environment Scotland (2019) Designation Policy and Selection Guidance.

70 Scottish Natural Heritage and Historic Environment Scotland (2018) Environmental Impact Assessment Handbook (version 5).

Magnitude of Impact	Definition/Criteria	
	Adverse	Beneficial
	its cultural significance such that this quality is appreciably altered. Changes that appreciably detract from how a heritage asset is understood, appreciated, and experienced.	cultural significance being preserved (where this would otherwise be lost) or restored. Changes that improve the way in which the heritage asset is understood, appreciated, and experienced.
Low	Changes to those elements of the fabric or setting of a heritage asset that contribute to its cultural significance such that this quality is slightly altered. Changes that slightly detract from how a heritage asset is understood, appreciated, and experienced.	Changes that result in elements of a heritage asset's fabric or setting detracting from its cultural significance being removed. Changes that result in a slight improvement in the way a heritage asset is understood, appreciated, and experienced.
Negligible	Changes to fabric or setting of a heritage asset that leave its cultural significance unchanged and do not affect how it is understood, appreciated, and experienced.	

#### Significance of Effect

6.7.28 The sensitivity of the asset (**Table 6.1: Sensitivity of Heritage Assets**) and the magnitude of the predicted impact (**Table 6.2: Magnitude of Impact**) will be used to inform an assessment of the significance of the effect (direct effect, or effects on setting), summarised using the formula set out in the matrix in **Table 6.3: Significance of Effect**. The matrix employs a graduated scale of significance (from negligible to major effects) and where two outcomes are possible through application of the matrix, professional judgment supported by reasoned justification, will be used to determine the level of significance.

**Table 6.3: Significance of Effect**

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

6.7.29 Major and moderate effects are considered to be 'significant' in the context of the EIA Regulations: minor and negligible effects are considered to be 'not significant'.

6.7.30 Where a significant effect on the setting of an asset is predicted as a result of change within its surroundings, using the approach outlined above, an assessment will be made as to whether that effect would result in a significant adverse effect on the integrity of its setting (*NPF4 Policy 7(h)ii<sup>60</sup>*). For the purposes of the assessment, the integrity of the setting will be considered to be maintained if the setting's contribution to the cultural significance of the monument, and its capacity to convey that significance to visitors, would not be compromised by the Proposed Development either alone or cumulatively.

#### Cultural Heritage Viewpoints

6.7.31 A preliminary list of viewpoints (**Table 6.4: Preliminary Cultural Heritage Viewpoint List**) for the cultural heritage assessment is provided below and also shown on **Figure 6.1: (A-F) Cultural Heritage and Archaeology**. The viewpoint list was issued to Historic Environment Scotland (HES) and ACAS for comment in April 2024 and to Aberdeenshire Council Built Heritage Officers in May 2024. Responses from HES and ACAS in relation to the viewpoint list below have been received and comments and additional viewpoint requests will be considered further. The viewpoint list will be built upon following production of an updated ZTV for the Proposed Development and through further engagement with consultees. The types of visualisations (ie photomontage, wireline) will be agreed through consultation with consultees. Cross reference will also be made throughout the EIAR to Landscape and Visual Assessment (LVIA) viewpoints where these will aid the assessment.

**Table 6.4: Preliminary Cultural Heritage Viewpoint List**

CH VP Ref.	Asset Name/Asset No.	Asset Status	Easting	Northing	VP Location to be Agreed with Consultees	Proposed Visualisation Type
CH1	Craig Hill, Fort and Broch (SM 3038)	Scheduled Monument	343192	735847	From centre of the broch which occupies the west and highest point of the scheduled area.	Photomontage
CH2	Balkemback Cottages, Stone Circle (SM 2868)	Scheduled Monument	338181	738444	From centre of stone circle.	Photomontage
CH3	Carlunie Hill Cairn (SM 6449)	Scheduled Monument	336578	743161	From centre of burial cairn looking towards Arniefoul Cairn (SM 389).	Wireline
CH4	Arniefoul Cairn (SM 389)	Scheduled Monument	340765	744911	From centre of burial cairn looking towards Carlunie Hill Cairn (SM 6449).	Photomontage
CH5	Glamis Castle (GDL 189)	GDL	338764	748117	Looking along the northeast avenue, at entrance to Italina Garden.	Photomontage
CH6	Ballinshoe Castle (SM 162)	Scheduled Monument	341712	753153	From south elevation of Castle.	Photomontage
CH7	Battledykes Cairn (SM 7234)	Scheduled Monument	346013	755106	From centre of burial cairn – looking across Battledykes Roman Camp (SM 2308) towards Proposed Alignment.	Photomontage
CH8	Finavon, Fort (SM 139)	Scheduled Monument	350700	755671	From centre of fort.	Photomontage
CH9	Law of Windsor, Cairn (SM 3375)	Scheduled Monument	351252	760432	From centre of burial cairn.	Photomontage
CH10	Stracathro House (LB 17803)	Category A Listed	362547	765553	From principal (northwest) elevation.	Wireline
CH11	Stracathro Roman Camp (SM 2829)	Scheduled Monument	361350	765636	From centre of scheduled area.	Photomontage
CH12	Witch Hillock Burial Mound and Stone Setting	Scheduled Monument	364404	767325	From centre of burial mound.	Wireline
CH13	Balbegno Castle (LB 6754)	Category A Listed	363941	772977	From principal (southeast) elevation.	Wireline
CH14	Phesdo House (LB 9646)	Category A Listed	367592	775629	From principal (southeast) elevation.	Wireline
CH15	Glenbervie GDL (GDL 194)	GDL	378182	780460	View looking towards GDL from public road to east (around Broombank).	Photomontage
CH16	Cairn o' Mount, Cairns (SM 4968)	Scheduled Monument	364928	780685	From larger of the two burial cairns.	Photomontage
CH17	Raedykes, Roman Camp (SM 1016))	Scheduled Monument	384098	790094	From highest point within scheduled area, at Garriston Hill.	Photomontage
CH18	Park House GDL	GDL	378164	796767	From South Deeside Road looking north across Park House GDL towards the Proposed Alignment.	Photomontage
CH19	Park House GDL	GDL	377941	797785	From southwest corner of Walled Garden looking northeast towards the Proposed Alignment.	Photomontage

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CH VP Ref.	Asset Name/Asset No.	Asset Status	Easting	Northing	VP Location to be Agreed with Consultees	Proposed Visualisation Type
CH20	Normandykes Roman Camp (SM 2478)	Scheduled Monument	382612	799257	From highest point within scheduled area, east of Hilton.	Photomontage
CH21	Drum Castle (LB 3113)/Dym Castle GDL (GDL 141)	Category A Listed & GDL	379626	800510	From upper level of Castle tower.	Photomontage
CH22	Tillyorn Moated Homestead (SM 12161)	Scheduled Monument	375465	802476	From centre of homestead.	Wireline
CH23	East Finnercy, Cairn (SM 6076)	Scheduled Monument	376475	804292	From centre of cairn.	Wireline
CH24	Dunecht House GDL	GDL	374889	807745	From designed vista looking towards Barmekin Hill.	Photomontage
CH25	Dunecht House (LB 3133)/Dunecht House GDL (GDL 153)	Category A Listed & GDL	375078	807820	From southern elevation of House.	Wireline
CH26	New Wester Echt, Stone Circle (SM 6074)	Scheduled Monument	373837	808375	From centre of stone circle.	Photomontage
CH27	South Leylodge Steading, Stone Circle (SM 12350)	Scheduled Monument	376726	813241	From junction on public road to southeast of stone circle.	Photomontage
13	Barmekin Hillfort (SM 57)	Scheduled Monument	372603	807137	Viewpoint from centre of hillfort.	LVIA Viewpoint Photomontage <sup>71</sup>
5	Law of Baldoukie Barrow (SM 7234)	Scheduled Monument	347509	758717	Viewpoint from core path north of Tannadice overlooking proposed OHL alignment towards Scheduled Monument.	LVIA Viewpoint Photomontage <sup>71</sup>
6	The Caterthun Hillforts (SM 90069)	Scheduled Monument & PIC	354787	766038	Viewpoint from the White Caterthun.	LVIA Viewpoint Photomontage <sup>71</sup>

<sup>71</sup> See **Chapter 5: Landscape and Visual Amenity, Section 5.4: Potential Effects** and **Table 5.1: Preliminary LVIA Viewpoints**. LVIA Viewpoints also shown on **Figure 5.1: LVIA Study Area and Preliminary Viewpoint Locations**.

*Cumulative Assessment*

- 6.7.32 Cumulative effects (both direct and on the settings of designated heritage assets) could result from the Proposed Development, in addition to and in combination with other reasonably foreseeable developments in the vicinity of the Proposed Development.
- 6.7.33 The assessment of cumulative effects on heritage assets is based upon consideration of the effects of the Proposed Development, in addition to the likely effects of developments that are consented but not yet built and those that are currently at the consent application stage (and for which sufficient detail is available upon which to develop an assessment).
- 6.7.34 The assessment of effects from the Proposed Development in combination with pre-existing developments will be addressed in the course of the assessment of effects of the Proposed Development alone, as these developments form part of the baseline environment.
- 6.7.35 Proposed developments at the scoping or pre-application stage will not generally be included in the assessment, as such proposals are not fully formed and may be subject to changes that cannot be foreseen, or may not be progressed to application stage. The schemes to be included in the cumulative impact assessment will be those identified as described in **Section 3.8: Approach to Assessment of Significant Environmental Effects** and agreed with the ECU.
- 6.7.36 The assessment of cumulative effects will be based on a two-stage approach as outlined in **Section 3.8: Approach to Assessment of Significant Environmental Effects**. The combined effects on built heritage and archaeological receptors from the Proposed Development will be first assessed in combination with those predicted from the equivalent assessments in the EIARs for the proposed Emmock and Hurlie substations, to provide a cumulative assessment for the Proposed Development and Associated SSEN Transmission Developments. A further assessment of the potential significant cumulative effects of other reasonably foreseeable developments in combination with those of the Proposed Development and Associated SSEN Transmission Developments will be undertaken and reported in the cultural heritage chapter of the EIAR for the Proposed Development.

**6.8 Summary**

- 6.8.1 This chapter provides an overview of the Cultural Heritage and Archaeology baseline within the vicinity of the Proposed Development. It describes the potential effects associated with construction and operation of the Proposed Development and presents the assessment methodology to be used in the Cultural Heritage Impact Assessment.
- 6.8.2 Preliminary assessment indicates that the historic landscape character within the Proposed Route comprises principally of 18<sup>th</sup> to 19<sup>th</sup> century enclosed improved farmland with areas or rough grazing/moorland, and small pockets of managed woodland and 20<sup>th</sup> century commercial forestry. The cultural heritage baseline indicates that there is abundant evidence for settlement and activity along the route sections, from the prehistoric through to the post-medieval period.
- 6.8.3 Taking into account the historic landscape and the spread of heritage assets it is considered that there is a high likelihood of hitherto undiscovered archaeological remains to be present within certain areas of the Proposed Route (See **Section 6.7: EIA Assessment Scope and Methodology, paragraphs 6.7.6 to 6.7.8**).
- 6.8.4 An initial review of the cultural heritage and archaeology within the Proposed Development area suggests that the heritage assets most sensitive to direct impacts from construction of the Proposed Development are buried archaeological remains, principally prehistoric remains represented by cropmark sites, and Non-Inventory Designed Landscapes, which are crossed by the Proposed Route.
- 6.8.5 In the wider landscape those designated heritage assets that are likely to be most sensitive to change from the introduction of the Proposed Development are: Scheduled Monuments, that are prominent visual components of the landscape or local landmarks, and where views across the surrounding landscape and visibility within the landscape are important aspects of their settings; Inventory Gardens and Designed Landscapes, that have long distant views and vistas that contribute to their cultural significance, and Listed Buildings that stand in rural, unenclosed settings and have key views or designed vistas overlooking the Proposed Development.
- 6.8.6 Based on the current understanding of the Proposed Development, it is assessed that those designated heritage assets that are most likely to receive a significant adverse impact on their settings are Scheduled Monuments, particularly those that are prominent landmarks and/or have long views across the landscape as important aspects of their settings.

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- 6.8.7 Embedded Mitigation is set out to avoid, reduce and offset significant adverse effects. Following adoption of the proposed mitigation, it is predicted that impacts arising from the construction of the Proposed Development would be reduced to a level that will not be significant in EIA terms and no significant residual direct effects are predicted.
- 6.8.8 Given the nature and length of the Proposed Development it is assessed that there will likely be some significant effects on the setting of designated heritage assets. Whilst Embedded Mitigation will act to reduce these effects as far as possible, it is likely that there will be some residual significant effects on some designated heritage assets that cannot be further offset by mitigation. Due to the nature of the Proposed Development, unavoidable examples might include where the OHL passes through key views from Scheduled Monuments, Listed Buildings or Inventory Gardens and Designed Landscapes, or where the OHL crosses intervisibility between associated Scheduled Monuments and affects the important relationships between these monuments.
- 6.8.9 The Cultural Heritage Impact Assessment will cover impacts occurring during the construction phase (direct effects) and those persisting through the operational phase (setting effects and cumulative effects). Direct effects or effects on setting for the Proposed Development will be assessed, supported by the results of a detailed desk-based assessment and by targeted field visits within the LOD to verify the findings of the desk-based assessment and to inform mitigation proposals.

## 7. ECOLOGY

### 7.1 Introduction

- 7.1.1 The EIA will consider the potential and predicted effects of the Proposed Development on ecological features (non-avian) along the Proposed Alignment and within suitable buffers defined by best practice. Evaluation of the existing baseline environment will be made through a combination of desk-based study, field surveys and consultation. This chapter of the Scoping Report:
- Describes the baseline ecological conditions within the study area;
  - Describes the key ecological issues associated with construction and operation of the Proposed Development including a preliminary assessment of effects on ecology;
  - Presents the survey methods that will be used to generate the ecological baseline information for the EIA in addition to desk-based baseline; and
  - Outlines the proposed approach to the Ecological Impact Assessment (EclA) as part of the wider EIA.
- 7.1.2 Consultation has been undertaken with statutory and non-statutory consultees with responses received relevant to this topic from NatureScot, Esk Rivers and Fishery Trust, Dee District Salmon and Fishery Board, MSP Angus North and Mearns, and several community councils along the route<sup>72</sup>. NatureScot was consulted regarding the proposed methodology for baseline data collection during a meeting on 21 March 2023. NatureScot subsequently provided a consultation response (31 May 2023); they noted that the Proposed Route crosses riverine designated sites of international importance (Special Areas of Conservation; SACs), and that the potential for impacts to the qualifying features should be considered. They also noted that there are nationally important designated sites (Sites of Special Scientific Interest; SSSIs), specifically Eslie Moss SSSI and Loch of Park SSSI, and that construction near to these sites could impact upon wetland habitats. The Proposed Route has been developed to ensure additional distance between these designated sites and the Proposed Development as far as possible taking account of other constraints.
- 7.1.3 The requirement for Habitats Regulations Appraisal (HRA) are being addressed alongside the EIA process. A HRA of the proposals will be undertaken separately from the EIA where the Proposed Development is considered to have likely significant effects (LSE) on the qualifying interests of relevant SAC sites. These will be discussed further with NatureScot. See also **Section 3.5 Habitats Regulations Appraisal**.
- 7.1.4 In addition, NatureScot noted the potential for peatland habitats in route Sections E and F and advised that surveys should seek to identify sensitive areas. The consultation response from the Scottish Environment Protection Agency (SEPA) (22 June 2023) also noted the potential for peat and wetland habitats in route Sections E and F, and that avoidance is the first principle of the mitigation hierarchy as per NPF4<sup>60</sup>. The Proposed Route has been selected to avoid these areas where possible; where there are potential peatlands, data is being collected to inform the design of the Proposed Development and to minimise potential impacts.
- 7.1.5 The Dee District Salmon Fishery Board (Dee DSFB) provided a consultation response (27 July 2023) and advised that a key pressure identified on salmon rivers is the loss of natural riparian woodland. Riparian habitats will be considered by the EIAR, and the need to retain (wherever possible) and enhance habitats will be addressed to ensure delivery of Biodiversity Net Gain (BNG) and enhancement in accordance with the requirements of NPF4<sup>60</sup>.
- 7.1.6 Both Aberdeenshire Council (17 July 2023 and 24 May 2024) and RSPB (14 June 2023) noted the need to address the requirements of NPF4 with regards enhancement and BNG. The Applicant is committed to the delivery of BNG<sup>73</sup> and it is a key consideration throughout project development.
- 7.1.7 Consultation with NatureScot in May 2024 confirmed that they were content with the survey approach for bat and freshwater pearl mussel. Aberdeenshire Council (24 May 2024) advised that due to the number of watercourses and area involved in the

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<sup>72</sup> Responses received to date from consultation events in May 2023 and March 2024.

<sup>73</sup> SSEN Transmission (2019) A Network for Net Zero: Our Approach to Implementing Biodiversity Net Gain. Available at: <https://www.ssen-transmission.co.uk/globalassets/documents/a-network-for-net-zero/supporting-evidence/our-approach-to-implementing-biodiversity-net-gain-.pdf>

Proposed Development, consideration should be given to the risk associated with the spread of Invasive Non-Native Species (INNS) and that this should be considered early in the optioneering work.

## 7.2 Baseline Conditions

### Summary of Baseline

#### *Desk Study*

7.2.1 A desk study has been undertaken to identify statutory designated nature conservation sites within 10 km of the Proposed Route, including sites of international<sup>74</sup>, national<sup>75</sup> and local<sup>76</sup> importance. Non-statutory designated sites<sup>77</sup> within 5 km of the Proposed Route were also identified. In addition, a search for publicly available biological records from the past 15 years was undertaken within 5 km of the Proposed Route. The following sources were consulted:

- NatureScot SiteLink<sup>78</sup> website; and
- National Biodiversity Network (NBN) Gateway<sup>79</sup>.

7.2.2 The desk study identified habitats of conservation concern<sup>80</sup> and protected and notable<sup>81</sup> species which may be relevant to the Proposed Development. The following sources were consulted:

- Scottish Biodiversity List (SBL)<sup>82</sup>;
- North East Scotland Habitat Statements<sup>83</sup>; and
- Tayside Local Biodiversity Action Plan (2016-2026)<sup>84</sup>.

7.2.3 **Table 7.1: Key Habitats and Species of North East Scotland and Angus** summarises the key habitats (standardised using SBL terminology) and species identified which are considered likely to be particularly relevant to the Proposed Development.

**Table 7.1: Key Habitats and Species of North East Scotland and Angus**

Terrestrial Habitats	Species (non-avian)
Hedgerows	Otter ( <i>Lutra lutra</i> )
Lowland Fens	Bats
Lowland Heathland	Beaver ( <i>Castor fiber</i> )
Lowland Mixed Deciduous Woodland	Red squirrel ( <i>Sciurus vulgaris</i> )
Lowland Raised Bog	Pine marten ( <i>Martes martes</i> )
Purple Moor Grass and Rush Pastures	Water vole ( <i>Arvicola amphibius</i> )
Rivers	Badger ( <i>Meles meles</i> )
Upland Heathland	Amphibians
Wet Woodland	Reptiles
Wood Pasture and Parkland	Fish (including Atlantic salmon ( <i>Salmo salar</i> ), brown trout ( <i>Salmo trutta</i> ), and lamprey species)

<sup>74</sup> ie Special Areas of Conservation (SAC).

<sup>75</sup> ie Sites of Special Scientific Interest (SSSI) and National Nature Reserves (NNR).

<sup>76</sup> ie Local Nature Reserves (LNR).

<sup>77</sup> ie Local Nature Conservation Sites (LNCS), NGO non-governmental organisation (NGO) nature reserves, and Ancient Woodland Inventory (AWI).

<sup>78</sup> NatureScot SiteLink website. Available at: <https://sitelink.nature.scot/home>

<sup>79</sup> NBN Atlas website. Available at: <https://nbnatlas.org/>

<sup>80</sup> Habitats of conservation concern include habitats considered conservation priorities in the Habitats Directive (ie Annex 1 habitats); habitats considered to indicate potential groundwater dependency; habitats included on the SBL; and habitats included in LBAPs relevant to the Proposed Development.

<sup>81</sup> ie those species not afforded legal protection but which are listed on the SBL and/or relevant LBAPs.

<sup>82</sup> NatureScot (2020) Scottish Biodiversity List. Available at: <https://www.nature.scot/doc/scottish-biodiversity-list>

<sup>83</sup> North East Scotland Biodiversity Partnership website. Available at: <https://www.nesbiodiversity.org.uk/>

<sup>84</sup> Tayside Biodiversity Partnership website. Available at: <https://www.taysidebiodiversity.co.uk/>

Terrestrial Habitats	Species (non-avian)
	Freshwater pearl mussel ( <i>Margaritifera margaritifera</i> )
	Brown hare ( <i>Lepus europaeus</i> )
	Hedgehog ( <i>Erinaceus europaeus</i> )
	Water shrew ( <i>Neomys fodiens</i> )

7.2.4 Special Protection Areas (SPAs) and Ramsar sites, which are statutory designated sites of international importance for birds, and SSSIs designated solely for ornithological features, are considered in **Chapter 8: Ornithology**.

7.2.5 Six statutory designated sites of international importance, 30 statutory designated sites of national importance, and three statutory designated sites of local importance were identified within 10 km of the Proposed Route. Details of these sites, including of the qualifying features associated with them, are provided within **Table 7.2: Statutory Designated Sites within 10 km of the Proposed Route**<sup>85</sup> and shown on **Figure 7.1 (A-F) Ecological Designated Sites**. Sites designated solely for ornithological or geological features are not included.

**Table 7.2: Statutory Designated Sites within 10 km of the Proposed Route**

Site Name	Designation	Qualifying Feature	Distance and Direction from Proposed Route <sup>86</sup>
Section A			
Firth of Tay and Eden Estuary	SAC (also Important Bird Area (IBA))	<ul style="list-style-type: none"> <li>Estuaries;</li> <li>Intertidal mudflats and sandflats;</li> <li>Subtidal sandbanks; and</li> <li>Harbour seal (<i>Phoca vitulina</i>).</li> </ul>	Approximately 7.3 km south.
River Tay	SAC	<ul style="list-style-type: none"> <li>Clear-water lakes or lochs with aquatic vegetation and poor to moderate nutrient levels;</li> <li>Atlantic salmon;</li> <li>Otter;</li> <li>Brook lamprey (<i>Lampetra planeri</i>);</li> <li>River lamprey (<i>Lampetra fluviatilis</i>); and</li> <li>Sea lamprey (<i>Petromyzon marinus</i>).</li> </ul>	Proposed Route spans this site.
Inner Tay Estuary	SSSI/Local Nature Reserve (LNR)	<ul style="list-style-type: none"> <li>Saltmarsh;</li> <li>Transition saltmarsh; and</li> <li>Ornithology.</li> </ul>	Approximately 7.3 km south.
Den of Fowlis	SSSI	<ul style="list-style-type: none"> <li>Upland mixed ash woodland.</li> </ul>	Approximately 6.9 km southwest.
Blacklaw Hill Mire	SSSI	<ul style="list-style-type: none"> <li>Saddle mire.</li> </ul>	Approximately 9.6 km southwest.
Balshando Bog	SSSI	<ul style="list-style-type: none"> <li>Basin fen.</li> </ul>	Approximately 9.7 km southwest.
Craigs of Lundie and Ardgath Loch	SSSI	<ul style="list-style-type: none"> <li>Basin fen;</li> <li>Lowland calcareous grassland;</li> <li>Lowland dry heath;</li> <li>Rocky slopes (includes inland cliff, rocky outcrops, chasmophytic vegetation); and</li> <li>Valley fen.</li> </ul>	Approximately 9.2 km west.

<sup>85</sup> Sites are listed firstly by hierarchy of international, national, regional and local importance then geographically from south to north.

<sup>86</sup> Measured from the closest point of the designated site to the Proposed Route.

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Site Name	Designation	Qualifying Feature	Distance and Direction from Proposed Route <sup>86</sup>
Gagie Marsh	SSSI	<ul style="list-style-type: none"> <li>Flood-plain fen.</li> </ul>	Approximately 5.5 km east.
Round Loch of Lundie	SSSI	<ul style="list-style-type: none"> <li>Eutrophic loch;</li> <li>Open water transition fen; and</li> <li>Wet woodland.</li> </ul>	Approximately 7.2 km west.
Long Loch of Lundie	SSSI	<ul style="list-style-type: none"> <li>Mesotrophic loch.</li> </ul>	Approximately 7.9 km west.
Auchterhouse Hill	SSSI	<ul style="list-style-type: none"> <li>Subalpine dry heath.</li> </ul>	Approximately 1.6 km west.
Carrot Hill Meadow	SSSI	<ul style="list-style-type: none"> <li>Spring fen.</li> </ul>	Approximately 5.9 km east.
Dilty Moss	SSSI	<ul style="list-style-type: none"> <li>Raised bog.</li> </ul>	Approximately 9.4 km east.
Trottick Mill Ponds	LNR	<ul style="list-style-type: none"> <li>Open water;</li> <li>Woodland;</li> <li>Scrub; and</li> <li>Grassland.</li> </ul>	Approximately 3.9 km south.
<b>Section B</b>			
River South Esk	SAC	<ul style="list-style-type: none"> <li>Atlantic salmon; and</li> <li>Freshwater pearl mussel.</li> </ul>	Proposed Route spans this site.
Restenneth Moss	SSSI	<ul style="list-style-type: none"> <li>Basin fen.</li> </ul>	Approximately 3.9 km southeast.
Rescobie and Balgavies Lochs	SSSI/Scottish Wildlife Trust (SWT) Reserve	<ul style="list-style-type: none"> <li>Basin fen;</li> <li>Transition open fen; and</li> <li>Vascular plant assemblage.</li> </ul>	Approximately 5.5 km southeast.
Loch of Kinnordy	SSSI/Royal Society for the Protection of Birds (RSPB) Reserve (also SPA and IBA)	<ul style="list-style-type: none"> <li>Eutrophic loch;</li> <li>Open water transition fen; and</li> <li>Ornithology.</li> </ul>	Approximately 4.4 km northwest.
Forest Muir	SSSI	<ul style="list-style-type: none"> <li>Lowland wet heath; and</li> <li>Spring fen.</li> </ul>	Approximately 0.8 km northwest.
Balloch Moss	SSSI	<ul style="list-style-type: none"> <li>Raised bog.</li> </ul>	Approximately 7.2 km northwest.
Den of Ogil	SSSI	<ul style="list-style-type: none"> <li>Scrub; and</li> <li>Valley fen.</li> </ul>	Approximately 3.0 km northwest.
Crossbog Pinewood	SSSI	<ul style="list-style-type: none"> <li>Native pinewood.</li> </ul>	Approximately 8.3 km northwest.
Angus Glens	Wildcat Priority Area (WPA)	<ul style="list-style-type: none"> <li>Scottish wildcat (<i>Felis silvestris</i>).</li> </ul>	Approximately 3.3 km northwest.
<b>Section C</b>			
Montrose Basin	SSSI/LNR (also SPA and IBA)	<ul style="list-style-type: none"> <li>Mudflats;</li> <li>Saltmarsh;</li> <li>Transition saltmarsh;</li> <li>Ornithology; and</li> </ul>	Approximately 8.7 km southeast.

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Site Name	Designation	Qualifying Feature	Distance and Direction from Proposed Route <sup>86</sup>
		<ul style="list-style-type: none"> <li>Geological features.</li> </ul>	
Dun's Dish	SSSI	<ul style="list-style-type: none"> <li>Eutrophic loch;</li> <li>Open water transition fen; and</li> <li>Ornithology.</li> </ul>	Approximately 5.6 km southeast.
St Cyrus and Kinnaber Links	SSSI/National Nature Reserve (NNR)	<ul style="list-style-type: none"> <li>Lowland neutral grassland;</li> <li>Saltmarsh;</li> <li>Sand dunes;</li> <li>Shingle;</li> <li>Vascular plant assemblage;</li> <li>Moths;</li> <li>Small blue butterfly (<i>Cupido minimus</i>); and</li> <li>Ornithology.</li> </ul>	Approximately 9.6 km southeast.
Den of Finella	SSSI	<ul style="list-style-type: none"> <li>Upland mixed ash woodland.</li> </ul>	Approximately 9.7 km southeast.
West Bradieston and Craig of Garvock	SSSI	<ul style="list-style-type: none"> <li>Fen meadow;</li> <li>Lowland acid grassland;</li> <li>Lowland calcareous grassland;</li> <li>Lowland dry heath; and</li> <li>Lowland wet heath.</li> </ul>	Approximately 4.8 km southeast.
Eslie Moss	SSSI	<ul style="list-style-type: none"> <li>Basin fen.</li> </ul>	Approximately 0.3 km northwest.
Gannochy Gorge	SSSI	<ul style="list-style-type: none"> <li>Beetles;</li> <li>Bryophyte assemblage;</li> <li>Lichen assemblage; and</li> <li>Geological features.</li> </ul>	Approximately 3.4 km northwest.
<b>Section D</b>			
Loch of Lumgair	SSSI	<ul style="list-style-type: none"> <li>Basin fen – Schwingmoor type; and</li> <li>Wet woodland.</li> </ul>	Approximately 4.4 km east.
<b>Section E</b>			
Garron Point	SAC/SSSI	<ul style="list-style-type: none"> <li>Narrow-mouthed whorl snail (<i>Vertigo angustior</i>) (SAC and SSSI qualifying feature);</li> <li>Maritime cliff (SSSI qualifying feature);</li> <li>Northern brown argus butterfly (<i>Aricia artaxerxes</i>) (SSSI qualifying feature); and</li> <li>Geological features (SSSI qualifying features).</li> </ul>	Approximately 4.9 km east.
Red Moss of Netherley	SAC/SSSI/SWT	<ul style="list-style-type: none"> <li>Active raised bog; and</li> <li>Degraded raised bog.</li> </ul>	Approximately 2.7 km east.
<b>Section F</b>			
River Dee	SAC	<ul style="list-style-type: none"> <li>Atlantic salmon;</li> <li>Otter; and</li> <li>Freshwater pearl mussel.</li> </ul>	Proposed Route spans this site.
Loch of Park	SSSI	<ul style="list-style-type: none"> <li>Basin fen; and</li> <li>Wet woodland.</li> </ul>	Route F3 intersects the eastern edge.

Site Name	Designation	Qualifying Feature	Distance and Direction from Proposed Route <sup>86</sup>
Old Wood of Drum	SSSI	<ul style="list-style-type: none"> <li>Upland oak woodland.</li> </ul>	Approximately 0.6 km west.
Paradise Wood	SSSI	<ul style="list-style-type: none"> <li>Upland oak woodland.</li> </ul>	Approximately 9.0 km northwest.
Den of Maidencraig	LNR	<ul style="list-style-type: none"> <li>Woodland; and</li> <li>Grassland.</li> </ul>	Approximately 9.6 km east.
Arnhall Moss	LNR	<ul style="list-style-type: none"> <li>Bog; and</li> <li>Woodland.</li> </ul>	Approximately 7.0 km east.

7.2.6 There are 56 non-statutory designated sites of local importance<sup>87</sup> identified up to 5 km from the Proposed Route. Details of these sites are provided in **Table 7.3: Non-Statutory Designated Sites within 5 km of the Proposed Route** and shown on **Figure 7.1 (A-F) Ecological Designated Sites**.

7.2.7 In addition, there are numerous areas of woodland listed on the Ancient Woodland Inventory (AWI)<sup>88</sup> up to 5 km from the Proposed Route; several of these woodlands are of semi-natural origin (ie categories 1a and 2a on the AWI) and therefore considered to be Ancient Woodland in accordance with the Applicant's guidance<sup>89</sup>. AWI is shown on **Figure 7.1 (A-F) Ecological Designated Sites**.

**Table 7.3: Non-statutory Designated Sites within 5 km of the Proposed Route**

Site Name	Designation	Notable Feature	Distance and Direction from Proposed Route <sup>86</sup>
Section A			
The Miley	Local Nature Conservation Sites (LNCS) SWT Reserve	<ul style="list-style-type: none"> <li>Grassland;</li> <li>Tall herb communities;</li> <li>Scrub; and</li> <li>Woodland.</li> </ul>	Approximately 4.9 km south.
Den o' Mains	LNCS	<ul style="list-style-type: none"> <li>Running water;</li> <li>Ponds;</li> <li>Marsh; and</li> <li>Woodland.</li> </ul>	Approximately 4.7 km southeast.
Camperdown Country Park	LNCS	<ul style="list-style-type: none"> <li>Extensive parkland;</li> <li>Mature trees;</li> <li>Plantations;</li> <li>Running water; and</li> <li>Ponds.</li> </ul>	Approximately 4.6 km southwest.
Downfield Golf Course	LNCS	<ul style="list-style-type: none"> <li>Birch woods;</li> <li>Running water; and</li> <li>Wetlands.</li> </ul>	Approximately 4.2 km southwest.
Templeton Woods	LNCS	<ul style="list-style-type: none"> <li>Extensive broadleaved woodlands with birch, oak, and beech;</li> <li>Mixed plantations; and</li> <li>Running water.</li> </ul>	Approximately 4.1 km southwest.

<sup>87</sup> ie Local Nature Conservation Sites (LNCS), Scottish Wildlife Trust (SWT) reserve, RSPB reserve.

<sup>88</sup> NatureScot (2020) A guide to understanding the Scottish Ancient Woodland Inventory (AWI). Available at: <https://www.nature.scot/doc/guide-understanding-scottish-ancient-woodland-inventory-awi>

<sup>89</sup> SSEN Transmission (2023) BN-NET-ENV-501 Ancient Woodland – Approach to Assessment and Reporting: Internal.

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Site Name	Designation	Notable Feature	Distance and Direction from Proposed Route <sup>86</sup>
Dundee Crematorium	Proposed LNCS	<ul style="list-style-type: none"> <li>No site information.</li> </ul>	Approximately 4.1 km south.
Ardler Ponds	LNCS	<ul style="list-style-type: none"> <li>Artificial ponds with reed beds.</li> </ul>	Approximately 4.0 km south.
Caird Park	Proposed LNCS	<ul style="list-style-type: none"> <li>No site information.</li> </ul>	Approximately 3.9 km southeast.
Balmuir	LNCS	<ul style="list-style-type: none"> <li>Adjoins Trottick Ponds LNR;</li> <li>Semi-natural broadleaved woodland; and</li> <li>Young plantation.</li> </ul>	Approximately 3.7 km southeast.
Clatto Country Park	LNCS	<ul style="list-style-type: none"> <li>Large country park;</li> <li>Open water;</li> <li>Plantations;</li> <li>Grasslands; and</li> <li>Locally scarce species.</li> </ul>	Approximately 3.3 km southwest.
Baldragon Wood	LNCS	<ul style="list-style-type: none"> <li>Native birch and alder wood;</li> <li>Scrub; and</li> <li>Wet grassland.</li> </ul>	Approximately 3.0 km southwest.
Dighty Burn	LNCS	<ul style="list-style-type: none"> <li>Running water in stoney burn;</li> <li>Mature woodland; and</li> <li>Reed beds.</li> </ul>	Approximately 2.9 km south.
Clatto Extension	Proposed LNCS	<ul style="list-style-type: none"> <li>No site information.</li> </ul>	Approximately 2.9 km south.
<b>Section B</b>			
Glamis Disused Sand Pit	LNCS	<ul style="list-style-type: none"> <li>Basin bog;</li> <li>Semi-natural broadleaved woodland;</li> <li>Open water;</li> <li>Swamp;</li> <li>Marshy grassland; and</li> <li>Unimproved acid grassland.</li> </ul>	Approximately 3.8 km southwest.
Captain's Pond	LNCS	<ul style="list-style-type: none"> <li>Basin bog;</li> <li>Semi-natural broadleaved woodland;</li> <li>Open water;</li> <li>Swamp;</li> <li>Marshy grassland; and</li> <li>Unimproved acid grassland.</li> </ul>	Approximately 1.4 km southwest.
Powmyre	LNCS	<ul style="list-style-type: none"> <li>Low-lying basin mire;</li> <li>Marshy grassland;</li> <li>Fen;</li> <li>Swamp; and</li> <li>Woodland.</li> </ul>	Approximately 3.7 km west.
Market of Muir, Westmuir	LNCS	<ul style="list-style-type: none"> <li>Lowland birch woodland;</li> <li>Heathland; and</li> <li>Grassland.</li> </ul>	Approximately 4.3 km west.
Woodside	LNCS	<ul style="list-style-type: none"> <li>Birch woodland; and</li> <li>Semi-improved acid grassland.</li> </ul>	Proposed Route spans this site.

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Site Name	Designation	Notable Feature	Distance and Direction from Proposed Route <sup>86</sup>
Eskhill	LNCS	<ul style="list-style-type: none"> <li>Lowland birch woodland; and</li> <li>Acid grassland.</li> </ul>	Approximately 1.8 km west.
Auchleuchrie	LNCS	<ul style="list-style-type: none"> <li>Lowland birch woodland.</li> </ul>	Approximately 1.2 km northwest.
Den of Ogil Reservoir	LNCS	<ul style="list-style-type: none"> <li>Wetland;</li> <li>Lowland broadleaved woodland; and</li> <li>Mixed grassland.</li> </ul>	Approximately 3.4 km northwest.
Deuchar Hill	LNCS	<ul style="list-style-type: none"> <li>Semi-improved acid grassland;</li> <li>Marshy grassland;</li> <li>Dry heath; and</li> <li>Valley mire.</li> </ul>	Approximately 2.2 km northwest.
River South Esk Kintrockat	LNCS	<ul style="list-style-type: none"> <li>Semi-natural broadleaved woodland;</li> <li>Marshy grassland; and</li> <li>Neutral grassland.</li> </ul>	Approximately 2.2 km southeast.
Mains of Aldbar	LNCS	<ul style="list-style-type: none"> <li>Semi-natural broadleaved woodland;</li> <li>Plantation woodland; and</li> <li>Marshy grassland.</li> </ul>	Approximately 2.9 km southeast.
Barrelwell Bog	LNCS	<ul style="list-style-type: none"> <li>Wet woodland;</li> <li>Neutral grassland; and</li> <li>Marshy grassland.</li> </ul>	Located inside the eastern boundary of the Proposed Route.
<b>Section C</b>			
Gannochy	LNCS	<ul style="list-style-type: none"> <li>Woodland;</li> <li>Bryophytes; and</li> <li>Lichens.</li> </ul>	Approximately 2.2 km northwest.
Saltire Wood	LNCS	<ul style="list-style-type: none"> <li>Woodland; and</li> <li>Red squirrel.</li> </ul>	Approximately 2.8 km northwest.
<b>Section D</b>			
Arbuthnott	LNCS	<ul style="list-style-type: none"> <li>Woodland; and</li> <li>Riparian habitats.</li> </ul>	Approximately 3.7 km southeast.
Strathfinella	LNCS	<ul style="list-style-type: none"> <li>Aquatic vegetation.</li> </ul>	Approximately 1.9 km west.
Elfhill	LNCS	<ul style="list-style-type: none"> <li>Woodland;</li> <li>Scrub; and</li> <li>Acid grassland.</li> </ul>	Approximately 0.5 km east.
Fetteresso	LNCS	<ul style="list-style-type: none"> <li>Woodland;</li> <li>Scrub; and</li> <li>Neutral grassland.</li> </ul>	Approximately 2.1 km east.
<b>Section E</b>			
Mergie	LNCS	<ul style="list-style-type: none"> <li>Neutral and acid grassland;</li> <li>Woodland;</li> <li>Wet heath;</li> <li>Scrub;</li> <li>Bog;</li> <li>Pond; and</li> </ul>	Adjacent to the eastern boundary of the Proposed Route.

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Site Name	Designation	Notable Feature	Distance and Direction from Proposed Route <sup>86</sup>
		<ul style="list-style-type: none"> <li>Wetland.</li> </ul>	
Muchalls to Stonehaven Bay	LNCS	<ul style="list-style-type: none"> <li>Rocky cliffs; and</li> <li>Calcareous flora.</li> </ul>	Approximately 4.9 km east.
Red Moss Netherley	LNCS/SWT	<ul style="list-style-type: none"> <li>Raised bog;</li> <li>Fen; and</li> <li>Woodland.</li> </ul>	Approximately 2.3 km east.
Kingcausie	LNCS	<ul style="list-style-type: none"> <li>Riparian habitats; and</li> <li>Woodland.</li> </ul>	Approximately 3.3 km east.
<b>Section F</b>			
River Dee	LNCS	<ul style="list-style-type: none"> <li>Woodland;</li> <li>Shingle; and</li> <li>Species-rich grassland.</li> </ul>	Proposed Route spans this site.
River Dee Corridor	LNCS	<ul style="list-style-type: none"> <li>Semi-natural grassland; and</li> <li>Riparian vegetation.</li> </ul>	Proposed Route spans this site.
Crathes	LNCS	<ul style="list-style-type: none"> <li>Woodland.</li> </ul>	Approximately 3.0 km southwest.
Old Manse Wood	LNCS	<ul style="list-style-type: none"> <li>Scots pine woodland.</li> </ul>	Located inside the Proposed Route.
Deeside Old Railway	LNCS	<ul style="list-style-type: none"> <li>Grassland; and</li> <li>Woodland.</li> </ul>	Approximately 1.2 km east.
Loch of Park	LNCS	<ul style="list-style-type: none"> <li>Fen;</li> <li>Woodland;</li> <li>Acid grassland;</li> <li>Heath; and</li> <li>Wetland.</li> </ul>	Located inside the western boundary of the Proposed Route.
Candyglirach	LNCS	<ul style="list-style-type: none"> <li>Raised bog;</li> <li>Woodland; and</li> <li>Acid grassland.</li> </ul>	Approximately 0.5 km west.
Culter Burn	LNCS	<ul style="list-style-type: none"> <li>Woodland; and</li> <li>Wetland.</li> </ul>	Approximately 2.2 km northeast.
Peterculter	LNCS	<ul style="list-style-type: none"> <li>Woodland; and</li> <li>Neutral grassland.</li> </ul>	Approximately 3.2 km northeast.
Southlasts Mire	LNCS	<ul style="list-style-type: none"> <li>Woodland;</li> <li>Neutral grassland; and</li> <li>Wetland.</li> </ul>	Approximately 4.4 km northeast.
Baads Moss	LNCS	<ul style="list-style-type: none"> <li>Fen;</li> <li>Wetland;</li> <li>Acid grassland;</li> <li>Dry heath; and</li> <li>Ponds.</li> </ul>	Approximately 3.6 km east.
Culter Compensation Dam	LNCS	<ul style="list-style-type: none"> <li>Open water; and</li> <li>Marginal plants.</li> </ul>	Approximately 4.6 km northeast.
Leuchar Moss	LNCS	<ul style="list-style-type: none"> <li>Wet heath;</li> <li>Dry heath;</li> </ul>	Approximately 1.8 km east.

Site Name	Designation	Notable Feature	Distance and Direction from Proposed Route <sup>86</sup>
		<ul style="list-style-type: none"> <li>Bog; and</li> <li>Acid grassland.</li> </ul>	
Loch of Skene	LNCS	<ul style="list-style-type: none"> <li>Open water;</li> <li>Woodland;</li> <li>Wetland;</li> <li>Heath;</li> <li>Fen; and</li> <li>Bog.</li> </ul>	Approximately 2.2 km east.
Barmekin Wood	LNCS	<ul style="list-style-type: none"> <li>Heath;</li> <li>Wetland; and</li> <li>Woodland.</li> </ul>	Located inside the western boundary of the Proposed Route.
Castle Fraser Ponds	LNCS	<ul style="list-style-type: none"> <li>Ponds; and</li> <li>Dragonflies and damselflies.</li> </ul>	Approximately 2.5 km west.
Cottown Woods	LNCS	<ul style="list-style-type: none"> <li>Woodland; and</li> <li>Fen.</li> </ul>	Approximately 0.8 km north.
Rollo Mire, Kintore	LNCS	<ul style="list-style-type: none"> <li>Fen.</li> </ul>	Approximately 1.8 km northeast.
River Don between Kemnay and Bridge of Alford	LNCS	<ul style="list-style-type: none"> <li>Ornithology.</li> </ul>	Approximately 3.7 km northwest.
Toms Forest	LNCS	<ul style="list-style-type: none"> <li>Woodland; and</li> <li>Grassland.</li> </ul>	Approximately 2.4 km northwest.
Fetternear	LNCS	<ul style="list-style-type: none"> <li>Woodland; and</li> <li>Wetland.</li> </ul>	Approximately 4.1 km northwest.
Kinkell Belt	LNCS	<ul style="list-style-type: none"> <li>Woodland.</li> </ul>	Approximately 5.0 km north.

#### Field Survey

- 7.2.8 Field surveys have been in progress since the 2023 survey season and continue during the 2024 survey season. Surveys have been undertaken by experienced ecologists. Further information on the survey methodologies is provided in **Section 7.3: Sensitive Receptors**.

#### Habitats

- 7.2.9 The Proposed Route is dominated by agricultural land generally comprising a mix of pasture and arable fields. Areas of woodland are scattered throughout, ranging from commercial forestry comprised of non-native conifers, to stands of semi-natural broadleaved species. Fieldwork has identified that there are limited extents of upland habitat located to the north of Tealing (Section A), and northwest of Stonehaven (in parts of route Sections D and E). Additional habitats, such as lowland types of wetland and unmanaged grassland, are present scattered throughout the Proposed Route. There are limited extents of potential GWDTE<sup>90</sup> scattered throughout the Proposed Route, including wet heath and lowland wetland habitats.

<sup>90</sup> Scottish Environment Protection Agency (SEPA) (2017) Land Use Planning System – Guidance Note 31: Guidance on Assessing the Impacts of Development Proposals on Groundwater Abstractions and Groundwater Dependent Terrestrial Ecosystems. Available at: <https://www.sepa.org.uk/media/144266/lups-gu31-guidance-on-assessing-the-impacts-of-development-proposals-on-groundwater-abstractions.pdf>

*Protected and Notable Species*

- 7.2.10 Potentially suitable habitat is present for otter, bats, beaver, red squirrel, pine marten, water vole, badger, fish, freshwater pearl mussel, amphibians, reptiles, brown hare and hedgehog.
- 7.2.11 The Proposed Route crosses important watercourses, including the River Tay, River South Esk and River Dee, as well as numerous smaller watercourses and tributaries. These watercourses have high potential for otter to rest, forage and commute, for fish species including Atlantic salmon and brown trout, and for freshwater pearl mussel. In addition, desk study records indicate that beaver is present on watercourses in the south of the Proposed Route, such as the Dean Water and Kerbet Burn.
- 7.2.12 Field surveys in 2023 indicate that suitable roosting habitat for bats is present within some woodland areas and buildings within the Proposed Route. Mature trees located throughout the Proposed Route could have features suitable for roosting bats, such as rot holes, broken limbs, cavities, and cracks. Suitable foraging and commuting habitat is present along woodland edges and rides, tree lines, and watercourses. Static bat detectors are being deployed in the 2024 survey season in areas of woodland identified as agreed with NatureScot (6 May 2024).
- 7.2.13 Aerial imagery and field survey results to-date indicate that mature coniferous plantation woodland (considered to be >25 years old), providing suitable habitat for red squirrel, is located throughout the Proposed Route. Records of red squirrel are widespread in the vicinity of the Proposed Route<sup>91</sup>.
- 7.2.14 Records of pine marten are scattered throughout Aberdeenshire and Angus, including within proximity to the Proposed Route. Field surveys to date have recorded some limited evidence of this species; the mosaic of forestry plantation and semi-natural woodlands within the Proposed Development provides suitable habitat for pine marten.
- 7.2.15 Records of water vole are limited within the vicinity of the Proposed Route; the most recent record is from Loch of Kinnordy approximately 6 km west from 2014. Water vole has been recorded in the catchments of the River Dee and Cowie Water<sup>92</sup>. As such, there may be instances of aquatic habitat with suitability for this species.
- 7.2.16 Badger is common within northeast Scotland, and survey work to date has identified wide-ranging evidence of this species. The mosaic of agricultural land and woodland provides for optimal conditions for the species, and badger is expected to be present throughout the Proposed Route.
- 7.2.17 Common amphibians (eg, Common toad (*Bufo bufo*), Common frog (*Rana temporaria*), Palmate newt (*Lissotriton helveticus*), Smooth newt (*Lissotriton vulgaris*)) are likely to be present in suitable habitat such as ponds and wetlands. Common toad and Common frog have both been recorded during field surveys in the Proposed Route.
- 7.2.18 Suitable habitat for reptiles (eg, Adder (*Vipera berus*), Slow worm (*Anguis fragilis*) and Common lizard (*Zootoca vivipara*)) is present in relatively upland areas crossed by the Proposed Route, on woodland edges and rides, and in isolated patches of unmanaged open ground, particularly where some limited extents of heathland habitats occur. Adder and common lizard have both been recorded during field surveys in the Proposed Route.
- 7.2.19 Records of brown hare and hedgehog are scattered in the vicinity of the Proposed Route. Brown hare has been recorded during field surveys in farmland habitats in the Proposed Route. Hedgehog is likely to be present associated with gardens, woodland edges and hedgerows.
- 7.2.20 Records of water shrew are extremely limited, although there are a small number of records from the catchment of the River Dee, and north of Aberdeen. This species may therefore be present in aquatic habitats that flow through the Proposed Route.

### 7.3 Sensitive Receptors

- 7.3.1 The ecological baseline will be established following completion of field surveys to identify important ecological features that could be affected by the construction and operation of the Proposed Development. These are likely to include designated sites with a potential impact pathway from the Proposed Development, habitats identified as Ancient Woodland, SBL habitats<sup>93</sup>,

<sup>91</sup> Saving Scotland's Red Squirrels. (undated) Sightings of Red and Grey Squirrels across Scotland. Available at: <https://scottishsquirrels.org.uk/squirrel-sightings/>

<sup>92</sup> Littlewood, N., Chapman, P., Francis, I., Roberts, G., Robinson, A. and Sideris, K. (2017) Mammal Atlas of North-East Scotland and the Cairngorms. NESBReC, Aberdeen, p.183.

<sup>93</sup> NatureScot (2020) Scottish Biodiversity List. Available at: <https://www.nature.scot/doc/scottish-biodiversity-list>

potential GWDTE, and protected and notable species such as otter, beaver, red squirrel, pine marten, water vole, and badger. In addition, areas of woodland and structures are likely to be present which offer bat roost potential.

7.3.2 The importance or sensitivity of an ecological feature will be ascertained via review of literature and guidance, field survey data, legal protection/conservation status, and professional judgement.

## 7.4 Potential Effects

7.4.1 The assessment will consider the potential for the construction and operation of Proposed Development to result in significant effects associated with:

- Statutory designated sites, comprising SACs (River Tay; River South Esk; and River Dee) and SSSIs (Eslie Moss; Old Wood of Drum; and Loch of Park);
- Non-statutory designated sites, comprising LNCs (Woodside; Barrelwell Bog; Mergie; River Dee; River Dee Corridor; Old Manse Wood; Loch of Park; Candyglirach; and Barmekin Wood);
- Loss and fragmentation of habitats of conservation concern<sup>94</sup>, with particular attention given to any Annex 1 habitats such as lowland raised bogs, other sensitive habitat types such as GWDTE, and woodland removal in areas of Ancient Woodland (including consideration of hydrological change);
- The spread of invasive non-native plant species (INNS), such as Giant hogweed (*Heracleum mantegazzianum*), Himalayan balsam (*Impatiens glandulifera*), Rhododendron (*Rhododendron ponticum*) and Japanese knotweed (*Reynoutria japonica* syn. *Fallopia japonica*);
- Loss, fragmentation and severance of habitats utilised by species of wildlife protected by legislation, and species noted to be of national<sup>95</sup> or local<sup>96</sup> importance; and
- The killing, injury or temporary disturbance of protected and notable species of wildlife through traffic collision, lighting, noise, and/or pollution during construction.

## 7.5 Mitigation

7.5.1 In-line with the hierarchy of mitigation set out in **Section 3.4: Mitigation**, the following section describes the Embedded and Applied Mitigation which is considered relevant to the Proposed Development in the context of this ecological scoping assessment. The mitigation outlined below has been considered and applied when determining the potential for likely significant effects arising from the construction and operation of the Proposed Development as described in **Section 7.4: Potential Effects**.

7.5.2 Relevant Embedded Mitigation measures include:

- Avoidance of irreplaceable Ancient Woodland habitats<sup>97</sup>, and minimisation of impacts upon woodland listed on the AWI as long-established (of plantation origin; LEPO) wherever possible;
- Location of infrastructure on non-peat or shallow peat habitats wherever possible, avoiding irreplaceable peatland habitats<sup>97</sup>;
- Following SEPA's recommended riparian corridor data and buffers between watercourses/waterbodies and key operational infrastructure (tower foundations and permanent access tracks) wherever possible (**see paragraph 9.1.10**);
- Retention of woodland and watercourse habitats that provide commuting and foraging opportunities for a range of protected species. wherever possible;
- Minimisation of habitat loss and vegetation removal to accommodate access tracks by using existing tracks where possible; and

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<sup>94</sup> Habitats of conservation concern include habitats considered conservation priorities in the Habitats Directive (Annex 1 habitats); habitats considered to indicate potential groundwater dependency; habitats included on the SBL; and habitats included in local biodiversity policy.

<sup>95</sup> ie listed on the SBL.

<sup>96</sup> ie listed on a LBAP relevant to the Proposed Development.

<sup>97</sup> SSEN Transmission (2020) *TG-NET-ENV-526 Biodiversity Net Gain Toolkit User Guide* (Rev 3.0).

- Any required watercourse crossings of access tracks will be designed to minimise risk to fish populations, aquatic species and habitat.

7.5.3 Applied Mitigation in the form of a CEMP will be produced which, in addition to SSEN Transmission's GEMP and SPPs (see **Appendix B List of Applied Mitigation Documents**), will capture all mitigation measures required in respect of ecological features, both as a result of the outcome of the EIA and in order to comply with relevant legislation, to be implemented during construction and operation of the Proposed Development. SPPs would be developed in more detail following any consent for the Proposed Development and building on the SSEN Transmission standard SPP documents to reflect specific ecological conditions and sensitivities. The implementation and audit of these measures will be overseen by an Ecological/Environmental Clerk of Works (ECoW).

Mitigation Summary and Next Steps

- 7.5.4 The Applicant is committed to delivering both Embedded and Applied Mitigation as set out in **Section 3.4: Mitigation** and as described above in relation to this scoping assessment. The mitigation described above has been applied when considering the potential for the Proposed Development to result in likely significant effects.
- 7.5.5 The impact assessment will, therefore, assess the potential for likely significant residual effects to arise and identify any further mitigation (referred to as 'Additional Mitigation'), in addition to the Embedded and Applied Mitigation, necessary to reduce the significance of effects as far as practicable.
- 7.5.6 Embedded, Applied and any Additional Mitigation will be set out in a Schedule of Mitigation as a chapter of the EIAR. It is assumed that implementation will be assured by consent conditions.
- 7.5.7 As noted in **Chapter 1: Introduction**, BNG is a key consideration throughout project development, and the ambition is to ensure that activities not only maintain the existing baseline conditions but enhance the biodiversity in the area in line with the Applicant's policy on BNG (See **Section 1.3: Sustainability Strategy**). This is discussed further in below in **paragraph 7.7.6 and 7.7.7**.

## 7.6 Preliminary Assessment of Likely Significant Effects

Designated Sites

- 7.6.1 There are six internationally important designated sites that lie within 10 km of the Proposed Development as outlined in **Table 7.2: Statutory Designated Sites within 10 km of the Proposed Route**.
- 7.6.2 Two of these SACs are associated with the marine environment, ie Firth of Tay and Eden Estuary SAC and Garron Point SAC. The former of these is located approximately 7.3 km south and is hydrologically connected to route Section A via the Fithie Burn. However, the distance to the SAC via this watercourse is over 15 km; at this distance, and with Embedded and Applied Mitigation in place (see **Section 7.5: Mitigation**), it is considered that there is no likely impact pathway to the qualifying features of the Firth of Tay and Eden Estuary SAC. The second SAC associated with the marine environment, Garron Point, is located to the north of Stonehaven approximately 4.9 km east of the Proposed Route. The qualifying feature of the SAC is a species of snail found in marshy coastal grassland. The SAC is not hydrologically or functionally connected to the Proposed Development, and therefore there is no impact pathway to the qualifying feature of the SAC.
- 7.6.3 A further site, Red Moss of Netherley SAC, is located approximately 2.7 km east of route Section E. It is designated for its raised bog features which are ombrogenous<sup>98</sup>; as such, it is not hydrologically or functionally connected to the Proposed Development, and there is no impact pathway to the SAC. No likely impact pathways have been identified for these three sites.
- 7.6.4 The remaining three SACs (River Tay SAC, River South Esk SAC, and River Dee SAC) are riverine sites that require to be crossed by the Proposed Development.
- 7.6.5 There are 30 nationally important designated sites within 10 km of the Proposed Route as outlined in **Table 7.2: Statutory Designated Sites within 10 km of the Proposed Route**. The majority of these are located at a distance of 2 km or more from the Proposed Route and lack either ecological or hydrological connectivity to the Proposed Development. The exceptions to this are

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<sup>98</sup> Relying on rainwater for formation and maintenance, and not receiving either groundwater or surface water inputs.

Eslie Moss SSSI, Old Wood of Drum SSSI, and Loch of Park SSSI due to their proximity to the Proposed Development and therefore potential for an impact pathway to exist.

7.6.6 In addition, there are three statutory designated sites (LNRs) of local importance within 10 km of the Proposed Development as outlined in **Table 7.2: Statutory Designated Sites within 10 km of the Proposed Route**, and 56 non-statutory designated sites (LNCS) of local importance within 5 km of the Proposed Development as outlined in **Table 7.3: Non-Statutory Designated Sites within 5 km of the Proposed Route**. The majority of sites have no ecological or hydrological connectivity to the Proposed Development, and therefore no impact pathway has been identified. Sites for which a potential impact pathway has been identified due to their proximity to the Proposed Development are detailed in **Section 7.6: Preliminary Assessment of Likely Significant Effects**.

7.6.7 No operational effects from the Proposed Development have been identified at this stage with regards to designated sites.

#### Habitats

7.6.8 The majority of habitats within the Proposed Development comprise habitats of limited ecological value, such as intensively-managed farmland and commercial forestry. However, construction works may adversely affect habitats of conservation concern<sup>94</sup> through direct impacts, such as excavation and vegetation clearance, or indirect impacts such as permanent or temporary changes to existing hydrological conditions.

7.6.9 No operational impacts associated with the Proposed Development have been identified at this stage with regards to habitats.

#### Protected and Notable Species

7.6.10 Protected species, including otter, bats, beaver, red squirrel, pine marten, water vole and badger, may be adversely affected by vegetation clearance resulting in habitat loss and fragmentation. Notable species, such as amphibians, reptiles, brown hare, hedgehog and water shrew, may be similarly affected. The works may affect the ability of these species to rest, breed, forage and commute.

7.6.11 Any trees or structures with bat roost potential that require to be removed or disturbed during construction could result in impacts to bats. Red squirrel and pine marten may be similarly impacted by removal of trees used for dreys and dens.

7.6.12 Otter, beaver and water vole may use the watercourses in and around the Proposed Development. Key operational infrastructure for the OHL will be installed outside of riparian zones (including following SEPA's recommended riparian corridor data and buffers where possible (see **paragraph 9.1.10**); however, it is likely that a number of access track watercourse crossings will be required during construction (and some will be permanently retained).

7.6.13 Badger is present throughout the Proposed Route, making use of the mosaic of habitats including rough grassland, farmland (particularly grazed pasture) and woodland. Any badger setts that require to be removed or disturbed during construction could result in impacts to badger.

7.6.14 Brown hare and hedgehog are likely to be present throughout the Proposed Route and have been noted where encountered during field surveys. However, brown hare is associated with farmland habitats, and therefore potentially suitable habitat is extensive throughout northeast Scotland. Hedgehog is most commonly associated with habitats such as gardens, woodland edges and hedgerows, and it is expected that these habitats will generally be retained. Although records are very limited, water shrew may be present on watercourses within the Proposed Route.

7.6.15 Common species of amphibians and reptiles are present in areas of rough grassland, wetland, and along woodland rides and edges. They are unlikely to make use of areas of extensive coniferous woodland and agricultural land. Amphibians and reptiles may be adversely affected by vegetation clearance required to facilitate the works. Incidental records of reptiles and amphibians have been collected during surveys, although these species are unlikely to be present in large numbers within the Proposed Route due to the relatively limited availability of suitable habitat.

7.6.16 While the Proposed Development would cross over a number of watercourses, the OHL alignment design will aim to locate towers further than the recommended riparian corridor buffers require from watercourses wherever possible. However, it is considered reasonable to expect that Applied Mitigation measures to protect watercourses will be included within the CEMP on the assumption of the presence of important ecological features (including fish and freshwater pearl mussel). These measures

will be consistent with the requirements of SSEN Transmission's GEMPs and SPPs (See **Appendix B: List of Applied Mitigation Documents**).

- 7.6.17 It is considered that terrestrial protected and notable species identified within this Scoping Report (such as bats, otter, pine marten, red squirrel and badger) could be affected by lighting, noise, dust and visual disturbance caused by construction activities; however, it is considered reasonable to expect that these potential effects would be managed with the implementation of Applied Mitigation through standard best practice construction methods and following relevant guidance to mitigate environmental impacts.
- 7.6.18 Once operational, the OHL is not considered to limit movement of protected and notable species, including bats, through the Proposed Development.

Issues Scoped Out

- 7.6.19 Based on the work undertaken to date, the professional judgement of the ecology team, and experience from similar projects, the following effects are proposed to be scoped out:
- Effects on designated sites for which no likely impact pathways have been identified due to a lack of either ecological or hydrological connectivity to the Proposed Development.
  - Operational effects from the Proposed Development on designated sites; once operational, activities will adhere to SSEN Transmission's GEMP and SPPs (as Applied Mitigation).
  - Construction effects on habitats of limited ecological value, such as farmland and commercial forestry.
  - Operational effects from the Proposed Development on habitats; once operational, activities will adhere to SSEN Transmission's GEMP and the BEP associated with the Proposed Development.
  - Effects on notable species as a result of habitat loss or fragmentation, specifically brown hare, hedgehog and water shrew. The Applicant will seek to protect sensitive habitats through Embedded Mitigation, and Applied Mitigation will be adhered to in the form of implementation of relevant measures in the CEMP, SSEN Transmission's SPPs, and pre-works surveys and best practice methods of work.
  - Effects on amphibians and reptiles as a result of habitat loss or fragmentation. The assessment will assume amphibians and reptiles are present within suitable habitat. Embedded and Applied Mitigation measures will be agreed with NatureScot to avoid impacts on these species groups, including pre-construction surveys in areas where there is potential for the presence of sensitive features used for shelter and hibernation, and a protocol for locations where micro-siting avoidance of sensitive features is not possible, including non-licensed precautionary methods of working under the supervision of the ECoW.
  - Disturbance effects on terrestrial protected and notable species as a result of construction activities via lighting, noise, dust or visual disturbance. Construction activities will adhere to the agreed Applied Mitigation including a CEMP, and SSEN Transmission's GEMP and SPPs, as overseen by an ECoW.
  - Construction effects on fish; the Applicant will seek to protect the aquatic environment and sensitive riparian habitats through Embedded Mitigation and Applied Mitigation measures to protect watercourses will be included within the CEMP on the assumption of the presence of important ecological features.
  - Operational effects from the Proposed Development on protected and notable species; once operational, activities will adhere to SSEN Transmission's GEMP and SPPs.
  - With the exception of freshwater pearl mussel, consideration of invertebrate species is considered unnecessary as the EIA will adopt a precautionary approach and include appropriate mitigation, where required, to avoid significant effects on habitats of conservation concern that are likely to support notable species or assemblages of invertebrates.

## 7.7 EIA Assessment Scope and Methodology

Proposed Scope of Assessment

- 7.7.1 On the basis of the information in **Section 7.5: Mitigation**, and the preliminary assessment at this scoping stage, the assessment will consider the potential for significant effects associated with:
- Statutory designated sites with a potential impact pathway to the construction of the Proposed Development, comprising:

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- SACs: River Tay; River South Esk; and River Dee.
- SSSIs: Eslie Moss; Old Wood of Drum; and Loch of Park.
- Non-statutory designated sites with a potential impact pathway to the construction of the Proposed Development, comprising:
  - LNCSS: Woodside; Barrelwell Bog; Mergie; River Dee; River Dee Corridor; Old Manse Wood; Loch of Park; Candyglirach; and Barmekin Wood.
  - Habitat loss, fragmentation and severance of Ancient Woodland and LEPO woodland.
- Habitat loss or fragmentation impacts affecting habitats of conservation concern will be assessed and characterised to identify potential significant effects and whether avoidance or further mitigation is required.
- Loss or fragmentation of habitats used by protected and notable species will be considered, including for the following protected species:
  - Otter;
  - Bats;
  - Beaver;
  - Red squirrel;
  - Pine marten;
  - Water vole; and
  - Badger.
- Disturbance to aquatic environments that support populations of freshwater pearl mussel.

Assessment Methodology

- 7.7.2 The EclA will be completed in accordance with the Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines for Ecological Impact Assessment<sup>99</sup>. The assessment will use the ecological baseline to identify the important ecological features that could be affected by the construction of the Proposed Development. These features will be assigned a level of importance within a defined geographical context, based on factors such as conservation status, population/assemblage trends, and other relevant criteria (including size, naturalness, rarity and diversity).
- 7.7.3 Details of the Proposed Development will then be used to assess the pathways to effect, and the level of effect each receptor would be predicted to receive with reference to the following parameters: beneficial or adverse; extent; magnitude; duration; frequency; and reversibility.
- 7.7.4 The significance of a potential effect will be considered, using professional judgement, within the context of the geographically based ecological importance of the feature. To allow the potential effects identified in the EclA to be considered alongside those addressed in other topic chapters of the EIAR, a ‘translation’ from EclA significance to EIA significance is then undertaken. The translation relates the geographically based significance of ecological effects (identified through the EclA process) to the standard terminology for significance presented in other chapters (following the EIA process). Effects that are moderate or major in the EIA process are considered significant.
- 7.7.5 Where appropriate, mitigation measures will be presented within the EclA to remedy any adverse impacts and measures to enhance the local ecology will also be incorporated. An assessment of cumulative and residual effects will also be undertaken and reported within the EIAR.

Biodiversity Net Gain (BNG)

- 7.7.6 BNG is a process whereby development leaves biodiversity in a measurably better state than before development commenced.

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<sup>99</sup> Chartered Institute of Ecology and Environmental Management (CIEEM) (2018, updated 2022) *Guidelines for Ecological Impact Assessment in the UK and Ireland – Terrestrial, Freshwater, Coastal and Marine* (Version 1.2). Available at: <https://cieem.net/wp-content/uploads/2018/08/EClA-Guidelines-2018-Terrestrial-Freshwater-Coastal-and-Marine-V1.2-April-22-Compressed.pdf>

7.7.7 The Applicant is committed to the delivery of BNG and as such it is a key consideration for the project. A BNG assessment is currently being progressed by way of field survey to ensure that BNG can be delivered. The BNG assessment will be provided as an appendix to the ecology chapter of the EIA and will inform an Outline Biodiversity Enhancement Plan (BEP) which will also be presented as an appendix to the ecology chapter of the EIA. The approach will follow UK best practice and the Applicant's BNG guidance.

Field Survey – Habitats and Vegetation

7.7.8 Field surveys are in progress and are being undertaken by experienced ecologists during the 2023 and 2024 survey seasons. Drawing on the Applicant's best practice approach, data are being collected using the emerging UKHabs method<sup>100</sup> during the appropriate survey season.

7.7.9 The UKHabs method will ensure all habitats of conservation concern are appropriately identified within both a technical and policy context. Where necessary, UKHabs data will be converted to standard National Vegetation Classification (NVC) terminology for the purposes of detailed identification of habitats of conservation concern and GWDTE. An assessment will be made in the field of the condition of habitats as per the Applicant's BNG guidance<sup>97</sup>. Notes will be made of INNS where they are encountered and used to inform relevant management plans for implementation during construction and operation as appropriate.

Field Survey – Protected Species

7.7.10 In parallel with habitat and vegetation surveys, all habitat features will be considered with regard to their suitability to support the following protected species:

- Otter;
- Bats;
- Beaver;
- Red squirrel;
- Pine marten;
- Water vole; and
- Badger.

7.7.11 These species are considered to be the most likely to be encountered within the largely agricultural context of the route under consideration.

7.7.12 Habitat suitability will be determined according to published criteria for each species<sup>101</sup>. Where suitable habitat is identified, searches will be made for:

- Resting sites;
- Foraging and commuting routes/evidence; and
- Diagnostic evidence such as feeding remains, prints, scat etc.

7.7.13 Sufficient evidence will be collected to allow an analysis of broad territorial uses and population structures. It is noted that detailed surveys of populations are not proposed. Should field evidence highlight particularly sensitive populations, further consultation would be undertaken with NatureScot to identify any secondary survey requirements. The EIA will address future survey needs prior to construction activity, and the need for SPPs as part of the construction phase of the project. See **Appendix B: List of Applied Mitigation Documents** for list of The Applicant's SPPs.

7.7.14 Similarly, fish and aquatic invertebrate surveys are not proposed. Precedent has established that the design process for large-scale infrastructure projects proactively seeks to minimise impacts on watercourses through the application of Embedded and Applied Mitigation in the form of buffer distances from watercourses during the design phase and good practice construction measures, and that these measures are sufficient to protect aquatic features. These measures will be established in the EIA

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<sup>100</sup> UKHabs website. Available at: <https://ukhab.org/>

<sup>101</sup> Drawing on methods established in current best practice digests – Chartered Institute of Ecology and Environmental Management (CIEEM) (2021) Good Practice Guidance for Habitats and Species (Version 3). Available at: <https://cieem.net/wp-content/uploads/2021/05/Good-Practice-Guide-April-2021-v6.pdf>

along with construction-phase monitoring requirements. Nevertheless, a protocol of risk assessment with regards freshwater pearl mussel has been submitted to and agreed with NatureScot (8 May 2024), and will be used to assess whether survey of aquatic habitats may be required in specific locations as the design of the Proposed Development progresses, particularly with regards proposed access tracks and watercourse crossings.

#### Cumulative Effects

- 7.7.15 The cumulative effects of the Proposed Development with other developments, either consented but not constructed or proposed (with a valid planning application), within a suitable buffer for important ecological features identified as sensitive receptors, will be considered. This will include impacts that are additional or in-combination with the Proposed Development and will take particular account of the potential for significant cumulative effects with the proposed substations at Hurlie and Emmock.
- 7.7.16 The assessment of cumulative effects will be based on a two-stage approach as outlined in **Section 3.8: Approach to Assessment of Significant Environmental Effects**. The combined effects on ecological receptors from the Proposed Development will be first assessed in combination with those predicted from the equivalent assessments in the EIARs for the proposed Emmock and Hurlie substations, to provide a cumulative assessment for the Proposed Development and Associated SSEN Transmission Developments. A further assessment of the potential significant cumulative effects of other reasonably foreseeable developments in combination with those of the Proposed Development and Associated SSEN Transmission Developments will be undertaken and reported in the ecology chapter of the EIAR for the Proposed Development.

## 7.8 Summary

- 7.8.1 This Scoping Report has presented the developing ecological baseline of the Proposed Development and an initial assessment of the potential effects of the Proposed Development has been presented. This has enabled the proposed scope for the EIA to be refined.
- 7.8.2 Desk study information has identified statutory designated sites within 10 km of the Proposed Route, and non-statutory designated sites within 5 km. A potential impact pathway has been identified for a limited number of these sites which are therefore included in the scope of the EIA; the remaining sites have been scoped out due to their distance from the Proposed Route and a lack of a pathway for impacts identified.
- 7.8.3 Baseline surveys are currently in progress during the 2023 and 2024 survey seasons to provide an in depth understanding of the habitats along and adjacent to the Proposed Route. The Proposed Development would largely cross areas of agricultural land, as well as more limited extents of coniferous plantation woodland, broadleaved woodland and some open grassland and aquatic habitats. There is potential for habitats of conservation concern to be present, such as Annex I and/or SBL habitats, and some extents of wetland habitats are likely to be present with potential to be GWDTE.
- 7.8.4 Field surveys to date indicate that Annex I, SBL habitats, and GWDTEs are relatively limited and scattered along the Proposed Route, although some may be affected by excavation and vegetation clearance works. These potential effects will be considered in further detail in the EIAR to establish the potential for significant impacts and identify appropriate mitigation.
- 7.8.5 Suitable habitat for otter, bats, beaver, red squirrel, pine marten, water vole, and badger is likely within the Proposed Route, all of which are protected species and will be further considered in the EIAR. In addition, habitat is likely to be present with potential to support species such as freshwater pearl mussel, fish, amphibians, reptiles, brown hare and hedgehog. The EIAR will identify where species require to be safeguarded through further pre-construction surveys informing appropriate and detailed mitigation prior to construction. This information can be captured and administered through a CEMP and the Applicant's SPPs prior to and during construction and audited by an ECoW during and post-construction.

## 8. ORNITHOLOGY

### 8.1 Introduction

- 8.1.1 This chapter sets out a preliminary assessment of effects and the proposed approach to assessing the potential effects of the Proposed Route on ornithology.
- 8.1.2 The specific objectives of the EIA scoping assessment are to:
- Identify where there is potential for significant effects on the ornithological receptors;
  - Identify where and what type of mitigation measures should be employed across the Proposed Route; and
  - Undertake a preliminary assessment of the likely significance of effects following implementation of mitigation measures based on the information available at this stage.
- 8.1.3 The EIAR will provide a detailed description of the existing baseline ornithological features of the Proposed Development, as well as an assessment of the predicted effects of the Proposed Development on the important ornithological features present, taking account of mitigating measures to avoid and reduce significant effects where appropriate.
- 8.1.4 Consultation has been undertaken with statutory and non-statutory consultees<sup>102</sup>. Consultation was held with NatureScot to inform the ornithology survey methodology in relation to the Proposed Route as well as to determine the approach to assessment for the EIA. In May 2023, NatureScot, confirmed they were content with the survey approach regarding the qualifying features of the designated sites as well as other protected bird species (Schedule 1/Annex 1 species and wading birds). In September 2023, NatureScot were consulted again in relation to specific survey methods relating to wintering bird surveys. NatureScot advised they were content with the approach of completing flight activity surveys from Vantage Points (VPs) from late-September 2023 to March 2024 inclusive. Agreement was also made on proposed viewsheds and to complete 18 hours of targeted dawn and dusk watches per VP which would allow sufficient and more relevant data to be collected for key SPA target species when the majority of the goose commuting flights occur. Surveys have also taken on board NatureScot's recommendation for field use surveys and associated flight activity surveys which have recently been completed.
- 8.1.5 NatureScot also responded with regards to adverse effects on statutory protected nature conservation sites. They noted that *"Where alignment is unable to avoid direct or indirect effects on protected areas we are likely to object if these effects will be adverse and cannot be mitigated satisfactorily"*. The potential for Habitats Regulations Appraisal (HRA) and requirements for suitable information gathering were also addressed. A HRA of the proposals will be undertaken separately from the EIA where the Proposed Development is considered to have likely significant effects on the qualifying interests of relevant SPA sites. These will be discussed further with NatureScot. See also **Section 3.5: Habitats Regulations Appraisal**.
- 8.1.6 RSPB provided a consultation response in June 2023. The presence of several designated sites as well as priority bird species (notably Red kite (*Milvus milvus*)) were noted as present along or close to the routes. They also supplied comments with regard to routeing: Section C was highlighted due to its proximity to Montrose Basin SPA as requiring additional survey to predict collision risk; Section E with known red kite nests; and for Section F, they agreed with the consultation document that powerlines adjacent to the Loch of Skene SPA would produce a high collision risk for the SPA qualifying features. In addition, breeding waders and red kite nests and roosts were identified as being prevalent in the area.
- 8.1.7 The NatureScot routeing response (May 2023) recorded the following: in Section B, all routes lie within connectivity distance of foraging geese from SPAs; all routes in Section D and E with potential connectivity to Fowlsheugh SPA; and for Section F, route F1 lies adjacent to the Loch of Skene SPA and it was advised that the selection of this route may result in a risk of significant effects on SPA species.
- 8.1.8 Aberlemno and District Community Council noted that habitat for breeding birds will be removed and that the flight path of geese towards Montrose Basin SPA may be affected by the works, towers and OHLs (June 2023).
- 8.1.9 Culter Community Council (July 2023) noted that there are bird populations, many of which (would) fly along the preferred F route between Loch of Skene and the Anguston area.

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<sup>102</sup> Responses received to date from consultation events in May 2023 and March 2024.

- 8.1.10 The NatureScot Response in April 2024 advised that the EIA should include a full assessment of the impact on Schedule 1 birds in the Natural Heritage Zones (NHZ). They also advised that if construction is being carried out during the breeding bird season, then pre-construction surveys will be required to avoid disturbance. If active nests are discovered within 500 m of the development then construction may be restricted until after the breeding season. NatureScot advised that Scottish Forestry or the North-East Raptor study Group may also have further information on raptors in the forest areas.
- 8.1.11 NatureScot was consulted in May 2024 regarding the proposed approach to Collision Risk Modelling (CRM). NatureScot was content with the approach proposed and welcomed the fieldwork carried out to date. Generally, NatureScot does not comment on CRM methods and advised the best approach was to instal line marking to the OHL in any high-risk areas (June 2024).

## 8.2 Baseline Conditions

### Summary of Baseline

- 8.2.1 A number of designated sites are present, the qualifying features for which show potential for connectivity to the Proposed Development. Surveys of wintering bird species have recently been completed and will provide a comprehensive baseline from which to determine potential adverse effects and to inform on potential mitigation for the OHL. Breeding bird surveys undertaken in 2023 (and being supplemented in Spring/Summer 2024) have focussed on areas of important bird habitat along the Proposed Route, specifically areas within route sections with breeding protected bird species. In addition, desk records obtained from the RSPB have identified areas with breeding Schedule 1/Annex 1 species as well as roosting sites for the Schedule 1A species, red kite.

### Designated Sites

- 8.2.2 The NatureScot SiteLink website<sup>103</sup> was used to identify designated nature conservation sites that may have ecological connectivity to the Proposed Development (up to 20 km for sites of international importance and where the qualifying feature(s) core range extends to this distance and 2 km for sites of national importance).
- 8.2.3 Designated sites include SPAs, which are of international importance, and SSSIs and National Nature Reserves (NNRs) which are of national importance. The statutory designated sites that coincide with, or where their qualifying features show connectivity, for example, where core ranges of the species coincide with the Proposed Development, are set out in **Table 8.1: Statutory Designated Sites Associated with the Proposed Development** and shown in **Figure 8.1: Ornithological Designated Sites**. The route sections which show connectivity to the designated sites are noted below (refer to **Table 8.1: Statutory Designated Sites Associated with the Proposed Development**):
- Section A:
    - Firth of Tay and Eden Estuary SPA;
    - Loch of Lintrathen SPA;
    - Loch of Kinnordy SPA; and
    - Outer Firth of Forth and St. Andrews Bay SPA.
  - Section B:
    - Loch of Lintrathen SPA;
    - Loch of Kinnordy SPA; and
    - Montrose Basin SPA.
  - Section C:
    - Loch of Kinnordy SPA; and
    - Montrose Basin SPA.
  - Section D:
    - Montrose Basin SPA; and
    - Fowlsheugh SPA.

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<sup>103</sup> NatureScot SiteLink website. Available at: <https://sitelink.nature.scot/home>

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- Section E:
  - Fowlsheugh SPA; and
  - Loch of Skene SPA.
- Section F:
  - Loch of Skene SPA.

**Table 8.1: Statutory Designated Sites Associated with the Proposed Development**

Site Name	Qualifying Features	Distance from Proposed Route at its Closest	Connectivity with Proposed Development
Firth of Tay and Eden Estuary Ramsar & SPA (also Important Bird Area (IBA))	SPA/Ramsar: <ul style="list-style-type: none"> <li>• Bar-tailed godwit (<i>Limosa lapponica</i>; non-breeding);</li> <li>• Common scoter (<i>Melanitta nigra</i>; non-breeding);</li> <li>• Cormorant (<i>Phalacrocorax carbo</i>; non-breeding);</li> <li>• Dunlin (<i>Calidris alpina</i>; non-breeding);</li> <li>• Eider (<i>Somateria mollissima</i>; non-breeding);</li> <li>• Goldeneye (<i>Bucephala clangula</i>; non-breeding);</li> <li>• Goosander (<i>Mergus merganser</i>; non-breeding);</li> <li>• Grey plover (<i>Pluvialis squatarola</i>; non-breeding);</li> <li>• Greylag goose (<i>Anser anser</i>; non-breeding);</li> <li>• Icelandic black-tailed godwit (<i>Limosa limosa islandica</i>; non-breeding);</li> <li>• Little tern (<i>Sternula albifrons</i>; breeding);</li> <li>• Long-tailed duck (<i>Clangula hyemalis</i>; non-breeding);</li> <li>• Marsh harrier (<i>Circus aeruginosa</i>; breeding);</li> <li>• Oystercatcher (<i>Haematopus ostralegus</i>; non-breeding);</li> <li>• Pink-footed goose (<i>Anser brachyrhynchus</i>; non-breeding);</li> <li>• Red-breasted merganser (<i>Mergus serrator</i>; non-breeding);</li> <li>• Redshank (<i>Tringa tetanus</i>; non-breeding);</li> <li>• Sanderling (<i>Calidris alba</i>; non-breeding);</li> <li>• Shelduck (<i>Tadorna tadorna</i>; non-breeding);</li> <li>• Velvet scoter (<i>Melanitta fusca</i>; non-breeding); and</li> <li>• Waterfowl assemblage (non-breeding).</li> </ul>	8.5 km (south of Section A)	Potential connectivity with greylag and pink-footed geese as within core foraging range (20 km).
Outer Firth of Forth and St. Andrews Bay SPA	SPA: <ul style="list-style-type: none"> <li>• Arctic tern (<i>Sterna paradisaea</i>; breeding);</li> <li>• Black-headed gull (<i>Chroicocephalus ridibundus</i>; non-breeding);</li> <li>• Common gull (<i>Larus canus</i>; non-breeding);</li> <li>• Common scoter (non-breeding);</li> <li>• Common tern (<i>Sterna hirundo</i>; breeding);</li> <li>• Eider (non-breeding);</li> </ul>	8.5 km (southeast of Section A)	Outer Firth of Forth and St. Andrews Bay SPA is designated for breeding seabirds including herring gull that may forage inland. There is potential connectivity with the Proposed Route and the SPA.

Site Name	Qualifying Features	Distance from Proposed Route at its Closest	Connectivity with Proposed Development
	<ul style="list-style-type: none"> <li>Gannet (<i>Morus bassanus</i>; breeding);</li> <li>Goldeneye (non-breeding);</li> <li>Common guillemot (<i>Uria aalge</i>; breeding &amp; non-breeding);</li> <li>Herring gull (<i>Larus argentatus</i>; breeding &amp; non-breeding);</li> <li>Black-legged kittiwake (<i>Rissa tridactyla</i>; breeding &amp; non-breeding);</li> <li>Little gull (<i>Hydrocoloeus minutus</i>; non-breeding);</li> <li>Long-tailed duck (non-breeding);</li> <li>Manx shearwater (<i>Puffinus puffinus</i>; breeding);</li> <li>Puffin (<i>Fratercula arctica</i>; breeding);</li> <li>Razorbill (<i>Alca torda</i>; non-breeding);</li> <li>Red-breasted merganser (non-breeding);</li> <li>Red-throated diver (<i>Gavia stellata</i>; non-breeding);</li> <li>Seabird assemblage (breeding and non-breeding);</li> <li>Shag (<i>Phalacrocorax aristotelis</i>; breeding &amp; non-breeding);</li> <li>Slavonian grebe (<i>Podiceps auritus</i>; non-breeding);</li> <li>Velvet scoter (non-breeding); and</li> <li>Waterfowl assemblage (non-breeding).</li> </ul>		
Loch of Lintrathen SPA, Ramsar and SSSI	SPA/Ramsar/SSSI: <ul style="list-style-type: none"> <li>Greylag goose (non-breeding).</li> </ul>	12.5 km (west of Section B)	Potential connectivity with greylag geese as within core foraging range (20 km).
Loch of Kinnordy SPA, Ramsar and SSSI (also IBA)	SPA: <ul style="list-style-type: none"> <li>Greylag goose (non-breeding); and</li> <li>Pink-footed goose (non-breeding).</li> </ul> SSSI/Ramsar: <ul style="list-style-type: none"> <li>Additionally – breeding bird assemblage.</li> </ul>	4.4 km (west of Section B)	Potential connectivity with greylag and pink-footed geese as within core foraging range (20 km).
Montrose Basin Ramsar, SPA, SSSI and LNR (also IBA)	SPA/Ramsar: <ul style="list-style-type: none"> <li>Dunlin (non-breeding);</li> <li>Eider (non-breeding);</li> <li>Greylag goose (non-breeding);</li> <li>Knot (<i>Calidris canutus</i>; non-breeding);</li> <li>Oystercatcher (non-breeding);</li> <li>Pink-footed goose (non-breeding);</li> <li>Redshank (non-breeding);</li> <li>Shelduck (non-breeding);</li> <li>Wigeon (<i>Anas penelope</i>; non-breeding); and</li> <li>Waterfowl assemblage (non-breeding).</li> </ul> SSSI: <ul style="list-style-type: none"> <li>Additionally – mute swan (<i>Cygnus olor</i>; non-breeding).</li> </ul>	6.8 km (east of Section C)	Potential connectivity with greylag and pink-footed geese as within core foraging range (20 km).

Site Name	Qualifying Features	Distance from Proposed Route at its Closest	Connectivity with Proposed Development
	<ul style="list-style-type: none"> <li>Dunlin &amp; shelduck not features of SSSI.</li> </ul>		
Fowlsheugh SSSI and SPA (also IBA)	SPA: <ul style="list-style-type: none"> <li>Northern fulmar (<i>Fulmarus glacialis</i>; breeding);</li> <li>Common guillemot (breeding);</li> <li>Herring gull (breeding);</li> <li>Black-legged kittiwake (breeding);</li> <li>Razorbill (breeding); and</li> <li>Seabird assemblage (breeding).</li> </ul> SSSI: <ul style="list-style-type: none"> <li>Additionally – puffin (breeding); and</li> <li>Seabird colony (breeding).</li> <li>Herring gull not a SSSI feature.</li> </ul>	9 km (east of Section D)	Fowlsheugh SPA is designated for breeding seabirds including herring gull that may forage inland. There is potential connectivity with the Proposed Route and the SPA.
Loch of Skene SPA, Ramsar and SSSI (also IBA)	SPA/Ramsar: <ul style="list-style-type: none"> <li>Goldeneye (non-breeding);</li> <li>Goosander (non-breeding); and</li> <li>Greylag goose (non-breeding).</li> </ul> SSSI: <ul style="list-style-type: none"> <li>Additionally – common gull (non-breeding); and</li> <li>Pink-footed goose (non-breeding).</li> <li>Goosander not a SSSI feature.</li> </ul>	3.2 km (east of Section F)	Potential connectivity with greylag geese, goldeneye and goosander as within 20 km of Loch of Skene SPA.

8.2.4 There are no non-statutory designations, eg nature reserves, for ornithological interest with potential connectivity to the Proposed Development.

#### Species Records from Data Requests

8.2.5 A search for publicly available ornithological records was undertaken within 2 km of the Proposed Route (including NBN<sup>104</sup>). In addition, data were obtained from the RSPB for bird records within 2 km of the Proposed Route. The RSPB data request included Schedule 1 bird species together with breeding waders and forest grouse. Data on Schedule 1 raptors were also requested from local Raptor Study Groups<sup>105</sup>, as well as from Forestry and Land Scotland (FLS)<sup>106</sup> where suitable habitat was present within 2 km of the Proposed Route.

8.2.6 A number of red kite nests were noted within the desk records acquired, notably towards the north of the Proposed Route, especially in Section F (between the River Dee and Kintore). This area was the site of a red kite release project from 2007 with 101 young birds reintroduced across a three-year period. Associated with the breeding success is the presence of roost sites within forestry in the local area; the species is a Schedule 1A species with protection from disturbance during the roosting period as well as during breeding. In addition, breeding records of Osprey (*Pandion haliaetus*) and Peregrine (*Falco peregrinus*) as well as breeding wader locations, including for Curlew (*Numenius arquata*), Oystercatcher, Lapwing (*Vanellus vanellus*), Little ringed plover (*Charadrius dubius*) and Snipe (*Gallinago gallinago*); and locations of calling Corncrake (*Crex crex*) were also supplied.

<sup>104</sup> NBN Atlas Scotland website. Available at: <https://scotland.nbnatlas.org/>

<sup>105</sup> Data was first requested on 11/03/2023 and a subsequent request was made on 27/11/2023. Scottish Raptor Study Group (SRSRG) advised on 14/12/2023 that the Proposed Route covers two different regional raptor study groups (North East and Tayside & Fife) and SRSRG forwarded the data requests to these groups. SRSRG advised that the groups work as volunteers and that direct contact details cannot be shared. Data have not been received from local Raptor Study Groups at the time of writing this Scoping Report.

<sup>106</sup> Data from FLS has been received for Fetteresso Forest only. SSEN are still awaiting the receipt of data for other FLS forestry blocks, including Durris Forest.

*Bird Habitat Appraisal*

- 8.2.7 A recent BTO publication<sup>107</sup> (hereafter referred to as the Bird Habitat Appraisal), together with the associated publicly available dataset<sup>108</sup>, showing the 'sensitivity' of 1 km squares with regard to wader habitat (based on previous breeding bird survey work), was used to help determine potential breeding wader receptors across the Proposed Route and to inform the focus areas for breeding bird surveys (see below).

*Initial Survey Findings**Breeding Birds*

- 8.2.8 Three survey visits were carried out from early May to mid/late June 2023 across ten survey areas identified as potentially supporting high sensitivity breeding bird (wader) habitats with reference to the Bird Habitat Appraisal. Further surveys are taking place during the 2024 breeding bird season and the findings will be presented within the EIAR.
- 8.2.9 Depending on habitat and likely species present, a combination of upland breeding bird surveys and scarce raptor surveys were carried out across the visits as below:
- Upland breeding bird surveys: Surveys following an adapted Brown and Shepherd survey method<sup>109</sup> were undertaken during the 2023 breeding season across areas identified using BTO/desk study records along the potential route options (once defined) and an additional 500 m buffer.
  - Scarce raptor surveys: Preliminary surveys were undertaken over the breeding season in 2023 across focal areas of suitable habitat for species including Hen harrier (*Circus cyaneus*), osprey and red kite within 2 km of the Proposed Route and as informed by BTO/desk study records.
- 8.2.10 The following target species were recorded as showing breeding activity within the 2 km study area:
- Red kite (associated with forestry and open woodland);
  - Osprey (Loch of Skene area);
  - Merlin (*Falco columbarius*) (a single breeding attempt in the southern section of the study area);
  - Short-eared owl (*Asio flammeus*) (a single breeding attempt in the southern section of the study area);
  - Lapwing (across pasture/arable land);
  - Curlew (associated with wetter pastures);
  - Oystercatcher (across pasture/arable land);
  - Snipe (associated with wetter pastures); and
  - Black grouse (*Tetrao tetrix*); (in the southern section of the study area).
- 8.2.11 In addition, Marsh harrier, Barn owl (*Tyto alba*) Roosting and Peregrine were recorded during surveys.

*Wintering Birds*

- 8.2.12 As agreed with NatureScot, surveys to explore the foraging distribution of wintering goose species were undertaken at an early stage in the project (prior to identification of potential OHL routes) within the overlap area of a 15 km buffer of relevant SPAs and the Preferred Corridor (See **Section 1.6: Corridor, Route and Alignment Selection**). This involved systematic searches using the road network of the whole potential foraging area, to count and map feeding birds, describe the food sources being used and to plot flight lines of birds moving between feeding sites. Numbers of geese, together with potential flight routes to and from the nearest SPAs were to be used to inform route selection and appraisal within the Preferred Corridor.

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<sup>107</sup> O'Connell, P., Wilson, M., Wetherhill, A. and Calladine, J. (2021) Sensitivity mapping for breeding waders in Britain: towards producing zonal maps to guide wader conservation, forest expansion and other land-use changes. Report with specific data for Northumberland and north-east Cumbria. BTO Research Report, 740, BTO, Thetford, UK.

<sup>108</sup> Forestry Commission Open Data website. Available at:  
[https://dataforestry.opendata.arcgis.com/datasets/0681a879417b42dfb6d7825ef791cd5a\\_0/explore](https://dataforestry.opendata.arcgis.com/datasets/0681a879417b42dfb6d7825ef791cd5a_0/explore)

<sup>109</sup> Brown, A. F. and Shepherd, K. B. (1993) A method for censusing upland breeding waders. Bird Study, 40, p.189-195.

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- 8.2.13 A total of six visits were carried out in February and March 2023, inclusive. In addition to noting field use by geese, opportunity was taken to monitor dawn flights from Loch of Skene of the goose species here.
- 8.2.14 Pink-footed geese and greylag geese were recorded as foraging across the study area. In addition, Whooper swan (*Cygnus cygnus*) and mute swan were noted. Dawn flights out of the Loch of Skene roost, showed flights in all directions from north to west of birds heading out to foraging sites.
- 8.2.15 Further wintering geese surveys have been completed to provide more detailed baseline data on geese activity over the 2023/2024 winter period. With regards to flight activity in relation to the SPAs outlined in **Table 8.1: Statutory Designated Sites Associated with the Proposed Development**, vantage point watches have been undertaken to determine SPA goose activity, specifically in reference to Loch of Skene SPA, Firth of Tay and Eden Estuary SPA, Loch of Kinnordy SPA and Montrose Basin SPA. Consultation with NatureScot has agreed scope of surveys as well as to identify expectation with regards to other SPAs noted in **Table 8.1: Statutory Designated Sites Associated with the Proposed Development** (goose numbers and distance from Proposed Route may factor these SPAs out of the survey scope).

Additional Surveys

- 8.2.16 Further breeding bird surveys which include waders, raptors and forest grouse (the latter identified as being present on Glamis estate land in Section A of the Proposed Route) have been completed in 2024 focussing on RSPB desk record sites and data collected during the 2023 breeding season surveys which identified locations of greater importance for key species.

**8.3 Sensitive Receptors**

- 8.3.1 Based on the initial desk and field-based work undertaken, the ornithological receptors that will be considered for assessment comprise:
- Statutory designated sites, namely SPAs and SSSI where the qualifying features of the site include ornithological interests;
  - The bird species listed as qualifying features of the above sites; and
  - Other species considered to be of high or moderate nature conservation importance, due to their inclusion on Annex I of the EC Birds Directive (Annex 1 species), Schedule 1 of *the Wildlife and Countryside Act 1981*, as amended (Schedule 1 species) and occurrence on the Red List of UK Birds of Conservation Concern (Red-list species).
- 8.3.2 More specifically, studies to date point to a number of breeding records of the Schedule 1 species, red kite. The records are largely in the northern route sections in E and F, although the species is slowly expanding as a breeding bird across the area. The species is associated with larger trees in woodland including forestry plantations. The breeding bird surveys carried out appear to substantiate the continued use of traditional nesting sites, with the majority of desk study nesting sites checked being active in 2023. In addition, osprey (at the Loch of Skene) together with other raptors (merlin and marsh harrier) were recorded on occasion across the survey areas.
- 8.3.3 In addition, the BTO wader sensitivity data were backed up by field survey findings, with areas identified as likely to be important for breeding curlew, a species of open heathland and of wetlands, were also found to be areas where other target species such as waders as well as raptors and in one area, black grouse, were recorded as breeding.
- 8.3.4 The SPAs identified in **Table 8.1: Statutory Designated Sites Associated with the Proposed Development** with qualifying features of geese are identified as sensitive receptors due to the core foraging range of greylag and pink-footed geese to be up to 20 km distant from their respective SPA. As such, Loch of Skene SPA, Montrose Basin SPA, Loch of Lintrathen SPA, Loch of Kinnordy SPA, and the Firth of Tay and Eden Estuary SPA all hold SPA qualifying feature species that may be affected by the Proposed Development.
- 8.3.5 The following sensitive receptors are recognised:
- Designated sites, where qualifying species have a potential connectivity with the Proposed Route ie Loch of Skene SPA, Montrose Basin SPA, Loch of Lintrathen SPA, Loch of Kinnordy SPA, Fowlsheugh SPA and the Firth of Tay and Eden Estuary SPA;
  - Red kite, included in Schedule 1A of *the Wildlife and Countryside Act 1981* (as amended in Scotland 2013);
  - Goshawk, included in Schedule 1A of *the Wildlife and Countryside Act 1981*;
  - Merlin, included in Schedule 1 of *the Wildlife and Countryside Act 1981*;

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- Osprey included in Schedule 1 of *the Wildlife and Countryside Act 1981*;
- Black grouse, a red-list species of conservation concern;
- Curlew, a red-list species of conservation concern; and
- Lapwing, a red-list species of conservation concern.

## 8.4 Potential Effects

8.4.1 The assessment will consider the potential for significant effects associated with:

- Effects on designated sites (ie with respect to the qualifying features);
- Effects on bird populations, arising from the killing, injury or disturbance (and/or displacement) of nationally and internationally protected species of bird during the construction or operational phases of the Proposed Development; and
- Cumulative effects arising from consideration of the above effects combined with effects from other developments, within the study area of the Proposed Route, and which act upon the same bird populations.

8.4.2 Potential significant effects on birds from the Proposed Route include:

- Mortality through collision with power lines when a bird flies into an OHL conductor and is killed either from the impact, from hitting the ground, or from injuries sustained in the process (most notably with regard to SPA qualifying species such as swans and geese)<sup>110</sup>.
- Mortality through electrocution when birds perching or nesting on towers cause a short circuit, either by touching two live wires, or a live and an earthed component. However, in most OHL towers associated with large capacity circuits (132 kV and above) the gaps between live elements (conductors) are too large to be bridged by the wingspan of birds.
- Displacement, where birds are excluded from areas that were suitable for them before the development. This can be caused by a number of factors, including direct loss of habitat to accommodate the infrastructure (notably felling of woodland and other high-quality habitats to create a wayleave), the indirect loss of habitat due to birds avoiding the OHL tower structures and the surrounding area due to their presence, and/or disturbance through construction and maintenance activities. Displacement effects are likely associated with breeding and roosting raptors, waders and forest grouse.

## 8.5 Mitigation

8.5.1 In-line with the hierarchy of mitigation set out in **Section 3.4: Mitigation**, the following section describes the Embedded and Applied Mitigation which is considered relevant to the Proposed Development in the context of this ornithological scoping assessment. The mitigation outlined below has been considered and applied when determining the potential for likely significant effects arising from the construction and operation of the Proposed Development as described in **Section 8.4: Potential Effects**.

8.5.2 The adoption of mitigation measures to avoid or reduce adverse effects upon ornithological features resulting from the Proposed Development will continue to be part of the iterative OHL alignment design process.

8.5.3 Full details of the scheme design and mitigation measures in relation to ornithology will be detailed within the EIAR.

### Embedded Mitigation

8.5.4 The design evolution for the Proposed Development has included changes which result in a reduced likelihood of adverse, significant effects on the receiving environment and the sensitive receptors therein. The mitigation by design, referred to as 'Embedded Mitigation' in this report, which is relevant to this technical assessment comprises:

- Avoidance of designated sites and areas of high bird use through the OHL routeing and alignment processes; and

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<sup>110</sup> Line marking remains the most common and practical form of wire collision mitigation worldwide, and research shows that it can reduce bird collisions by 50-94% (evidence reviewed in Prinsen, H.A.M., Smallie, J.J., Boere, G.C. & Pires, N. (Eds.) 2011. Available at: [https://www.unepaewa.org/sites/default/files/publication/ts50\\_electr\\_guidelines\\_03122014.pdf](https://www.unepaewa.org/sites/default/files/publication/ts50_electr_guidelines_03122014.pdf)). Bird flight diverters are likely to be double leg diverters placed on the earth wire spaced at 5 m intervals and maintained for the duration of the operational period.

- Installing line markers on earth wires of the OHL as appropriate<sup>111</sup> to reduce collision risk of SPA-qualifying species and other bird species considered at risk of impact at hot-spots identified from vantage point surveys. Following from the vantage point watches, foraging surveys and breeding Schedule 1 species surveys, line marking should therefore be carried out in the following instances:
  - Within 5 km of all SPAs that hold qualifying features that are high collision risk species (i.e. waterfowl) across the project;
  - Where collision risk across any OHL span is judged to be substantial<sup>112</sup>, potentially leading to adverse impacts on Regional populations of at-risk species<sup>113</sup>, namely those target species recorded as flying at collision risk height where flight lines intersect the alignment (adjacent OHL spans also to be marked); and
  - Within 1 km of identified Schedule 1 raptor species nests.
- Assessment methodology has been agreed in principle with NatureScot (See **Section 8.1: Introduction**) such that reference to post construction survey and modelling of similar project design (e.g. Beauldy-Denny 400 kV OHL) will be incorporated into the EIAR to help determine impact.

#### Applied Mitigation

8.5.5 In addition to the Embedded Mitigation, inherent in the design of the Proposed Development, the Applicant is committed to implementation of Applied Mitigation which comprises a suite of SEN standard management plans and contractor authored documentation, which details general and site-specific measures which will be implemented to avoid or mitigate likely significant effects. See **Section 3.4: Mitigation** and **Appendix B: List of Applied Mitigation Documents**. The Applied Mitigation considered relevant to this technical assessment includes but is not limited to:

- The Applicant's Bird Species Protection Plans (BSPP) TG-NET-ENV-505, will be implemented which will ensure that legislation in relation to the protection of birds is adhered to. As part of the BSPP, pre-construction surveys and data collection is an essential requirement. General Applied Mitigation is outlined within the BSPP which follows a hierarchical approach including programming work outwith the breeding bird season (as defined by NatureScot<sup>114</sup>) and establishing appropriate protection zones (which are defined in the BSPP) for key specially protected or sensitive species.
- Other mitigation may be required in exceptional cases which may include dissuasion techniques such as habitat management, installation of bird scarers and removing disused bird nests, the need for which would be determined on a case by case basis by an ECoW in consultation with NatureScot, if required.

#### Mitigation Summary and Next Steps

8.5.6 The Applicant is committed to delivering both Embedded and Applied Mitigation as set out in **Section 3.4: Mitigation** and as described above in relation to this scoping assessment. The mitigation described above has been applied when considering the potential for the Proposed Development to result in likely significant effects.

8.5.7 The impact assessment will, therefore, assess the potential for likely significant residual effects to arise and identify any further mitigation (referred to as 'Additional Mitigation'), in addition to the Embedded and Applied Mitigation, necessary to reduce the significance of effects as far as practicable. Additional Mitigation could include replacement habitat, or habitat improvements which would offset the significant residual effects. These measures would be developed in an integrated manner with the

<sup>111</sup> As per NatureScot guideline – *Assessment and mitigation of impacts of power lines and guyed meteorological masts on birds* (2016). Available at: <https://www.nature.scot/doc/guidance-assessment-and-mitigation-impacts-power-lines-and-guyed-meteorological-masts-birds>, "line sections which are routed through protected areas designated for susceptible species, areas of substantial flight activity and/or those close to roost, breeding or main feeding areas should be considered for line marking. What level of flight activity constitutes 'substantial' and how far from key areas marking needs to continue will depend on the species, site and the risk posed by development involved. This judgement should take into account the core foraging areas of the affected species, connectivity distances, susceptibility to collision, status of the population(s) and the potential population significance of collision mortality".

<sup>112</sup> Substantial is defined per SPA-watched area as those flights above the 2nd quartile of the flight activity data set for which flights are recorded at potential collision height. Four main watch areas are present: south (SPAs of Loch of Linrathen, Loch of Kinnordy & Outer Firth of Forth); Kinnordy area (including SPAs of Loch of Linrathen, Loch of Kinnordy); Montrose SPA area and the Loch of Skene SPA survey area in the north. This reflects both SPA roost usage and local foraging behaviours.

<sup>113</sup> Including Schedule 1 species, qualifying features of a SPA within connectivity distance & species from other sensitive regional populations with substantial flight activity levels.

<sup>114</sup> NatureScot (2021) Bird breeding season dates in Scotland. Available at: <https://www.nature.scot/doc/bird-breeding-season-dates-scotland>

ecology team as part of proposals for compensatory habitat creation and for BNG to achieve overall ecological enhancement (See **Chapter 7: Ecology**).

- 8.5.8 Embedded, Applied and any Additional Mitigation will be set out in a Schedule of Mitigation as a chapter of the EIAR. It is assumed that implementation will be assured by consent conditions.

## 8.6 Preliminary Assessment of Likely Significant Effects

- 8.6.1 The key types of effect on ornithology from the construction and operation of the Proposed Development where significant effects may be predicted are set out below.

### Habitat Loss (Construction and Operational Phase)

- 8.6.2 Both permanent and temporary habitat loss and habitat modification due to vegetation management or hydrological change would be assessed in the ecology chapter of the EIAR. The levels of habitat loss and/or modification associated with tower and track construction and operation are limited and are not considered to represent a likely significant loss and/or modification of bird habitat in most areas, however, where habitat loss coincides with the loss of traditional raptor nesting sites eg in woodland cleared for wayleave, assessment, including options for micro-siting, would be explored. Both permanent and temporary habitat loss and habitat modification due to vegetation management or hydrological change would be assessed further in the ecology chapter of the EIAR.

### Collision Risk (Operational Phase)

- 8.6.3 Collision risk associated with the Proposed Development can be mitigated in part by line marking and habitat management/the BSPP. However, collision will likely remain as a potential significant effect on some species in some locations. Larger birds, such as geese and swans tend to be at highest risk of collision with OHL wires, and both groups form the qualifying features of a number of the SPAs outlined in **Table 8.1: Statutory Designated Sites Associated with the Proposed Development**. In addition, raptor species may be at increased risk of collision close to nesting sites.

### Disturbance Phase (Construction Phase)

- 8.6.4 Disturbance associated with the construction phase of the OHL, although temporary, has the potential to cause significant effects. Notably, all breeding bird species are protected under *the Wildlife and Countryside Act 1981* while nesting, including with regards to access to the nesting site; disturbance leading to the nesting bird being hindered in any way from breeding is considered an offence. While working in the vicinity of the larger, more sensitive species, including red kite, work is required to maintain a suitable buffer away from the nesting bird (species-dependent but rarely above 500 m<sup>115</sup>) to avoid disturbance. As such, working out with the breeding season (considered as mid-March to end of August, inclusive) will be recommended to avoid significant effects where practical. It should be noted that red kite is a Schedule 1A species and as such, it is an offence to intentionally or recklessly harass the species at any time; the species often forms communal roosts during the winter months and therefore is also protected from disturbance during this time.

### Issues Scoped Out

- 8.6.5 The following high-level elements have been scoped out of the detailed ornithological impact assessment following this preliminary scoping assessment as they are not predicted to have significant adverse effects.

#### *Barrier Effects*

- 8.6.6 A barrier effect occurs where the vertical configuration of conductors and towers creates an actual or perceived barrier which bird species may not cross, or at the very least would need to habituate to crossing. Given the presence of a number of existing OHLs (at 132 kV and 275 kV) in the vicinity of some sections of the Proposed Route (and following a similar north to south alignment) it seems unlikely that birds recognise these structures as barriers to flight (even with line marking this is not necessarily the case). Therefore, the effect of this impact is considered to be of negligible significance and is proposed to be scoped out of detailed assessment.

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<sup>115</sup> Goodship, N. M. and Furness, R. W. (MacArthur Green) (2022) NatureScot Research Report 1283 – *Disturbance Distances Review: An updated literature review of disturbance distances of selected bird species*. Available at: <https://www.nature.scot/doc/naturescot-research-report-1283-disturbance-distances-review-updated-literature-review-disturbance>

*Electrocution*

- 8.6.7 Bird electrocution on OHLs is possible either where a bird can touch a conductor while it is perched on an earthed tower, touch a conductor and the earth wire simultaneously or touch two conductor wires simultaneously. The configuration of the conductors and towers of the Proposed Route means that none of these scenarios is possible as the gaps between the conductors and the perch points would be greater than any bird wingspan. Therefore, this effect is scoped out of detailed assessment.

*Disturbance (Operational Phase)*

- 8.6.8 When operational, the Proposed Development would require only occasional site visits either on foot or in vehicles for maintenance activities. While the Proposed Development may also result in some disturbance arising from noise and visual effects associated with the wires, the magnitude of these potential impacts is considered too low to cause a significant effect on regional bird populations and is therefore scoped out of detailed assessment.

**8.7 EIA Assessment Scope and Methodology***Proposed Scope of Assessment*

- 8.7.1 Statutory designated sites with potential connectivity to the Proposed Route, comprising:
- SPAs: Loch of Skene; Montrose Basin; Loch of Kinnordy; Loch of Lintrathen; Fowlsheugh; Outer Firth of Forth and St. Andrews Bay, and Firth of Tay and Eden Estuary.
  - SSSIs: Montrose Basin; Loch of Skene; Loch of Kinnordy; Loch of Lintrathen, and Fowlsheugh.
  - Schedule 1/Annex 1 bird species: Habitat loss, disturbance during breeding and roosting and collision risk.
  - Birds of Conservation Concern (BoCC): Habitat loss and disturbance during breeding.

*Assessment Methodology**Assessment*

- 8.7.2 The EIAR will provide a detailed description of the existing baseline ornithological features in the study area of the Proposed Development, along with an assessment of the potential effects on the important ornithological features present, taking into account mitigation measures to avoid and reduce significant effects where appropriate.
- 8.7.3 The assessment will be undertaken in accordance with NatureScot guidance<sup>116</sup> and based on CIEEM guidance<sup>117</sup>. The approach to assessment will take account of existing guidance and published scientific literature in relation to ornithology and OHL interactions, alongside professional judgement and experience including use of empirical bird collision data from existing OHLs.
- 8.7.4 Effects will be considered during the construction and operational phases and will be assessed on the basis that clearly defined Embedded and Applied Mitigation measures, including a range of appropriate avoidance buffers and standard good practice measures are implemented. Effects could arise because of habitat loss, disturbance, displacement and collision mortality.
- 8.7.5 The evaluation of effects will consider how the conservation status of each species may be affected by the predicted magnitude and direction of impacts (whether adverse or beneficial) on birds arising from the Proposed Development. The maintenance of existing favourable conservation status of potentially affected species, at the appropriate geographic scale, will be a key judgement for evaluating effect significance.

*Identification and Characterisation of Effects*

- 8.7.6 The identification and characterisation of effects on important ornithological features will be undertaken in accordance with the CIEEM guidelines<sup>117</sup> with reference to effect magnitude (eg proportion of a population affected), extent, duration and reversibility as appropriate. Impact magnitude will be considered alongside the likelihood of its occurrence to inform a

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<sup>116</sup> NatureScot (2018) Environmental Impact Assessment Handbook: Guidance for competent authorities, consultation bodies, and others involved in the Environmental Impact Assessment process in Scotland

<sup>117</sup> Chartered Institute of Ecology and Environmental Management (CIEEM) (2018, updated 2022) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine (Version 1.2)

judgement on the significance of effects. Where appropriate and where supporting information is available, this approach may be supported by population models which will explore a range of scenarios to help understand the likely response of populations to potential effects arising from the Proposed Development.

- 8.7.7 Professional judgement will be used to consider effect significance on each ornithological feature, with effects on species' populations evaluated with reference to an appropriate regional or national spatial unit. Some regional populations may be spatially defined, and effects evaluated with reference to the NatureScot (formerly SNH) Natural Heritage Zones (NHZ) spanning the Proposed Development. However, the assessment may define an alternative spatial unit where population data to support the NHZ approach is lacking or where evidence demonstrates that the most biologically appropriate regional population unit does not accord with the scale provided by the NHZ boundary to which the population may pertain.
- 8.7.8 Where the Proposed Development is considered likely to have a significant effect on an SPA, there is a requirement for the Scottish Ministers (in consultation with NatureScot) to complete an Appropriate Assessment (AA) as part of the Habitats Regulations Appraisal (HRA) process. In addition to an assessment of potential effects on protected features of European Sites within the EIA context, a report to inform HRA will be undertaken and included as an appendix to the ornithology chapter of the EIAR. Consideration has been given to the pathways for Likely Significant Effects on structurally or functionally connected European Sites (eg those showing connectivity via their qualifying features as outlined in **Table 8.1: Statutory Designated Sites Associated with the Proposed Development**). Based on this consideration, it is proposed that with the exception of Outer Firth of Forth and St. Andrews Bay SPA and Fowlsheugh SPA<sup>118</sup>, all other European sites listed in **Table 8.1** would be screened in.

#### *Significant Effects*

- 8.7.9 The evaluation of effects will consider how the conservation status of each species may be affected by the predicted magnitude and direction of effects arising from the Proposed Development. The maintenance of existing favourable conservation status for affected species, at the appropriate geographic scale, will be a key judgement for evaluating effect significance.
- 8.7.10 Where appropriate, mitigation measures would be outlined within the EIAR to reduce any adverse impacts. An assessment of residual effects and cumulative effects would then be undertaken and reported within the EIAR.

#### *Cumulative Assessment*

- 8.7.11 The cumulative assessment will consider ornithological features that were subject to a detailed assessment, and where a measurable adverse effect is predicted in isolation with regards to the Proposed Development, taking into account both the OHL and features associated with the substation developments at Emmock and Hurlie. The potential for significant cumulative effects due to habitat loss, disturbance/displacement and collision mortality of the Proposed Development and Associated SSEN Transmission Developments will be assessed in relation to other reasonably foreseeable developments within the relevant Natural Heritage Zone (NHZ) as outlined below.
- 8.7.12 The cumulative assessment will be based on the consideration of residual effects, ie assuming that proposed mitigation and compensation measures (where relevant) are implemented for the Proposed Development and for the other foreseeable developments included in the assessment. The cumulative assessment will include consideration of:
- Consented developments, awaiting implementation; and
  - Major development applications awaiting determination with design information in the public domain.
- 8.7.13 The assessment of cumulative effects with other foreseeable developments will be based on a two-stage approach as outlined in **Section 3.8: Approach to Assessment of Significant Environmental Effects**. The combined effects on ornithology from the Proposed Development will be first assessed in combination with those predicted from the equivalent assessments in the EIARs for the proposed Emmock and Hurlie substations, to provide a cumulative assessment for the Proposed Development and Associated SSEN Transmission Developments.

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<sup>118</sup> Although the OHL is within connectivity of the foraging range of SPA qualifying species Herring gull, relative lack of foraging opportunities within the Proposed Development coupled with a likely low collision risk of the species' group would mean that no LSE is predicted for the qualifying Fowlsheugh SPA species. This is in agreement with NatureScot's approach for the connected Emmock substation site where in a consultation response NatureScot (received 30 April 2024) stated '*the permanent loss of this small area of potential foraging habitat is unlikely to be significant given the amount of arable land within foraging distance of the SPA*'.

8.7.14 A further assessment of the potential significant cumulative effects of other reasonably foreseeable developments in combination with those of the Proposed Development and Associated SSEN Transmission Developments will be undertaken and reported in the ornithology chapter of the EIAR for the Proposed Development. The projects to be included in the cumulative assessment will be defined taking into account the potential for significant effects on ornithology within an appropriate zone of influence which will be developed throughout the EIA process. Typically, this will take account of developments such as wind farms and other OHLs which could have potential for significant cumulative effects with the Proposed Development.

## 8.8 Summary

- 8.8.1 This Scoping Report has presented the ornithological baseline of the Proposed Route and a preliminary assessment of the potential effects of the Proposed Development has been presented. This has enabled the proposed scope for the EIA to be refined.
- 8.8.2 Desk study information identified statutory designated sites within 20 km of the Proposed Route. Where the qualifying features of these sites have shown connectivity (ie where core foraging range of species overlaps with the Proposed Route) they are included in the scope of the ornithological impact assessment to be undertaken in the EIA; the remaining sites have been scoped out due to their distance from the Proposed Route and where connectivity is not considered to be present.
- 8.8.3 Baseline surveys are currently in progress and have continued into summer 2024 in order to provide key, targeted information on the ornithology receptors present to inform the EIA and associated mitigation. In addition to connectivity of the qualifying features to the Proposed Route, there is also potential for protected bird species such as Schedule 1/A1/1A species, Annex I species, species listed as BoCC red-list species as well as SBL species likely to be affected by the Proposed Development.
- 8.8.4 The EIAR will identify where protected bird species and their habitats (both during breeding and over-wintering) require to be safeguarded through further pre-construction surveys to inform appropriate mitigation prior to construction. This information can be captured and implemented through a CEMP and the Applicant's BSPP prior to and during construction and audited by an ECoW during and post-construction.

## 9. HYDROLOGY, HYDROGEOLOGY, GEOLOGY AND SOILS

### 9.1 Introduction

- 9.1.1 This chapter presents a preliminary assessment of effects relating to hydrology, hydrogeology, geology, soils<sup>119</sup> and flood risk in relation to the construction and operation of the Proposed Development. Evaluation of the existing baseline environment has been made through a combination of desk-based study, field surveys and consultation.
- 9.1.2 Consultation has been undertaken with statutory and non-statutory consultees<sup>120</sup>. SEPA's consultation responses (in June 2023) highlighted the wide flood extents associated with several of the watercourses within the Proposed Route, specifically the Dean Water and its tributaries, the River South Esk, the River North Esk and the River Dee and made recommendations to avoid the flood risk constraints. In their April 2024 response SEPA highlighted the future flood extent associated with the Luther Water and its tributaries. They also identified a potential Geomorphic Risk along the Bervie Water, Cowie Water and River Dee and recommended further survey and minimum buffers of 20m on each side of the Bervie and Cowie Water and 160 m buffer on each side of the River Dee. SEPA's Future Flood maps were used to inform an understanding of the baseline conditions for the Proposed Route and will be used to inform the EIA. Several of the consultation responses from Community Councils re-iterate flood risk constraints, which will be taken into consideration during the design, mitigation and assessment of the Proposed Development.
- 9.1.3 In addition, SEPA noted that there are many Private Water Supplies (PWS) within the Proposed Route and commented that the PWS sources will need to be confirmed and considered to inform the alignment of the Proposed Development. Further data on PWS sources is being collected by the Applicant.
- 9.1.4 SEPA also noted the location of former airfields within proximity to the Proposed Route where there may be potential for radioactive contamination associated with previous land uses. They advise it would be preferable to maintain a separation of 1 km from these locations, and where this cannot be achieved further investigation may be required. Aberdeenshire Council (17 July 2023 and 24 May 2024) also referred to potential contaminated land issues advising that contamination issues may require assessment. Aberdeenshire Council also provided guidance on flood risk constraints and drainage requirements for the Proposed Development.
- 9.1.5 SEPA (22 June 2023) noted the potential for peat and wetland habitats in Sections E and F of the Proposed Route, and that avoidance is the first principle of the mitigation hierarchy in accordance with NPF4. NatureScot's response (31 May 2023) also noted the potential for some peatland habitats in Sections E and F and advised that surveys should seek to identify sensitive areas. In April 2024 SEPA reiterated the potential for carbon rich soils in section E and that careful sighting of infrastructure is likely to significantly reduce the impact. NatureScot's Response in April 2024 also added that there may be opportunities for peatland restoration and provided the Peatland ACTION project webpage<sup>121</sup> as a source of information. The Proposed Route has been selected to avoid these areas where possible and where there is potential peat along the Proposed Route, peat surveys are being undertaken to inform the design and to minimise any potential impacts on peat soils.
- 9.1.6 SEPA further advised on issues that should be addressed in the EIAR and provided guidance on buffers for sensitive receptors (eg watercourses, PWS, GWDTE and groundwater abstractions). SEPA guidance will be followed through the EIA process.
- 9.1.7 NatureScot's consultation response (31 May 2023) noted that the Proposed Route crosses riverine designated sites of international importance (Special Areas of Conservation; SACs), and that the potential for impacts to the qualifying features should be considered. They also noted that there are nationally important designated sites (SSSIs), specifically Eslie Moss SSSI and Loch of Park SSSI, and that construction near to these sites could impact upon wetland habitats; the Proposed Route has been selected to avoid these SSSIs.
- 9.1.8 Scottish Water (30 May 2023 and 26 April 2024) noted that there are designated Drinking Water Protected Areas (DWPA) within or close to the Proposed Route on the River Dee. DWPAs were avoided where possible in development of the Proposed Route. The Applicant is cognisant of Scottish Water's list of precautions, which details protection measures to be taken within a

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<sup>119</sup> Consideration of the classification and use of agricultural soils is presented in **Chapter 4: Land Use and Recreation**.

<sup>120</sup> Responses received to date from consultation events in May 2023 and March 2024.

<sup>121</sup> NatureScot. Peatland ACTION Webpage: Available at: <https://www.nature.scot/climate-change/nature-based-solutions/peatland-action>

DWPA and the wider drinking water catchment and will liaise with Scottish Water regarding water quality mitigation. Scottish Water also noted that there are multiple Scottish Water assets within or close to the Proposed Route. These will be considered and avoided as the design progresses.

- 9.1.9 Both Aberdeenshire Council (17 July 2023) and RSPB (14 June 2023) noted the need to address the requirements of NPF4 with regards enhancement and BNG. This is covered further in **Chapter 7: Ecology**.
- 9.1.10 A meeting was held with SEPA on the 8<sup>th</sup> of August 2024. Regarding watercourse buffers, SEPA confirmed that the 50 m buffer guidance was for wind farms and that the project design should proceed with using the recommended riparian corridor data and buffers as follows; the buffer distances for channel widths of less than 2 m, between 2-15 m, and over 15 m will be 10 m, 15 m and 30 m respectively. However, any buffers that are not complied with should be justified and details regarding additional mitigation measures that will be implemented should be provided. Additionally, any OHL towers should be located outwith flood risk areas as far as possible with no land-raising taking place within flood risk areas. In terms of access tracks, they should not be land raised if located in flood risk areas and any upgrades to existing tracks should not restrict buffer distances. SEPA LUPS 31 guidance should be used regarding GWDTes. Where peat is present, an overall avoidance of peat should be demonstrated in line with NPF4 and where it is not possible to avoid, it must be demonstrated that micro-siting has been undertaken as far as possible. Permanent access tracks should be subject to peat probing where indicated on desk-based mapping. If temporary floating access is used, peat surveys are not required unless they are on Class 1 and 2; a survey of peatland condition would also be required.

## 9.2 Baseline Conditions

### Surface Water Resources

- 9.2.1 The Proposed Route crosses over numerous named and unnamed watercourses along the 106 km of the route extent. There are no major water bodies within the Proposed Route, but there are several small ponds/lochans located in proximity to the proposed OHL. The Proposed Development runs up the east coast of Scotland from just north of Dundee to west of Aberdeen and therefore the majority of watercourses crossed generally flow from northwest/west to southeast/east, draining towards the North Sea.
- 9.2.2 SEPA has characterised surface water quality status under the terms of the Water Framework Directive. Classification by SEPA considers water quality, hydromorphology, biological elements including fish, plant life and invertebrates, and specific pollutants known to be problematic. The classification grades watercourses through high, good, moderate, poor and bad status. This provides a holistic assessment of aquatic ecological health. Within the Proposed Route area there are numerous watercourses/water bodies large enough to be classified by SEPA and which are shown in **Table 9.1: Watercourses and Waterbodies Classified by SEPA within the Proposed Route**, listed from south to north, and **Figure 9.1 (A-F) Hydrology and Flood Risk**.

**Table 9.1: Watercourses and Waterbodies Classified by SEPA within the Proposed Route**

Watercourse/Waterbody	Waterbody ID	SEPA Classification (2020) <sup>122</sup>	Designation
Section A			
Kerbet Water	ID 6562	Moderate	River Tay SAC
Dean Water/Treacle Burn (Forfar to Kerbet Water Confluence)	ID 6556	Moderate	River Tay SAC
Section B			
River South Esk (White Burn confluence to Estuary)	ID 5799	Good	River South Esk SAC
Noran Water	ID 5805	Moderate	River South Esk SAC

<sup>122</sup> Scottish Environment Protection Agency (SEPA) (2015) Water Classification Hub. Available at: <https://www.sepa.org.uk/data-visualisation/water-classification-hub/>

Watercourse/Waterbody	Waterbody ID	SEPA Classification (2020) <sup>122</sup>	Designation
Section C			
Cruick Water	ID 5712	Good	None
West Water (Paphrie Burn to North Esk Confluence)	ID 5713	High	None
River North Esk (Water of Effick to Cruick Water Confluences)	ID 5701	Good	None
Black Burn	ID 5711	Moderate	None
Dowrie Burn (through Fettercairn) to the confluence with Luther Water	ID 5707	Good	None
Devilly Burn	ID 5708	Good	None
Section D			
Ducat Water	ID 5709	Good	None
Luther Water (source to Dowrie Burn Confluence)	ID 5706	Good	None
Bervie Water - upper catchment	ID 23262	Moderate	None
Carron Water	ID 23257	Moderate	None
Section E			
Cowie Water – Fetteresso Water	ID 23254	High	None
Cowton Burn	ID 23255	Good	None
Crynoch Burn	ID 23317	Good	None
Sheeoch Burn	ID 23318	Good	River Dee SAC
Section F			
River Dee – Banchory to Peterculter	ID 23316	Moderate	River Dee SAC
Gormack Burn	ID 23320	Moderate	None
Kinnernie Burn	ID 23323	Poor	None

9.2.3 Several of the watercourses are designated sites of international importance (SACs), as noted in the final column of **Table 9.1: Watercourses and Waterbodies Classified by SEPA within the Proposed Route**. Many of the smaller watercourses and tributaries along the Proposed Route are within the catchments of the SACs, and as such the receiving water environment along much of the Proposed Route is considered a sensitive receptor. The qualifying features of the three riverine SACs are described below and further information is presented in **Chapter 7: Ecology** and shown in **Figure 7.1 (A-F) Ecological Designated Sites**:

- River Tay SAC: In Section A the Kerbet Water and Dean Water are part of the SAC, which is designated for its clear-water lakes or lochs with aquatic vegetation and poor to moderate nutrient levels. Species of importance include Atlantic salmon (*Salmo salar*), otter (*Lutra lutra*), brook lamprey (*Lampetra planeri*), river lamprey (*Lampetra fluviatilis*) and sea lamprey (*Petromyzon marinus*).
- River South Esk SAC: The Proposed Route in Section B crosses the River South Esk and the Noran Water, both of which are part of the SAC, which is designated for Atlantic salmon and freshwater pearl mussel.
- River Dee SAC: The Proposed Route in Section F crosses the River Dee which is within the SAC. The River Dee is designated for Atlantic salmon, otter and freshwater pearl mussel.

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Flooding

- 9.2.4 A review of SEPA Future Flood Maps indicates that there are several fluvial flood risk areas along the Proposed Route (**Figure 9.1 (A-F) Hydrology and Flood Risk**). Of note, there are large areas of predicted flood risk associated with the Dean Water west of Forfar, the River South Esk, the West Water near the confluence with the River North Esk, the Luther Water, the River Dee, Gormack Burn and the Kinnernie Burn.
- 9.2.5 SEPA surface water flood maps indicate that there are some areas considered at risk of surface water flooding along the Proposed Route, however the vast majority of these are restricted within areas already noted as being at fluvial flood risk such as river valleys, lochs and pond basins. There are some other minor, localised areas of surface water flooding within the Proposed Route.
- 9.2.6 The Proposed Route is not at risk of coastal flooding.

Hydrogeology

- 9.2.7 Reference to the BGS 1:625k hydrogeological mapping indicates that the Proposed Route is generally underlain by two main aquifer types. South of Stonehaven, and generally along the route from Tealing to Hurlie, the route is mostly underlain by moderately productive sedimentary aquifers in which flow is virtually all through fractures and other discontinuities. The underlying sedimentary rocks yield moderate amounts of groundwater, with some sections yielding up to 12 litres per second (l/s) in some localities.
- 9.2.8 North of Stonehaven and generally along the majority of the route from Hurlie to Kintore, the underlying geology is characterised by low productivity aquifers with virtually all flow through fractures and discontinuities. There are small volumes of groundwater in the near surface weathered zone and secondary fractures, with rare springs yielding up to 2 l/s.
- 9.2.9 Field surveys and review of Ordnance Survey 1:10K mapping indicates a number of wells and groundwater springs within the Proposed Route.

Water Resources

- 9.2.10 Angus Council, Aberdeenshire Council and Aberdeen City Council have been consulted to obtain further information on PWS along the Proposed Route. Properties that are known by the Councils to be supplied by a PWS are shown in **Figure 9.1 (A-F) Hydrology and Flood Risk**. However, the Councils note that PWS records need to be verified, as the local authority databases are generally incomplete and data on source locations may be patchy and based on historical information.
- 9.2.11 SEPA were consulted and provided information on licenced abstractions along the Proposed Route. These are also shown in **Figure 9.1 (A-F) Hydrology and Flood Risk**.
- 9.2.12 The entire route is located within a Drinking Water Protected Area (DWPA) for Groundwater (as is the whole of Scotland). Review of Scotland's Environment Map Drinking Water Protected Areas (Surface Water) indicates that there is one Surface Drinking Water Protected Area– ID351 Buttery Burn, which is just within the western side of the Proposed Route (in Section C). The downstream limit of the DWPA is the confluence of the Buttery Burn with the Cruick Water at Mill of Balrownie.

Geology and Soils

- 9.2.13 There are numerous lithologies along the extent of the Proposed Route indicated by the BGS 1:50k Bedrock mapping. The main underlying geological units from south to north along the Proposed Route include:
- Dundee Flagstone Formation – sandstones and siltstones;
  - Scone Sandstone Formation;
  - Cromlix Mudstone Formation;
  - The Montrose Volcanic Formation (extrusive igneous lavas);
  - Glen Effock Schist Formation metamorphic psammities;
  - Aberdeen Formation pelites and psammities;
  - Crathes Pluton – intrusive volcanic granodiorite; and
  - Kemnay Pluton intrusive volcanic granite.

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- 9.2.14 It should be noted there are several other smaller sections of sedimentary and metamorphic formations, particularly across the Highland Boundary Fault Area west of Stonehaven. There are also several small, localised areas with intrusive volcanic dyke/sill suites and some extrusive lavas.
- 9.2.15 The western edge of the Proposed Route in Section C lies approximately 30 m south (downstream) of the North Esk and West Water Palaeochannels Site of Special Scientific Interest (SSSI), which is a geological SSSI.
- 9.2.16 The BGS 1:50K Superficial Deposits mapping indicates that there are numerous types of underlying superficial subsurface deposits along the extent of the Proposed Route. The main drift deposit along the route is Devensian Till (Diamicton) which are sedimentary deposits of glacial origin. There are also several large areas around major watercourses which are underlain by Glaciofluvial deposits – gravel, sand and silt and alluvium – clay silt, sand and gravel. There are smaller sections of Ury Silts formation, Lochton Sand and Gravel Formation, Glaciofluvial Sheet deposits and Peat.
- 9.2.17 There are numerous different soil types along the Proposed Route. These are predominantly Brown Earth Soils derived from sandstones and Humus Iron Podzols derived from sandstones. There are smaller areas of Alluvial soils around river valleys and peaty podzols/blanket peat located west/northwest of Stonehaven. The soils in lowland areas typically provide productive soils for agriculture, see **Chapter 4: Land Use and Recreation**.
- 9.2.18 Sources of potential ground contamination identified by SEPA and Aberdeenshire Council associated with former airfields within the corridor for the OHL would all be located more than the recommended 1 km buffer with the exception of the site of the former Fordoun Airfield. The Proposed Route is located within 1 km of the Fordoun Airfield site however the OHL alignment will be developed taking account of this constraint.

Peat

- 9.2.19 The NatureScot (2016) Carbon and Peatland map <sup>123</sup> shows the distribution of carbon and peatland classes in Scotland and gives a value to indicate the likely presence of carbon-rich soils, deep peat and priority peatland habitat at a coarse scale. **Figure 9.2 (A-F) Carbon and Peatland** shows the carbon and peatland classes along the Proposed Route. It is noted that the majority of the Proposed Route is not underlain by peat and is generally classed as Class 0 (Mineral Soils). Review of the NatureScot map indicates the following peat classes are found in small areas within the Proposed Route:
- Class 1 – Nationally important carbon-rich soils, deep peat and priority peatland habitat. Areas likely to be of high conservation value. Peat soil, with peatland vegetation.
  - Class 3 – Dominant vegetation cover is not priority peatland habitat but is associated with wet and acidic soil types. Occasional peatland habitats can be found. Most soils are carbon-rich soils, with some areas of deep peat. Predominantly peaty soil with some peat soil. Indicative vegetation is peatland with some heath.
  - Class 4 – Area unlikely to be associated with peatland habitats or wet and acidic type. Area unlikely to include carbon-rich soils. Predominantly mineral soil with some peat soil. Indicative vegetation is heath with some peatland.
  - Class 5 – Soil information takes precedence over vegetation data. No peatland habitat recorded. May also include areas of bare soil. Soils are carbon-rich and deep peat. Peat soil, with no peatland vegetation.
- 9.2.20 There are small areas of Class 4 and Class 5 peat west of Forfar at the northern part of Section A and in the southern part of Section B. The rest of the southern sections of the Proposed Route are not on peat soils.
- 9.2.21 Within and north of Fetteresso Forest in Section E of the Proposed Route, there are several areas of mainly Class 4, Class 3 and Class 5 peat soils. There is a small area of Class 1 peatland at the eastern edge of Section E of the Proposed Route, which extends approximately 250 m into the Proposed Route from the eastern edge, just north of the Cairnie Burn (**Figure 9.2 (A-F) Carbon and Peatland**). There are some other smaller areas of Class 4 and 5 peat further north in Section F of the Proposed Route.

### 9.3 Sensitive Receptors

<sup>123</sup> NatureScot (2016) Carbon and Peatland 2016 map. Available at: <https://www.nature.scot/professional-advice/planning-and-development/planning-and-development-advice/soils/carbon-and-peatland-2016-map>

9.3.1 The sensitive receptors that will be considered further are described below and shown in **Figure 9.1 (A-F) Hydrology and Flood Risk** and **Figure 9.2 (A-F) Carbon and Peatland** where information is available:

- Surface watercourses: Most of the Proposed Route is within the catchment of sensitive riverine receptors which are either within or drain towards the River Tay SAC, River South Esk SAC and the River Dee SAC. The Buttery Burn DWPA is also located within the Proposed Route.
- Ground waterbodies: The Proposed Route is located within a DWPA for Groundwater (as is the whole of Scotland).
- PWS and groundwater abstractions: There are many PWS and groundwater abstractions within and close to the Proposed Route.
- GWDE: Baseline ecology surveys (see **Chapter 7: Ecology**) are currently in progress during the 2023 and 2024 survey seasons to provide a more in depth understanding of the habitats present and to map the likely presence and location of GWDEs within the Proposed Route.
- Areas of peat and carbon-rich soils.

## 9.4 Potential Effects

9.4.1 Potentially significant effects on the key receptors identified above are considered more likely to occur during the construction phase of the Proposed Development. Based on the baseline conditions provided above, it is anticipated that the Proposed Development has the potential to result in the following types of effects:

- Temporary (construction phase) pollution of surface watercourses, waterbodies, groundwater and subsequent impacts on the quality of PWS. There is potential for increased sedimentation of watercourses/waterbodies/groundwater associated with tower and access tracks construction. Additionally, there is potential for chemical pollution such as fuel hydrocarbons and lubricants from construction processes and equipment to impact surface and groundwater sources. The risk is increased should construction take place within a flood risk area.
- Effects during construction and operation on run-off rates and flood risk.
- Effects during construction on yields of PWS abstractions and GWDEs reliant upon groundwater resources that have subsurface flows or hydraulic connectivity impacted adversely by construction of tower foundations and/or access tracks. If PWS abstractions or GWDE are identified within 250 m of towers or 100 m of access tracks further assessment will be undertaken to accompany the EIAR to confirm the predicted effects of the proposals on the abstraction or GWDE and propose Additional Mitigation measures, if required.
- Potential for loss/disturbance/erosion of peat and carbon-rich soils during construction, although given the small areas of peat within the Proposed Route it is likely that most peat can be avoided. The design of the Proposed Development through the alignment process will aim to avoid the presence of peat and carbon-rich soils where practicable. Where this is not possible the design will minimise the potential effects on peat through avoiding areas of deeper peat and also implementing suitable mitigation measures, which will be summarised as part of a Peat Management Plan (PMP), if required.
- Other effects on soils and groundwaters including those arising from potentially encountering sources of land contamination.

## 9.5 Mitigation

9.5.1 In-line with the hierarchy of mitigation set out in **Section 3.4: Mitigation**, the following section describes the Embedded and Applied Mitigation which is considered relevant to the Proposed Development in the context of this hydrology and geology scoping assessment. The mitigation outlined below has been considered and applied when determining the potential for likely significant effects arising from the construction and operation of the Proposed Development as described in **Section 9.4: Potential Effects**.

### Embedded Mitigation

9.5.2 As described in **Section 3.4: Mitigation**, the design evolution for the Proposed Development has included changes which result in a reduced likelihood of adverse, significant effects on the receiving environment and the sensitive receptors therein. The mitigation by design, referred to as 'Embedded Mitigation' in this report, which is relevant to this technical assessment comprises:

- The recommended riparian buffers will be applied from OHL towers and access tracks, where possible, to all water features, including watercourses, waterbodies and springs to minimise the risk of potential impacts due to changes in runoff, sedimentation, or water quality.
  - All components of the Proposed Development will be kept outside flood risk areas, where possible. Existing tracks will be used as much as possible, such that the need for new tracks and new watercourse crossings will be reduced. Any new watercourse crossings will be designed to maintain the existing capacity of the channel and will follow SEPA guidance on watercourse crossing design.
  - Where possible, infrastructure will avoid areas of peat. This reduces the volume of peat required to be excavated (reducing displaced carbon) and limits potential effects on peatland hydrology and ecology.
  - Where possible, all excavations <1 m deep should be located over 100 m away from groundwater abstractions, PWS or GWDEs as per SEPA guidance<sup>124</sup>. Excavations >1 m in depth (eg tower foundations) will where possible be located at least 250 m away from these receptors.
  - Where possible, all infrastructure will avoid areas of contaminated land. Where potential constraints cannot be avoided, risk mitigation will be recommended which will be dependent on the proposed scope of works in the area and the identified hazard. Risk mitigation will be undertaken and form part of the CEMP by the Principal Contractor.
- 9.5.3 In addition to the careful siting of infrastructure components (described above) and given the Applicant’s commitment to, and prior experience of, implementing accepted Applied Mitigation in the form of good practice during construction and operation (See **Appendix B: List of Applied Mitigation Documents**), and the current regulatory context, many potential significant effects on the water environment can be avoided or reduced. With respect to the current regulatory context, since *the Water Environment (Controlled Activities) (Scotland) Regulations 2011* (as amended) (CAR) came into force, CAR authorisation may be required in relation to a number of activities eg engineering works in inland waters for access track watercourse crossings. A Construction Site Licence (CSL) will also be required for the works under the CAR Regulations. Consultation with SEPA throughout the EIA process will be undertaken in relation to those activities for which a CAR licence or registration is required.
- 9.5.4 A number of Applied Mitigation measures including good practice pollution prevention and control measures will be implemented during construction via the CEMP. These will reflect best practice guidance and recognised industry standards (eg SEPA guidance, including their Guidance for Pollution Prevention (GPPs), CIRIA SUDS Manual<sup>125</sup> and control of water pollution guidance<sup>126 & 127</sup>, amongst others).
- 9.5.5 In addition, SSEN Transmission’s GEMPs (See **Appendix B: List of Applied Mitigation Documents**), will capture all principal mitigation measures required in respect of protection of hydrology, water quality and peat, as identified in the EIAR and in order to comply with relevant legislation, which will be implemented during construction and operation of the Proposed Development. The implementation and audit of the measures in the CEMP and GEMP will be overseen by an Environmental/Ecological Clerk of Work (ECOW).
- Mitigation Summary and Next Steps
- 9.5.6 The Applicant is committed to delivering both Embedded and Applied Mitigation as set out in **Section 3.4: Mitigation** and as described above in relation to this scoping assessment. The mitigation described above has been applied when considering the potential for the Proposed Development to result in likely significant effects.
- 9.5.7 The impact assessment will, therefore, assess the potential for likely significant residual effects to arise and identify any further mitigation (referred to as ‘Additional Mitigation’), in addition to the Embedded and Applied Mitigation, necessary to reduce the significance of effects as far as practicable.

<sup>124</sup> Scottish Environment Protection Agency (SEPA) (2017) Land Use Planning System – Guidance Note 31: Guidance on Assessing the Impacts of Development Proposals on Groundwater Abstractions and Groundwater Dependent Terrestrial Ecosystems. Available at: <https://www.sepa.org.uk/media/144266/lups-gu31-guidance-on-assessing-the-impacts-of-development-proposals-on-groundwater-abstractions.pdf>

<sup>125</sup> CIRIA (2015) The SUDS Manual (C753).

<sup>126</sup> CIRIA (2001) Control of water pollution from construction sites: Guidance for consultants and contractors (C532).

<sup>127</sup> CIRIA (2006) Control of water pollution from linear construction projects: Site guide (C649).

9.5.8 Embedded, Applied and any Additional Mitigation will be set out in a Schedule of Mitigation as a chapter of the EIAR. It is assumed that implementation will be assured by consent conditions.

## 9.6 Preliminary Assessment of Likely Significant Effects

9.6.1 With Embedded and Applied Mitigation in place, as described above, there are no likely significant adverse effects predicted on hydrology, water quality and peat during construction and operation of the Proposed Development. However, this is with the caveat that the above infrastructure buffers from water features, PWS, groundwater abstractions and GWDTEs can be achieved and that all peat and flood risk areas can be avoided during OHL alignment.

9.6.2 The detailed alignment design phase will be cognisant of all known site-specific constraints and the alignment design will aim to achieve the buffers required and avoid flood risk and peat areas. However, it is acknowledged that there are other environmental and engineering constraints that may result in buffers not being achieved at certain locations of the Proposed Development.

9.6.3 If the recommended buffers cannot be achieved, there is some potential for impacts on hydrology, water quality, PWS, GWDTEs and peat to have significant adverse effects during construction. These are likely to be localised to specific receptors, and will be assessed in further detail and predicted residual effects reported in the EIAR. Additional Mitigation will be identified at these locations, if required and included within the schedule of mitigation commitments to be presented in the EIAR.

9.6.4 Where the OHL alignment has the potential to be located within 1 km of Fordoun Airfield, it is anticipated that the tower foundations in this area would be located on agricultural land which was not subject to former development or use as part of the airfield. Cognisance of unexploded ordnance (UXO) hazard mapping has been used in the design development to date, to avoid encountering potentially contaminated land and UXO hazards.

9.6.5 Further review and investigation of the potential risk of encountering contaminated land through below ground pathways will be undertaken as part of the detailed alignment design and reported as necessary in the EIAR. This will include consultation with the appropriate statutory bodies regarding any potential effects on soils, groundwaters or people from encountering contaminated land during construction works.

9.6.6 There are no geological SSSIs within the Proposed Route. As the excavation required for tower construction is very localised, no significant adverse effects on bedrock geology are predicted.

9.6.7 With the application of SSEN Transmission's GEMPs, no significant operational effects from the Proposed Development are predicted on surface water quality, PWS, groundwater abstractions and GWDTEs.

9.6.8 During operation, the presence of tower bases and other permanent hardstanding could have a minor and localised effect on surface run-off rates (and associated hydrology/flood risk/flood storage effects) depending on tower locations. At this stage, it is considered unlikely that this would have a significant adverse effect on hydrology but this will be quantified in the EIAR.

### Issues Scoped Out

9.6.9 The following effects are proposed to be scoped out of the assessment:

- Potential adverse effects on bedrock geology (including designated sites) during construction and operation.
- Potential adverse effects on surface water quality, PWS, groundwater abstractions and GWDTE during operation.
- Potential effects on peat and other soils during the operational phase. The main impacts on peat (if any) will be in the construction phase.

## 9.7 EIA Assessment Scope and Methodology

### Proposed Scope of Assessment

9.7.1 The EIAR will include a focussed hydrological and hydrogeological impact assessment. The scope of this assessment will identify potentially significant effects on watercourses, hydrology/flood risk, GWDTEs and PWS abstractions during construction. The EIAR will also include an assessment of the potential effects on peat from the construction of the Proposed Development. The outcomes of the peat assessment will be included as a technical appendix to the EIAR and will include a map of peat depths showing all the built elements overlain to demonstrate how the development avoids areas of peat.

- 9.7.2 The effects of tower bases and other permanent hardstanding during construction and operation on hydrology/flood risk will be assessed in the EIAR. In addition, flood risk to the Proposed Development will be assessed using SEPA Future Flood maps. At this stage, it is not envisaged that a site-specific technical Flood Risk Assessment (FRA) report will be required for the Proposed Development, as flood risk areas will be avoided.
- 9.7.3 Further review and investigation of the potential to encounter contaminated land will be undertaken as part of the detailed design, and if it is concluded that there is the potential for effects on soils, groundwater or people from contaminated land, these will be reported in the EIAR. The scope of the assessment would be subject to further consultation with statutory bodies as considered required at the time.

#### Assessment Methodology

- 9.7.4 A hydrology walkover survey is currently being undertaken along the extent of the Proposed Route in order to supplement desk-based surveys and data collection to outline the existing baseline conditions. The survey will inform a focussed hydrology assessment that will identify key interactions between the Proposed Development and the water environment. Consequently, the EIA chapter will identify the requirement for construction mitigation measures and provide an initial assessment of the requirements under the Controlled Activities Regulations.
- 9.7.5 The hydrology walkover survey will inform a watercourse crossing assessment and will be undertaken utilising a map of the location of proposed engineering activities in order to assess all watercourses potentially impacted by construction of towers and access tracks. A systematic watercourse crossing table detailing the watercourses, crossing types, level of CAR authorisation required, accompanied by photographs and dimensions will be presented as an appendix to the proposed EIAR Hydrology, Hydrogeology, Geology and Soils Chapter.
- 9.7.6 Walkover surveys at potentially sensitive and identified hydrogeological sites of interest including potential GWDEs and PWS abstraction points will be undertaken drawing where relevant on ecology National Vegetation Classification (NVC) survey results and available PWS data including information from the relevant local authorities. GWDEs will be identified based on habitat mapping by ecologists and reviewed by hydrologists in the field.
- 9.7.7 Where GWDEs, groundwater abstractions and/or PWS are identified within 250 m of the tower foundations or 100 m from the temporary access tracks, a technical report will be prepared to accompany the Chapter. This report would outline the potential risk and demonstrate how the risk can be mitigated against in accordance with SEPA Guidance Note 31 (LUPS-GU31)<sup>128</sup>.
- 9.7.8 The vast majority of the route is not underlain by any peat. Peat depth surveys will be carried out at localised areas along the Proposed Route where the NatureScot (2016) Carbon and Peatland mapping indicates the presence of peat and carbon-rich soils. This information will continue to inform the design of the Proposed Development in particular the placement locations for OHL towers and permanent access tracks. Peat probing will be undertaken in line with good practice guidance and relevant methodologies<sup>129</sup>. The effects on peat will be assessed and mitigation will be included to avoid the potential for significant adverse effects on soils including peat.

#### Cumulative Assessment

- 9.7.9 The assessment of cumulative effects will be based on a two-stage approach as outlined in **Section 3.8: Approach to Assessment of Significant Environmental Effects**. The combined effects on hydrology, hydrogeology and geology from the Proposed Development will be first assessed in combination with those predicted from the equivalent assessments in the EIARs for the proposed Emmock and Hurlie substations, to provide a cumulative assessment for the Proposed Development and Associated SSEN Transmission Developments. A further assessment of the potential significant cumulative effects of other reasonably foreseeable developments in combination with those of the Proposed Development and Associated SSEN

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<sup>128</sup> Scottish Environment Protection Agency (SEPA) (2017) Land Use Planning System – Guidance Note 31: Guidance on Assessing the Impacts of Development Proposals on Groundwater Abstractions and Groundwater Dependent Terrestrial Ecosystems. Available at: <https://www.sepa.org.uk/media/144266/lups-gu31-guidance-on-assessing-the-impacts-of-development-proposals-on-groundwater-abstractions.pdf>

<sup>129</sup> Scottish Government, Scottish Natural Heritage and Scottish Environment Protection Agency (SEPA) (2017) Guidance on Developments on Peatland – Peatland Survey (2017). Available at: <https://www.gov.scot/binaries/content/documents/govscot/publications/advice-and-guidance/2018/12/peatland-survey-guidance/documents/peatland-survey-guidance-2017/peatland-survey-guidance-2017/govscot%3Adocument/Guidance%2Bon%2Bdevelopments%2Bon%2Bpeatland%2B-%2Bpeatland%2Bsurvey%2B-%2B2017.pdf>

Transmission Developments will be undertaken and reported in the hydrology and hydrogeology chapter of the EIAR for the Proposed Development.

## 9.8 Summary

- 9.8.1 It is proposed that a focused hydrological and hydrogeological impact assessment is included in the EIAR. Technical reports will be provided to inform the design (including Embedded and Additional Mitigation) and to meet the requirements of the statutory consultees with regards to the Watercourse Crossing Assessment, the GWDTE Assessment and PWS Assessment. Where necessary, peat probing will be undertaken to inform an assessment considering the potential effects on peat and carbon-rich soils in order to minimise the disturbance, erosion and loss of peat by the Proposed Development. A Peat Management Plan (PMP) will be produced as an appendix to the EIAR, if any significant areas of peat cannot be avoided.
- 9.8.2 It is anticipated that with the implementation of Embedded and Additional Mitigation, most, if not all of the potential effects on hydrology, hydrogeology and peat can be avoided or reduced such that residual effects will be of minor to negligible significance. The principal effects are predicted to be restricted to the construction phase.

## 10. TRAFFIC AND TRANSPORT

### 10.1 Introduction

- 10.1.1 This chapter of the Scoping Report provides an overview of the traffic and transport baseline relevant to the Proposed Development, describes the potential effects associated with the construction and operation of the Proposed Development, presents a preliminary assessment of effects, and presents the methodology to be used in the assessment of traffic and transportation impacts in the EIAR.
- 10.1.2 The focus of the assessment of the potential and predicted effects on traffic and transport is in relation to the construction phase of the Proposed Development. Traffic associated with the operation of the Proposed Development is predicted to be negligible and is therefore not proposed to be included within the EIA.
- 10.1.3 Consultation responses have been received from a number of local Community Councils and Transport Scotland with regards to traffic and transport<sup>130</sup> and have been used to inform this scoping report chapter. The responses from local Community Councils outlined concerns about access being maintained to local dwellings and farms throughout the project's construction stage, the impact of larger vehicles on single track roads and potential requirements for necessary road repairs. In their May 2023 response Transport Scotland noted that any proposed changes to the trunk road must be discussed and agreed with them. Transport Scotland provided a response in April 2024 and advised that the Proposed Route does not cross the Trunk Road Network and that it now broadly lies to the west of the A90(T) and advised the Proposed Route would be acceptable to Transport Scotland.
- 10.1.4 Aberdeenshire Council's roads development service provided a consultation response in April 2024 which advised that an abnormal loads assessment may be required subject to further information on the final design. The EIAR should provide full details on impacts on the local road network and construction impacts. Any parking requirements should be detailed as part of the application, including provision of parking required for operation and maintenance. They also noted that there is potential to impact on the Core Path Network at Echt, and the Deeside way and a proposed path at Dunecht. Various other impacts to the Core Path network that should be considered include the network around Auchenblae and other access routes through forestry. Effects on recreational routes are considered further in **Chapter 4: Land Use and Recreation** and **Chapter 5: Landscape and Visual Amenity**.
- 10.1.5 No other relevant consultation responses related to this topic have been received.
- 10.1.6 It is proposed that these consultation responses, together with feedback awaited from the relevant local authority roads departments will be addressed in the Traffic and Transport EIAR chapter and will inform the proposed mitigation measures which may be required to address potentially significant adverse impacts as a result of construction traffic. Discussions will be undertaken with the appropriate roads authorities with regards to any proposed changes to the local or trunk road network which will be addressed in the EIAR Traffic and Transport chapter.
- 10.1.7 The following policy and guidance documents have been used to inform the Traffic and Transport chapter:
- Transport Scotland (2012) *Transport Assessment Guidance*<sup>131</sup>; and
  - Institute of Environmental Management & Assessment (IEMA) (2023) *Environmental Assessment of Traffic and Movement*<sup>132</sup>.
- 10.1.8 The traffic and transport assessment to be presented in the EIAR will also take account of any further relevant guidance and standards advised by the local roads and planning authorities.

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<sup>130</sup> Responses received to date from consultation events in May 2023 and March 2024.

<sup>131</sup> Transport Scotland (2012) Transport Assessment Guidance. Available at: [https://www.transport.gov.scot/media/4589/planning\\_reform\\_-\\_dpmtag\\_-\\_development\\_management\\_dpmtag\\_ref\\_17\\_-\\_transport\\_assessment\\_guidance\\_final\\_-\\_june\\_2012.pdf](https://www.transport.gov.scot/media/4589/planning_reform_-_dpmtag_-_development_management_dpmtag_ref_17_-_transport_assessment_guidance_final_-_june_2012.pdf)

<sup>132</sup> Institute of Environmental Management & Assessment (IEMA) (2023) Environmental Assessment of Traffic and Movement.

## 10.2 Baseline Conditions

### Summary of Baseline

- 10.2.1 The study area includes local roads that are likely to experience increased traffic flows associated with the construction of the Proposed Development. The geographic scope was determined through a review of Ordnance Survey (OS) plans and an assessment of the potential origin locations of construction staff and supply locations for construction materials.
- 10.2.2 Roads located within, or in proximity to, the Proposed Route (as shown in **Figure 10.1 Transport Network**) which have the potential to be impacted by construction related traffic are to be included in the study area as well as roads outwith the Proposed Route which are anticipated to be used by construction delivery vehicles. These may include the following local and trunk road links:
- A928 between Milton and the A90;
  - A94 between Glamis and the A90;
  - A926, between Kirriemuir and the A90;
  - B9134 between the A90 and Netherton;
  - B966, between Edzell and the A90;
  - B974, between Fettercairn and the A90;
  - B966, between the A90 and West Cairnbeg;
  - B967, between Arbuthnott and the A90;
  - A957, between the A90 and Durris Upper Car Park;
  - A93, between the A90 and West Park;
  - A944, between the A90 and Old Kinnernie;
  - B977, between Kintore and the B9125; and
  - A90, between Aberdeen and Dundee.
- 10.2.3 There are a number of core paths located within the Proposed Route that are within the Aberdeenshire Council<sup>133</sup> and Angus Council<sup>134</sup> administrative areas. National Cycle Network (NCN)<sup>135</sup> Route 195 Deeside Way travels through the Proposed Route to the southeast of Drumoak. These recreational routes are shown on **Figure 4.2 (A-F): Forestry and Recreation** and discussed further in **Section 4.2: Baseline Conditions**.
- 10.2.4 Further information detailing the baseline conditions will be provided in the EIAR Traffic and Transport chapter.

## 10.3 Sensitive Receptors

- 10.3.1 Sensitive receptors have been identified as those susceptible to changes in traffic conditions as a result of the Proposed Development and include the following:
- Potential impacts (of changes in traffic flows) on local roads and the users of those roads; and
  - Potential impacts (of changes in traffic flows) on land uses and environmental resources fronting these roads, including the relevant occupiers and users.
- 10.3.2 The main transport impacts will be associated with the movement of general HGV traffic and lighter vehicles travelling to and from the Proposed Route during the construction phase of the Proposed Development.

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<sup>133</sup> Aberdeenshire Council (undated) Core Paths Plan Maps. Available at: <https://www.aberdeenshire.gov.uk/paths-and-outdoor-access/core-paths-plan/core-paths-plan-maps/>

<sup>134</sup> Angus Council (undated) Core paths. Available at: [https://www.angus.gov.uk/leisure\\_tourism\\_and\\_the\\_outdoors/paths\\_and\\_outdoor\\_access/core\\_paths](https://www.angus.gov.uk/leisure_tourism_and_the_outdoors/paths_and_outdoor_access/core_paths)

<sup>135</sup> Sustrans (undated) The National Cycle Network. Available at: <https://www.sustrans.org.uk/national-cycle-network>

## 10.4 Potential Effects

10.4.1 Potential impacts that may arise during the assessment include the following for users of access roads and those residents along the principal delivery routes:

- Severance;
- Driver delay;
- Pedestrian delay;
- Non-motorised user amenity;
- Fear and intimidation;
- Road Safety;
- Road safety audits; and
- Disruption associated with the transport of large loads.

10.4.2 The impacts on receptors within the study area will be reviewed during the construction phase, with a peak construction period assessment undertaken. This will review the maximum impact from predicted changes in traffic and presents a robust assessment of the effects of construction traffic on the local and trunk road networks.

10.4.3 The effects that will be considered will be based upon predicted percentage increases in traffic flow and reviewed against the impacts noted above.

## 10.5 Mitigation

10.5.1 In-line with the hierarchy of mitigation set out in **Section 3.4: Mitigation**, the following section describes the Embedded and Applied Mitigation which is considered relevant to the Proposed Development in the context of this traffic and transport scoping assessment. The mitigation outlined below has been considered and applied when determining the potential for likely significant effects arising from the construction and operation of the Proposed Development as described in **Section 10.4: Potential Effects**.

10.5.2 The Embedded and Applied Mitigation considered relevant to this technical assessment, draws on but is not limited GEMP TG-NET-ENV-516 Watercourse Crossings and TG-NET-ENV-520 Dust Management as well as an overarching commitment to implementation of a CEMP. These include, but are not limited to:

- The design of suitable access arrangements with full consideration given to the road safety of all road users;
- Production and implementation of a Construction Traffic Management Plan (CTMP);
- A Wear and Tear Agreement;
- An Access Management Plan; and
- A Staff Sustainable Access Plan.

### Mitigation Summary and Next Steps

10.5.3 The Applicant is committed to delivering both Embedded and Applied Mitigation as set out in **Section 3.4: Mitigation** and as described above in relation to this scoping assessment. The mitigation described above has been applied when considering the potential for the Proposed Development to result in likely significant effects.

10.5.4 The impact assessment will, therefore, assess the potential for likely significant residual effects to arise and identify any further mitigation (referred to as 'Additional Mitigation'), in addition to the Embedded and Applied Mitigation, necessary to reduce the significance of effects as far as practicable.

10.5.5 Embedded, Applied and any Additional Mitigation will be set out in a Schedule of Mitigation as a chapter of the EIAR. It is assumed that implementation will be assured by consent conditions.

## 10.6 Preliminary Assessment of Likely Significant Effects

10.6.1 Potential effects may include temporary significant effects for road users (active travel users and drivers of vehicles) including from driver delay, non-motorised user amenity and fear and intimidation due to increased levels of road traffic associated with the movement of plant, materials and construction workforce. Residents in villages and towns used to connect the Proposed

Route accesses to the trunk road network or bulk material supplies may also experience temporary significant effects in severance, non-motorised user amenity and fear and intimidation.

- 10.6.2 A full review of the potential effects will be undertaken once the Proposed Alignment has been confirmed and once the full access strategy for construction activities has been confirmed.
- 10.6.3 Any residual effects predicted following the implementation of Embedded and Applied Mitigation are likely to be localised and most likely to occur on smaller B class or unclassified roads within the study area. Potential further Additional Mitigation measures to avoid or reduce any such predicted effects may include:
- Enhanced pedestrian crossing facilities;
  - The avoidance of HGV traffic moving past key sensitive receptors such as primary schools at certain times of the day; and
  - Localised road improvements schemes such as improvements in forward visibility and possible layby provision.
- 10.6.4 All relevant mitigation measures would be discussed and agreed with the relevant local authority where appropriate, noting that the potential effects would be temporary and associated with the construction phase.

#### Issues Scoped Out

- 10.6.5 Once operational, it is envisaged that the level of traffic associated with the Proposed Development would be minimal. Regular maintenance visits by SSEN Transmission engineers would be made to tower sites along the OHL typically using 4x4 vehicles. It is predicted that the effects of operational traffic would be negligible and therefore no detailed transportation assessment of the operational phase of the development is proposed in the EIAR.
- 10.6.6 The traffic generation levels associated with the decommissioning phase are predicted to be less than those for the development phase as some elements such as access tracks to be retained by landowners may be left in place. As such, the construction phase is considered to be representative of the worst case scenario for assessment of traffic and transport effects in the study area. An assessment of the decommissioning phase would therefore not be undertaken, although a commitment to reviewing the impact of this phase would be made immediately prior to decommissioning works proceeding (and for example where required by any relevant condition of consent).

## 10.7 EIA Assessment Scope and Methodology

### Proposed Scope of Assessment

- 10.7.1 The assessment will consider the potential effects associated with construction traffic across the proposed study area and assess the likely significant predicted effects. Traffic effects will be considered based upon a peak traffic flow derived from the Proposed Development's construction programme to provide a robust assessment. The percentage increase in traffic over the future baseline traffic flows will be used to determine the likely impact.
- 10.7.2 The assessment is based on the likely effects of Heavy Goods Vehicles (HGV), delivery vehicles and private car movements during the construction of the Proposed Development.
- 10.7.3 The Traffic and Transport chapter will:
- Consider potential disruption to pedestrians, cyclists and existing road users during the construction phase;
  - Assess likely changes to local road traffic flows during the construction phase;
  - Assess the effect of the changes on the transport network and the level of significance of any effects established; and
  - Take account of the objectives of relevant local and strategic policy and guidance.
- 10.7.4 Where effects are considered significant for each of the potential effects noted in **Section 10.4: Potential Effects**, Additional Mitigation will be considered. The assessment will consider residents and road users across the study area.

### Assessment Methodology

- 10.7.5 A focused Transport Assessment (TA) will be provided to review the impact of transport related matters associated with the Proposed Development. This will be appended to the EIAR and will be summarised into a Traffic and Transport chapter within the EIAR.

## TRANSMISSION

- 10.7.6 It is not anticipated that a formal, detailed TA will be required as these are not generally considered necessary for temporary construction works. A reduced scope TA will therefore be provided in a format that is more suited to a development of this nature.
- 10.7.7 Data used to establish baseline data used in the study will be obtained from the following sources:
- Core path mapping from Aberdeenshire Council, Aberdeen City Council and Angus Council;
  - National Cycle Route mapping from Sustrans;
  - Historic traffic data from Transport Scotland, the Department for Transport and relevant local authorities; and
  - Accident data from the online resource, [www.crashmap.co.uk](http://www.crashmap.co.uk).
- 10.7.8 Traffic data for use in the assessment will also be obtained from the Transport Scotland database for the trunk road network using historic and active travel count data.
- 10.7.9 Any requirement for new traffic counts for the local road network will be agreed with the relevant local authority once the Proposed Alignment has been confirmed. The data will be collected using Automatic Traffic Counters (ATC), deployed within key links located within the study area and may include the following roads:
- A928 northwest of Tealing;
  - A94 east of Glamis;
  - A926 southeast of Kirriemuir;
  - B9134 southwest of Brechin;
  - B966 south of Edzell;
  - B974 south of Fettercairn;
  - B967 west of Arbuthnott;
  - B966 south of Auchenblae;
  - A957 Slug Road West of Stonehaven;
  - A93 near Peterculter;
  - A944 near Westhill; and
  - B977, west of Kintore.
- 10.7.10 The ATC deployment will be undertaken during a neutral month, with surveys deployed for up to one week. Traffic volume, speed and vehicle classification data would be collected for each traffic direction.
- 10.7.11 In order to forecast future year traffic flows it is proposed that Low National Road Traffic Forecasts (NRTF) are used.
- 10.7.12 Road accident data will be collected from [www.crashmap.co.uk](http://www.crashmap.co.uk) for consistency throughout the whole of the study area. Data for a five year period will be collected in consultation with Transport Scotland and the relevant local authorities.
- 10.7.13 The following rules taken from the IEMA guidance<sup>136</sup> would be used as a screening process to define the scale and extent of the assessment:
- Rule 1: Include highway links where traffic flows will increase by more than 30% (or the number of heavy goods vehicles (HGV) will increase by more than 30%); and
  - Rule 2: Include highway links of high sensitivity where traffic flows have increased by 10% or more.
- 10.7.14 Increases below these thresholds are generally considered to be insignificant given that daily variations in background traffic flow may fluctuate by this amount. Changes in traffic flow below this level predicted as a consequence of the Proposed Development will therefore be assumed to result in no significant environmental impact and in these cases no further consideration will be given to the associated environment and amenity effects.

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<sup>136</sup> Institute of Environmental Management & Assessment (IEMA) (2023) Environmental Assessment of Traffic and Movement.

- 10.7.15 The estimated traffic generation for the construction of the Proposed Development will be compared with baseline traffic flows, obtained from existing traffic survey data, in order to determine the percentage increase in traffic.
- 10.7.16 The impacts on receptors within the study area will be reviewed during the construction phase, with a peak construction period assessment undertaken. This will review the maximum impact and presents a robust assessment of the effects of construction traffic on the local and trunk road networks.
- 10.7.17 Significance of effects will be categorised as major, moderate, minor or negligible. Effects judged to be of major or moderate significance will be considered to be significant in accordance with the proposed approach to the EIA assessment methodology and would be the focus of Additional Mitigation where feasible.
- 10.7.18 Where an effect could be one of major/moderate or moderate/minor significance, professional judgement will be used to determine which level is applicable, as these effects can be classed as significant. Effects judged to be of minor or negligible significance will be considered not significant.
- 10.7.19 The impacts for road users (pedestrians, cyclists, equestrians and drivers) and those living along the links within the study area will be considered during the construction phase. The assessment would be based on the worst case traffic flows at the peak of construction activity.
- 10.7.20 No road junction capacity assessments will be undertaken as the likely scale of the temporary construction phase is unlikely to result in junction capacities being exceeded.
- 10.7.21 The estimated traffic generation of the Proposed Development will be compared with baseline traffic flows, obtained from existing traffic survey data and ATC surveys, in order to determine the percentage increase in traffic.
- 10.7.22 Potentially significant environmental effects will then be assessed where the thresholds as defined above are exceeded. Suitable Additional Mitigation measures will be proposed, where appropriate, building on those outlined in **Section 10.5: Mitigation**.

#### Cumulative Assessment

- 10.7.23 The requirement for cumulative assessment will be considered with reference to other significant planned development proposals. These will include relevant proposals with a valid planning application (but undetermined) and where a proposed development has planning consent and would have a significant impact on the study area network (ie over 30% increase in traffic flows). Where relevant data are available from assessments for cumulative developments, traffic flows would be included into the baseline flows used within the assessment for the Proposed Development.
- 10.7.24 Planning proposals that are in scoping but do not have planning consent are not considered committed developments in terms of traffic and transport and as such would not be included in the assessment. The only exception would be the associated developments relating to the proposed new substations at Emmock and Hurlie and their connections to the Proposed Development. Whilst these are the subject of separate planning applications they are associated development and as such will be included in the assessment.
- 10.7.25 The assessment of cumulative effects will follow a two stage approach as outlined in **Section 3.8: Approach to Assessment of Significant Environmental Effects**. The combined effects on traffic and transport from the Proposed Development will be first assessed in combination with those predicted from the equivalent assessments in the EIARs for the proposed Emmock and Hurlie substations, to provide a cumulative assessment for the Proposed Development and Associated SSEN Transmission Developments. A further assessment of the potential significant cumulative effects of other reasonably foreseeable developments (such as those referred to above) in combination with those of the Proposed Development and Associated SSEN Transmission Developments will be undertaken and reported in the Traffic and Transport chapter of the EIAR for the Proposed Development.

## **10.8 Summary**

- 10.8.1 The access, traffic and transport issues relating to the construction phase of the Proposed Development will be examined in detail as part of the EIA. The Traffic and Transport chapter of the EIAR will also be accompanied by a focussed Transport Assessment which will review the impact of the Proposed Development's construction traffic on the proposed study area.

Traffic and transport effects of the Proposed Development during the operational phase of the project are scoped out from the EIA.

## 11. NOISE AND VIBRATION

### 11.1 Introduction

- 11.1.1 This chapter of the Scoping Report provides a brief overview of the noise and vibration baseline conditions, the potential effects associated with the construction and operation of the Proposed Development, a preliminary assessment of effects and the proposed scope of assessment methodology to be adopted in the EIAR.
- 11.1.2 Stakeholder engagement is a key part of the EIA process. Relevant responses to consultation<sup>137</sup> on the proposals to date included concerns raised by members of the public and various community councils relating to the proximity of an OHL to properties as a direct result of the construction and operation of the Proposed Development, including disruption from construction traffic. Further, Aberdeenshire Council provided a pre-application consultation response in May 2024 and advised that methodology for noise impact assessment should be agreed by the Environmental Health Service prior to undertaking the assessment. They also noted that construction noise is usually sufficiently controlled through adherence to the CEMP, including accepted time for construction works. Aberdeenshire Council advised that a construction noise impact assessment is unlikely to be required but that it remains an option and that any assessment should adhere to *BS 228-1: 2009+A1:2014 Code of Practice for Noise and Vibration control on Construction and Open Sites*. The need for any out of hours works which present a risk of noise emissions outside of the accepted times would be subject to a Service's Out of Hours Work Request/ application Protocol.
- 11.1.3 Consultation was also undertaken with Angus Council and Aberdeenshire Council Environmental Health Officers (EHO) regarding the methodology for assessment. Angus Council responded with reference to their response to the Alyth/Tealing/Westfield OHL upgrade and Aberdeenshire Council responded in relation to monitoring.
- 11.1.4 Angus Council (EHO) had a general agreement regarding the methodology utilised from the involvement in the East Coast 400 kV upgrade, although noting that there has been a change to the specific OHL methodology to be used; which should be TGN(E)322. The Council noted that there is an expectation for some consideration of internal noise impacts and that there should be justification of the significant distance between some noise sensitive receptors (NSRs) and the nearest proposed background monitoring location to demonstrate that the chosen locations are representative of all the NSRs within Angus.
- 11.1.5 The Aberdeenshire Council EHO confirmed that the methodology is reasonable, noting that the assessment should be undertaken in accordance with BS4142:2014+A1:2019 for external noise with the aim of achieving a low impact depending on context when compared to background LA90 and NR 25 and NR20 Curve assessment for internal noise during the daytime and nighttime respectively.
- 11.1.6 The Aberdeenshire Council EHO also noted that they are content with the distance for identifying properties as NSRs and appreciate that there will be a high number of sensitive receptors along the line with varying background noise levels. Regarding the survey period, the EHO stated that it should ideally capture day and nighttime conditions over a period of days, including weekdays and weekends.
- 11.1.7 The Aberdeenshire Council EHO noted that shorter-term monitoring periods are proposed, and whilst this is not ideal, the results may be acceptable provided they are considered likely to be representative (or certainly not to the detriment of the sensitive receptors ie low levels), based on such things as the day of the week, suitable monitoring location, nature of the area, likelihood of consistent noise conditions and absence of influence from extraneous noise sources which happen to have occurred during the monitoring period. Background noise levels which are considered unrepresentatively high, may result in less difference between the rating level and thus underestimate the impact and extent of any resultant controls. Where there is evidence to suggest this is the case, the data should therefore be rejected. The EHO requested that the noise measurement time periods reflect the normal noise background levels and is not undertaken when road traffic contributes significantly to the noise levels recorded ie during rush hour.

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<sup>137</sup> Responses received to date from consultation events in May 2023 and March 2024.

## 11.2 Baseline Conditions

### Summary of Baseline

11.2.1 The Proposed Route is located within a predominantly rural area. The main settlements within the vicinity of the Proposed Route include (from south to north) Tealing, Forfar, Brechin, Laurencekirk, Drumoak and Echt. Smaller settlements, individual dwellings, and clusters of properties are also distributed along the length of the Proposed Route. Further information on relevant land uses is presented in **Chapter 4: Land Use and Recreation**.

## 11.3 Sensitive Receptors

11.3.1 Noise sensitive receptors (NSRs) are defined in the context of this assessment as residential properties located within 500 m of a nominal centreline of the Proposed Route. Following confirmation of the Proposed Alignment and once detailed conductor and tower design information are known, calculations will be conducted to determine a distance from the OHL centreline beyond which noise impacts are not likely at NSRs. Where the OHL alignment is located in proximity to properties in groups or close to settlements, one location may be chosen as being representative of several properties that would produce duplicate readings. The noise assessment conducted for these properties will be based on the predicted highest (worst case) noise impact from the Proposed Development, and therefore if the chosen properties meet noise criteria, then any property at greater distances will also pass the criteria.

## 11.4 Potential Effects

11.4.1 At this preliminary stage, the potential effects associated with construction and operation of the Proposed Development are described in the following subsections.

### Construction Noise and Vibration

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

- Installation of and stringing of electricity towers, potentially including tree felling and the use of cranes.
- Traffic noise on access tracks and public roads forming the principal means of access to construction areas.
- Any potential vibration effects that would be from construction of the foundations and associated plant and machinery. If rock breaking is required, the potential for vibration effects will be increased.

### Operational Noise

11.4.3 OHL noise is generally associated with a phenomenon known as “corona discharge”. This is essentially a limited electrical breakdown of the air which, in the main, occurs during damp weather. Corona discharge will create a source of audible noise (a crackling sound occasionally accompanied by a low frequency hum in certain wet conditions). Power transmission line conductors are designed to minimise corona discharge, but this may be affected by minor surface irregularities caused by damage, insects, raindrops, or pollution. The highest noise levels generated by an OHL usually occur during light rain when water droplets, collecting on the surface of the conductor, can initiate corona discharge. The number of droplets that collect, and hence the amount of noise, depends on the rate of rainfall.

11.4.4 Aeolian noise is caused by wind blowing through the conductors and/or structures. This type of noise is usually infrequent and depends on wind velocity and direction. Wind must blow steadily and perpendicular to the lines to set up an Aeolian vibration, which can produce resonance if the frequency of the vibration matches the natural frequency of the line. Dampers can be attached to the lines to minimise Aeolian noise.

## 11.5 Mitigation

11.5.1 In-line with the hierarchy of mitigation set out in **Section 3.4: Mitigation**, the following section describes the Embedded and Applied Mitigation which is considered relevant to the Proposed Development in the context of this scoping assessment. The mitigation outlined below has been considered and applied when determining the potential for likely significant effects arising from the construction and operation of the Proposed Development as described in **Section 11.4: Potential Effects**.

Embedded Mitigation

11.5.2 As described in **Section 3.4: Mitigation**, the design evolution for the Proposed Development has included changes which result in a reduced likelihood of adverse, significant effects on the receiving environment and the sensitive receptors therein. The mitigation by design, referred to as 'Embedded Mitigation' in this report, which is relevant to this technical assessment comprises the following:

- The design of the OHL alignment, where possible, will aim to site the OHL 170 m from NSRs. The Applicant endeavours to maintain a minimum distance of 100 m wherever possible. Before construction, this provides a set distance from receptors.

Mitigation During Operation

11.5.3 If during the EIA process it is identified that mitigation is required during operation of the Proposed Development, the first stage would be to change the source of noise, the conductor, to a lower noise conductor that still fulfils the power transfer requirements of the overhead line. If the conductor type cannot be changed, then conductors can be aged or bead-blasted to reduce noise at the source. The requirement for these types of Embedded Mitigation would be identified during the noise assessment in the EIA stage and detailed within the EIAR.

Applied Mitigation

- 11.5.4 In addition to the Embedded Mitigation inherent in the design of the Proposed Development, the Applicant is committed to implementation of Applied Mitigation which comprises a suite of SEN standard management plans and contractor authored documentation (See **Appendix B: List of Applied Mitigation**), which details general and site-specific measures which will be implemented to avoid or mitigate likely significant effects.
- 11.5.5 The tree felling works of the Proposed Development have the potential to cause noise impacts, however, effects would be temporary. British Standard (BS) 5228 2009 +A1:2014 provides recommended limits for noise from construction sites to meet a maximum 65 dB limit at receptors. The mitigation required would, for example, involve consideration of restricting the working hours to daytime weekdays. Construction working is likely to be during daytime periods only. Working hours are currently anticipated to be between approximately 07:00 to 19:00 during British Summer Time (BST) and 07:00 to 18:00 during Greenwich Mean Time (GMT), seven days a week. Special measures and arrangements would be made for works in proximity to sensitive receptors. Working hour assumptions would be set out within the EIAR and confirmed with the respective local planning authority.
- 11.5.6 Even if the construction noise limit is met, it is best practice that construction noise should continue to be controlled with a Construction Noise Management Plan (CNMP), in accordance with the guidance and procedures outlined in BS 5228-1. Procedures may include:
- Minimising the noise as much as is reasonably practicable at source;
  - Attenuation of noise propagation;
  - Carrying out identified high noise level activities at a time when they are least likely to cause a nuisance to residents; and
  - Providing advance notice of unavoidable periods of high noise levels to residents.
- 11.5.7 In order to maintain low impact on the noise environment, consideration will be given to attenuation of construction noise at source by means of the following:
- Giving due consideration to the effect of noise, in selection of construction methods.
  - Avoidance of vehicles waiting or queuing, particularly on public highways or in residential areas with their engines running.
  - Scheduling of deliveries to arrive during daytime hours only. Care should be taken to minimise noise while unloading delivery vehicles. Delivery vehicles should follow routes that minimise use of residential roads.
  - Ensure plant and equipment are regularly and properly maintained. All plant should be situated to minimise sufficiently noise impact at nearby properties.
  - Fit and maintain silencers to plant, machinery, and vehicles where appropriate and necessary.
  - Operate plant and equipment in modes of operation that minimise noise, and power down plant when not in use.

## TRANSMISSION

- Use electrically powered plant rather than diesel or petrol driven, where this is practicable.
- Working typically will not take place outside of hours defined in the construction schedule which will be detailed within the section 37 application and may form a condition of consent.

11.5.8 Consideration will be given to the attenuation of construction noise in the transmission path by means of the following:

- Locate plant and equipment liable to create noise as far from noise sensitive receptors as is reasonably practicable or use natural land topography to reduce line of sight noise transmission;
- Noise screens, hoardings and barriers should be erected where appropriate and necessary to shield high-noise level activities; and
- Provide lined acoustic enclosures for equipment such as static generators and when applicable portable generators, compressors and pumps.

11.5.9 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. As the work is short term in nature, working can continue into the evenings, as long as the noise limits and agreed working hours are adhered to.

Mitigation Summary and Next Steps

11.5.10 The Applicant is committed to delivering both Embedded and Applied Mitigation as set out in **Section 3.4: Mitigation** and as described above in relation to this scoping assessment. The mitigation described above has been applied when considering the potential for the Proposed Development to result in likely significant effects.

11.5.11 The impact assessment will, therefore, assess the potential for likely significant residual effects to arise and identify any further mitigation (referred to as 'Additional Mitigation'), in addition to the Embedded and Applied Mitigation, necessary to reduce the significance of effects as far as practicable.

11.5.12 Embedded, Applied and any Additional Mitigation will be set out in a Schedule of Mitigation as a chapter of the EIAR. It is assumed that implementation will be assured by consent conditions.

## 11.6 Preliminary Assessment of Likely Significant Effects

11.6.1 Felling required to form an Operational Corridor for the OHL and construction activities and traffic movements have the potential to cause noise and vibration impacts on NSRs during the construction phase. Mitigation in the form of limiting working hours and implementation of a CNMP will mitigate the predicted effects (see above). However, due to the uncertainties around detailed OHL alignment and siting of towers and conductors at this stage it is proposed that noise and vibration effects during construction are included in the EIA work.

11.6.2 Operational noise may be emitted from OHL conductors via a phenomenon known as "corona discharge", these effects will be considered and evaluated for NSRs in the EIA and the findings including any predicted significant residual effects reported in a noise assessment chapter of the EIAR.

11.6.3 There are no known vibrational noise issues associated with the operation of the Proposed Development at nearby NSRs.

Issues Scoped Out

11.6.4 A commissioned OHL does not produce vibration effects as part of operation, hence it is scoped out of the EIAR.

## 11.7 EIA Assessment Scope and Methodology

Proposed Scope of Assessment

11.7.1 The methodology of assessment has been discussed with Angus and Aberdeenshire Councils and their Environmental Health Officers (EHOs) (June 2024) see **11.1: Introduction**.

11.7.2 Additional Mitigation measures will be outlined where required, should there be any significant impacts at the noise sensitive receptors.

Assessment Methodology*Surveys*

11.7.3 A survey of the background (LA90,T) ambient noise (LAeq,T), and 1/3rd octave band spectrum levels will be conducted to determine the existing noise level in the area of the Proposed Development and at any nearby noise sensitive receptors (NSRs) likely to be affected by the noise in accordance with TGN(E)322<sup>138</sup> and BS5228. To ensure that values are reliable and representative of the outdoor amenity of NSRs, attended spot measurements will be conducted in suitably dry conditions and very low wind. Measurements at NSRs will be conducted within a calculated distance from the nominal centreline of the OHL alignment, beyond which impacts are unlikely.

*Construction Noise Assessment*

11.7.4 The assessment of construction noise will comply with the following standards and guidance.

- British Standard 5228-1:2009 +A1:2014 (BS5228), Code of Practice for Noise and Vibration Control on Construction and Open Sites; and
- Guidance on the prediction and assessment of noise and vibration from construction sites is provided in British Standard (BS) 5228 2009 +A1:2014 Code of Practice for Noise and Vibration Control on Construction and Open Sites – Part 1: Noise. BS5228-1 provides recommended limits for noise from construction sites.

11.7.5 The Construction Noise Impact Assessment (CNIA) would be carried out according to the ABC method specified in Table E.1 of BS5228-1, in which noise sensitive receptors (NSRs) are classified in categories A, B or C according to their measured or estimated background noise level.

11.7.6 In line with best practice (BS 5228-1), a CNMP will be developed by the Principal Contractor prior to starting construction works. The details of the CNMP will be agreed with Angus Council, Aberdeenshire Council and, if required, Aberdeen City Council and is expected to be secured by an appropriately worded condition of consent.

*Operational Noise Assessment*

11.7.7 The assessment of operational noise will comply with the following standards and guidance.

*Planning Advice Note (PAN) 1/2011: 'Planning and Noise'*

11.7.8 Published in March 2011<sup>139</sup>, this document provides advice on the role of the planning system in helping to prevent and limit adverse effects of noise. Information and advice on noise assessment methods are provided in the accompanying Technical Advice Note (TAN): Assessment of Noise. Included within the PAN document and the accompanying TAN are details of the legislation, technical standards, and codes of practice for specific noise issues.

11.7.9 Neither PAN 1/2011 nor the associated TAN provides specific guidance on the assessment of noise from fixed plant, but the TAN includes an example assessment scenario for 'New noisy development (incl. commercial and recreation) affecting a noise sensitive building', which is based on BS 4142:1997: Method for rating industrial noise affecting mixed residential and industrial areas. This British Standard has been replaced with BS 4142:2014: Methods for rating and assessing industrial and commercial sound.

*British Standard 4142:2014+A1:2019: Methods for rating and assessing industrial and commercial sound (BS 4142)*

11.7.10 British Standard 4142<sup>140</sup> describes methods for rating and assessing the following:

- Sound from industrial and manufacturing processes;
- Sound from fixed installations which comprise mechanical and electrical plant and equipment;
- Sound from the loading and unloading of goods and materials at industrial and/or commercial remises; and

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<sup>138</sup> National Grid (2021) Technical Guidance Note Report No. TGN(E)322: Operational Audible noise Assessment For Overhead Lines.

<sup>139</sup> Scottish Government (2011) Planning Advice Note (PAN) 1/2011: Planning and Noise.

<sup>140</sup> British Standards Institute (BSI) (2014) BS 4142:2014: Methods for Rating and Assessing Industrial and Commercial Sound.

- Sound from mobile plant and vehicles that is an intrinsic part of the overall sound emanating from premises or processes, such as that from forklift trucks, or that from train movements on or around an industrial and/or commercial site.

11.7.11 The methods use outdoor sound levels to assess the likely effects of sound on people who might be inside or outside a dwelling or premises used for residential purposes upon which sound is incident.

11.7.12 In accordance with the assessment methodology, the specific sound level (LAeq,T) of the noise source being assessed is corrected, by the application corrections for acoustic features, such as tonal qualities and/or distinct impulses, to give a “rating level” (LAR,Tr). The British Standard effectively compares and rates the difference between the rating level and the typical background sound level (LA90,T) in the absence of the noise source being assessed.

11.7.13 The British Standard advises that the time interval (‘T’) of the background sound measurement should be sufficient to obtain a representative or typical value of the background sound level at the time(s) when the noise source in question is likely to operate or is proposed to operate in the future.

11.7.14 Comparing the rating level with the background sound level, BS 4142 states:

*“Typically, the greater this difference, the greater the magnitude of impact.*

- *a difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context.*
- *a difference of around +5 dB is likely to be an indication of an adverse impact, depending on the context.*

*the lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the context.”*

*TGN(E)322 – Operational Audible Noise Assessment Process For Overhead Lines*

11.7.15 The National Grid has derived a procedure<sup>141</sup> to assess the impact of OHL noise in both dry and rainy conditions. The guidance of the British Standard BS 4142: 2014 can also be used to assess the impact of the noise from a specific industrial source at NSRs.

11.7.16 The procedure requires a series of assessments to be conducted in tiers. Tier 3 requires that the background noise (BGN) at NSRs within a set distance from the OHL (usually 200 m) be measured during quiet night times and in dry conditions with little wind. The nature of the ground surface around the sensitive receptors is noted so that the contribution to BGN of the surface noise attributable to the rainfall can be derived from empirically derived curves (Miller curves). The logarithmic sum of the measured BGN and the empirically derived contribution for rainfall is adopted as the BGN level, in rainy conditions, against which to compare the predicted received noise from the OHL. Using the parameters provided in TGN(E)322 the likelihood of an adverse impact can be assessed.

11.7.17 The assessment procedure follows TGN(E)322, and has been conducted in the following stages:

- The outcome of the Tier 1 assessment will determine whether the ‘worst case’ wet noise impact is predicted to be acceptable, or whether further assessment is required;
- The outcome of the Tier 2 assessment will determine whether the combined wet and dry noise impact is acceptable, or whether further assessment is required;
- The outcome of the Tier 3 assessment will determine whether the noise impact is acceptable, whether the noise needs to be mitigated and minimized or whether the noise is unacceptable;
- The Tier 3 assessment takes account of existing background sound levels in the area and noise levels due to rainfall;
- The attended collection of night-time BGN levels at NSRs, or groups of such NSRs, within at least 200 m of the centreline of the OHL during suitable dry weather conditions, before construction;
- Allowance for the effects of rainfall on BGN;
- Prediction of contribution from conductors; and

<sup>141</sup> National Grid (2021) Technical Guidance Note Report No. TGN(E)322: Operational Audible noise Assessment For Overhead Lines.

- Determination of total excess at the most likely rain rate.

## 11.8 Summary

11.8.1 The Noise and Vibration chapter of the EIAR will consider the following potential impacts:

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

11.8.2 The project will initially consider noise sensitive receptors that are within 500 m of the proposed overhead line alignment. An initial assessment of desktop calculations will be performed to determine the source noise of the proposed conductor type, this calculation will determine the distances that noise sensitive receptors have the potential for impact. Any properties that fall within impact zones will undergo baseline noise surveys.

11.8.3 Construction noise will be assessed to BS5228 standard.

11.8.4 Operational noise will be assessed to BS4142 standard with guidance from TGN(E)322.

11.8.5 There are no known vibrational noise issues associated with the operation of the Proposed Development at nearby NSRs. Therefore, it is proposed that vibration from operation is scoped out of the EIA assessment.

## 12. POPULATION AND HUMAN HEALTH

### 12.1 Introduction

12.1.1 This chapter sets out the proposed approach to consideration of the potential effects of the Proposed Development on population and human health. Due to the nature of the Proposed Development, the potential effects which have been considered are:

- Perceived health effects associated with electromagnetic fields (EMF); and
- Potential effects on health outcomes including from impacts associated with other topics assessed in the EIA process, ie visual amenity, water quality, traffic and transport, noise, and air quality (including dust), acknowledging that 'health' is defined by the World Health Organisation (WHO) *"...as a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity"*<sup>142</sup>.

12.1.2 The potential effects of the Proposed Development on health have been considered with reference to a range of potential determinants of health in accordance with current best practice guidance for scoping of human health in EIA<sup>143</sup>. The approach has considered the potential for the construction and operation of the Proposed Development to have significant effects on health at a community population level taking account of changes in key factors which can contribute to changes in health outcomes, known as health determinants.

12.1.3 Consultations to date<sup>144</sup> (with SEPA) have identified the presence of potential sources of radioactive contamination associated with former military airfields in the route and corridor options, which are discussed further in **Chapter 9: Hydrology, Hydrogeology, Geology and Soils**. Some responses from Community Councils in 2023 and 2024 have raised issues relating to potential impacts on physical and mental health from construction and operation of the Proposed Development and in relation to the effects of electromagnetic fields on local residents.

### 12.2 Baseline Conditions

#### Summary of Baseline

12.2.1 EMFs are produced both naturally and as a result of human activity. The earth has a magnetic field (produced by currents deep inside the molten core of the planet) and an electric field (produced by electrical activity in the atmosphere, such as thunderstorms). Wherever electricity is used, there will also be electric and magnetic fields; this is inherent in the laws of physics. All transmission systems are designed to comply with relevant UK Government guidelines on exposure to EMFs which are strictly followed by the electricity transmission industry.

12.2.2 Baseline conditions associated with the potential effects associated with other topics of relevance to the consideration of population and human health are set out in the relevant sections of this Scoping Report:

- **Chapter 5: Landscape and Visual Amenity;**
- **Chapter 9: Hydrology, Hydrogeology, Geology and Soils** (including water quality);
- **Chapter 10: Traffic and Transport;**
- **Chapter 11: Noise and Vibration;**
- **Chapter 13: Air Quality;** and
- **Chapter 14: Climate Change.**

12.2.3 Baseline information on potential sources of radioactive contamination has been considered through the OHL routing process and as part of the scoping assessment in **Chapter 9: Hydrology, Hydrogeology, Geology and Soils**. It is not predicted that there

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142 World Health Organisation (WHO) (undated) Constitution. Available at:  
<https://www.who.int/about/accountability/governance/constitution>

143 Institute of Environmental Management & Assessment (IEMA) (2022) Effective Scoping of Human Health in Environmental Impact Assessment. Available at: <https://www.iema.net/resources/reading-room/2022/11/18/iema-guides-health-in-eia>

<sup>144</sup> Responses received to date from consultation events in May 2023 and March 2024.

would be significant effects on environmental or human receptors from this source and this would be confirmed through further consultation as required with SEPA and relevant local authorities as the OHL alignment is developed.

### 12.3 Sensitive Receptors

- 12.3.1 The principal groups of sensitive receptors to health effects associated with the Proposed Development are construction workers and residents in nearby properties and settlements. There are a number of residential properties, typically in small groups and settlements, within the area of the Proposed Route, however the majority of larger settlements (ie towns and villages with over 500 inhabitants) are located over 1 km from the Proposed Development as outlined in **Section 4.2: Baseline Conditions**. The assessment has considered a study area generally comprising people living and working within approximately 1 km of the Proposed Route.
- 12.3.2 Further information on existing settlement and distribution of properties is presented in **Chapter 4: Land Use and Recreation**.

### 12.4 Potential Effects

#### EMF

- 12.4.1 EMFs can be harmful in high levels, but the electrical and magnetic fields required to, for example, start interfering with the human body's nervous system, are substantially greater than those produced by the UK's electricity system.
- 12.4.2 To prevent known effects of EMFs on health, the International Commission on Non-Ionizing Radiation Protection (ICNIRP) developed health protection guidelines<sup>145</sup> in 1998 for both public and occupational exposure to time-varying electric, magnetic and electromagnetic fields with a frequency of up to 300 GHz. In March 2004, the UK adopted the ICNIRP 1998 guidelines on the advice of the National Radiological Protection Board (now part of the National Institute for Health Protection's Centre for Radiation, Chemical and Environmental Hazards (NIHP CRCE)). These guidelines set conservative exposure levels for the public to electric and magnetic fields, and they are endorsed by the World Health Organisation (WHO) and the UK Government.
- 12.4.3 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 UK Department of Health and Social Care on the possible need for introducing further precautionary measures.
- 12.4.4 A voluntary Code of Practice was developed by the Government and published in 2012, entitled "*Power Lines: Demonstrating compliance with EMF public exposure guidelines*"<sup>146</sup>, for the purpose of implementing Government's policy to comply with the ICNIRP Guidelines on exposure to EMFs. The voluntary Code of Practice has been agreed by the Department of Energy and Climate Change (now part of the Department for Energy Security and Net Zero), the Department of Health, the Energy Networks Association (of which SSEN Transmission is a member company), the devolved administrations for Wales, Scotland and Northern Ireland, and the Health and Safety Executive.
- 12.4.5 The voluntary Code of Practice remains in force and applies in Scotland and is hereafter referred to as "the Code of Practice". It sets out what will be required to demonstrate compliance with the exposure guidelines in respect of sources of EMFs within the electricity system, including high-voltage double circuit overhead lines (OHLs). The equipment included are OHLs and underground cables that operate at voltages of 275 kV or 400 kV, and associated substations.

#### Other Health Effects

- 12.4.6 The approach to assessment of health effects has involved review of the principal health determinants identified in the IEMA scoping guidance (see **Section 12.4: Potential Effects**) and using the guidance's question-led approach to determining likelihood of significant effects taking account of source-receptor-pathway links for health impacts. This has been undertaken together with a broad understanding of the population baseline and the potential impacts of the Proposed Development. This has

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<sup>145</sup> ICNIRP (1998) Guidelines for limiting exposure to time-varying electric, magnetic and electromagnetic fields (up to 300 GHz). Available at: <https://www.icnirp.org/cms/upload/publications/ICNIRPemfgdl.pdf>

<sup>146</sup> Department of Energy and Climate Change (DECC) (2012) Power Lines: Demonstrating Compliance with EMF Public Exposure Guidelines – A Voluntary Code of Practice. Available at: <https://assets.publishing.service.gov.uk/media/5a796799ed915d07d35b5397/1256-code-practice-emf-public-exp-guidelines.pdf>

included consideration of the potential significant effects associated with the other environmental impacts noted above, further information on which can be found in the respective chapters of this Scoping Report:

- **Chapter 5: Landscape and Visual Amenity** (ie visual amenity effects during construction and once operational, which could be perceived as having an adverse change to existing views);
- **Chapter 9: Hydrology, Hydrogeology, Geology and Soils** (ie potential effects on the quality of public and private water supplies as a result of a pollution event during construction);
- **Chapter 10: Traffic and Transport** (ie perceived disturbance and disruption effects from construction traffic and its management);
- **Chapter 11: Noise and Vibration** (ie perceived noise and vibration disturbance from construction activities and noise from OHL operation);
- **Chapter 13: Air Quality** (ie perceived effects on air quality, including fugitive dust emissions, during construction); and
- **Chapter 14: Climate Change** (including contribution of greenhouse gas emissions of the project and how the OHL might interact with changes in future climate).

12.4.7 There is also some potential for direct and immediate impacts to human health (and safety) as a result of major accidents and disasters. These are considered further in **Chapter 15: Major Accidents and Disasters** which has identified that no significant effects are predicted.

## 12.5 Mitigation

- 12.5.1 As noted in **Section 12.3: Sensitive Receptors**, EMFs from the Proposed Development would be predicted to fall within required thresholds to ensure public health and safety would not be compromised. The design, construction and operation of the OHL would follow all relevant standards and design codes to ensure that electrical equipment was installed and operated to the relevant standards to protect the health of operatives and the public including people living and working in proximity to the Proposed Development.
- 12.5.2 The UK Government's latest policy statement on EMFs is contained in the National Policy Statement for Electricity Networks Infrastructure (NPS EN-5)<sup>147</sup>, which was re-issued in November 2023 and came into force on 17 January 2024. This latest policy statement is in line with current UK guidance on EMFs, which in turn is informed by relevant international guidance, and which is considered appropriate by UK Government and their public health experts as previously referenced.
- 12.5.3 NPS EN-5 states at paragraph 2.9.51 that *"The levels of EMFs produced by power lines in normal operation are usually considerably lower than the ICNIRP 1998 reference levels"*. The Applicant will also consider the factors set out in paragraph 2.10.11. of the NPS:
- compliance with the measures specified in regulations 17 and 18 of the Electricity Safety, Quality and Continuity Regulations 2002<sup>148</sup>;
  - that optimal phasing of high voltage OHLs is introduced wherever possible and practicable in accordance with the companion Code of Practice on optimal phasing entitled *"Optimum phasing of high-voltage double-circuit power lines"* as updated in March 2012 (*"the Phasing Code of Practice"*<sup>149</sup>); and
  - on that basis, in paragraph 2.10.12 it is provided that *"Where it can be shown that the line will comply with the current public exposure guidelines and the policy on phasing, no further mitigation should be necessary."*
- 12.5.4 Whilst the determination of applications for statutory consent for the installation and operation of overhead lines is devolved to Scottish Ministers, as noted in paragraph 1.4.3 of the NPS, aspects of NPS EN-5 are a relevant consideration for Scottish Ministers to take into account in decision making. SSEN Transmission will evidence through a project specific compliance report

<sup>147</sup> UK Government Department for Energy Security and Net Zero (2023) National Policy Statement EN-5 (NPS EN-5). Available at: <https://www.gov.uk/government/publications/national-policy-statement-for-electricity-networks-infrastructure-en-5>

<sup>148</sup> The Electricity Safety, Quality and Continuity Regulations 2002. UK Statutory Instruments 2002 No. 2665 Part V, Regulations 17 & 18. Available at: <https://www.legislation.gov.uk/ukxi/2002/2665/contents/made>

<sup>149</sup> UK Government Department of Energy & Climate Change (2012) Optimum Phasing of high voltage double-circuit Power Lines. A voluntary Code of Practice. Available at: <https://assets.publishing.service.gov.uk/media/5a7971e640f0b642860d8273/1255-code-practice-optimum-phasing-power-lines.pdf>

that the proposed design complies with the guidelines set out in the Code of Practice and paragraph 2.10.11 of NPS EN-5. The report will include the measures that adhere to recommendations and guidance on ground clearance requirements and ensuring optimum phasing of high voltage double-circuit overhead lines.

- 12.5.5 Appropriate control measures to ensure other potential effects on human health noted above are managed appropriately during construction will be addressed through compliance with the CEMP; the implementation of which would ensure that all best practice and regulatory requirements are adhered to throughout the construction process, thereby addressing any issues associated with water quality, traffic and transport, noise and vibration and air quality.
- 12.5.6 The scoping assessment of potential effects of the OHL on population and human health has also taken account of the Embedded and Applied Mitigation as outlined in **Section 3.4: Mitigation** and **Appendix B (List of Applied Mitigation Documents)** and the mitigation described in each relevant EIA topic in considering the potential for changes to health determinants.

## 12.6 Preliminary Assessment of Likely Significant Effects

### Electromagnetic Fields (EMFs)

- 12.6.1 SSEN Transmission designs all new equipment to comply with the Government's guidelines as set out in the Code of Practice (see **Section 12.4: Potential Effects**). The approach to design also takes account of statutory requirements in relation to the minimum height of overhead lines and ground clearance, and, position, insulation and protection of overhead lines to ensure compliance with the *Electrical Safety, Quality and Continuity Regulations 2002*. In addition, it takes account of the guidelines contained in the companion Phasing Code of Practice<sup>146</sup>.
- 12.6.2 This design approach described in the parameters of measurement which will be set out in the Compliance Report, set out in a standalone report to the EIA Report and undertaken by an engineering team, will demonstrate electric and magnetic fields are below the ICNIRP guideline levels. **Table 12.1: Compliance Parameters for AS4 Tower Design (with Triple Araucaria at 500 mm spacing)** below sets out in summary form the exposure limits in relation to the proposed OHL design.

**Table 12.1: Compliance Parameters for AS4 Tower Design (with Triple Araucaria at 500 mm spacing)**

Description	Magnetic Field (under the line)	Electric Field (under the line)
Design: <ul style="list-style-type: none"> <li>400 kV Double Circuit OHL</li> <li>AS4 Tower Design (Triple Araucaria at 500mm spacing)</li> <li>9 m conductor ground clearance</li> <li>5 kA continuous current per circuit</li> <li>Transposed phasing</li> </ul>	89.55 $\mu$ T	8.22 kV/m
UK Exposure Limits as per ICNIRP Guidelines (1998)	360 $\mu$ T	9 kV/m
Conclusion	Compliant	Compliant

- 12.6.3 The calculations within the Compliance Report will be based on the Code of Practice. Calculations performed in accordance with the following would provide acceptable evidence of field levels:
- linear sources such as overhead lines and underground cables are based on the infinite-straight-line approximation;
  - are of the unperturbed field;
  - take account of the correct conductor(s) number, type and size;
  - ignore zero-sequence and negative-sequence currents and voltages and currents induced in the sheath, ground or earth wire; and
  - for electric fields, treat the ground as a perfect conductor.
- 12.6.4 In addition, the report will take account of the basic tower geometry for the design of the line in question but ignore variants in conductor spacing at angle towers. More detailed evidence will also include:
- calculations based on the actual conductor geometry rather than the infinite-straight-line approximation; and

- calculations taking account of perturbations to the electric field from conducting objects.

12.6.5 For the Proposed Development, technical evidence of compliance with EMF exposure guidelines defined in a statement with supporting calculations will confirm compliance with the Code of Practice. Specifically, a supporting compliance report will provide a calculation from the technical measurement of the maximum fields (ie directly under the line) demonstrating that where this maximum value is less than the ICNIRP guideline levels, all fields and exposures from that source will be compliant.

12.6.6 A project specific EMF compliance report will be produced by the Applicant to accompany the application for consent for the Proposed Development under section 37 of the *Electricity Act 1989*. The compliance report will provide detailed calculations and measurements that will underpin evidence of compliance with the ICNIRP guideline levels for exposure levels for all fields at a project level.

Other Health Determinants

12.6.7 Assessment of potential changes to health determinants of the Proposed Development is presented in **Table 12.2: Scoping Assessment of Health Effects**. The prediction of effects has taken account of mitigation assumed in the project (see **Section 12.5: Mitigation**) and the scoping assessment findings for other relevant environmental impacts considered in this Scoping Report, as well as an understanding of the character and distribution of the land use/population and environmental baseline of the study area. The assessment has been guided by the detailed scoping tables in Annex 2 of the IEMA scoping guidance to help identify the potential likelihood and significance of changes brought about by the proposals for each key group of health determinants.

**Table 12.2: Scoping Assessment of Health Effects**

Health Determinant	Change in Health Determinant?	Commentary and Predicted Significance of Residual Health Effects
<p>Health Related Behaviours:</p> <ul style="list-style-type: none"> <li>• Physical activity;</li> <li>• Risk taking behaviour; and</li> <li>• Diet and nutrition.</li> </ul>	<p>No material change likely.</p>	<p>The nature of the proposals during construction and when operating are not predicted to materially affect levels of physical activity or access to healthy food and nutrition. The OHL will be designed, constructed and monitored to relevant safety standards to deter risk-taking behaviour and is not considered to increase health risks for example from anti-social behaviour.</p> <p>No significant effects are predicted on population and human health from changes in health-related behaviours determinants.</p>
<p>Social Environment:</p> <ul style="list-style-type: none"> <li>• House;</li> <li>• Relocation;</li> <li>• Open space, leisure and play;</li> <li>• Transport modes, access and connections;</li> <li>• Community safety, identity etc; and</li> <li>• Social participation, interaction and support.</li> </ul>	<p>No material change predicted to most determinants.</p> <p>Some potential for minor changes to community identity.</p>	<p>The Proposed Development would not affect housing need, quality or provision in the long-term. Construction workers may seek local temporary accommodation but this would not be predicted to adversely affect housing supply, population relocation or health outcomes.</p> <p>The proposals would not directly affect open space or leisure facilities (see <b>Chapter 4: Land Use and Recreation</b>) and will be designed to avoid recreational areas and community edges. No significant adverse effects on transport and access are predicted and temporary construction traffic would be managed in accordance with strict site safety protocols. The changes identified are not predicted to have significant effects on human health.</p> <p>Health and safety management during construction and operation would avoid material impacts on community safety. The OHL proposals may change some individuals' perceptions of their community however these are not predicted to give rise to significant effects on health at the population level.</p>
<p>Economic Environment:</p> <ul style="list-style-type: none"> <li>• Education and training; and</li> <li>• Employment and income.</li> </ul>	<p>No material change likely.</p>	<p>Construction and operation of the Proposed Development is not predicted to adversely affect education and training facilities and their provision in the study area.</p> <p>Construction may bring some increased opportunities for local employment, use of local businesses in the supply chain and for workforce training (eg apprenticeships) dependent on the procurement methods employed by a future contractor.</p> <p>Overall, there is some potential for beneficial impacts on health determinants related to socio-economic opportunity and outcomes</p>

Health Determinant	Change in Health Determinant?	Commentary and Predicted Significance of Residual Health Effects
		particularly in areas where unemployment is higher. No significant adverse effects on population and human health are predicted.
Bio-physical Environment: <ul style="list-style-type: none"> <li>• Climate change and adaptation;</li> <li>• Air quality;</li> <li>• Water quality;</li> <li>• Land quality;</li> <li>• Noise and vibration; and</li> <li>• Radiation.</li> </ul>	Some potential for minor changes to environmental amenity relating to noise.  No other material changes are considered to be likely.	No significant effects are predicted in relation to climate change mitigation and adaptation (see <b>Chapter 14: Climate Change</b> ) and the proposals would not be predicted to adversely interact with climate change responses and planning in the area.  Exposure to EMFs from the project has been assessed earlier in this chapter and scoped from further consideration.  The OHL construction and operation has some potential for adverse noise impacts for sensitive receptors. These will be mitigated wherever possible and residual noise effects will be assessed in detail in the EIAR. No other significant environmental effects are predicted from environmental topics which have been considered in this scoping report. Committed mitigation would ensure that there was no disruption to properties served by Private Water Supplies (PWS) which have any potential to be affected by the OHL. This would reduce the potential for adverse amenity impacts from the project to interact on people and their properties, particularly over the longer-term when the OHL is energised. Therefore, no significant adverse effects on population and human health are predicted.
Institutional and Built Environment: <ul style="list-style-type: none"> <li>• Health and social care services;</li> <li>• Built environment; and</li> <li>• Wider societal infrastructure and resources.</li> </ul>	No material change likely.	The Proposed Development is being designed to follow a route and alignment which avoids communities and including built up areas that accommodate health and social care facilities and areas of important infrastructure for communities, transport and utilities. Construction of the Proposed Development would be managed to avoid disruption to people making journeys to such facilities (eg on local roads and paths).  No significant effects on land uses and built development would be predicted from the construction and operation of the OHL and it is not considered to have potential to adversely affect health outcomes based on the institutional and built environment.

- 12.6.8 The assessment presented in the table has identified that no significant adverse effects on health outcomes are predicted for the population in the study area for the Proposed Development.
- 12.6.9 The assessment focuses on consideration of health determinants and effects for people living and working in the vicinity of the Proposed Development. It has been assumed that the (occupational) health of construction and maintenance operatives for the OHL would be managed through adherence to health and safety legislation and to compliance with relevant occupational health guidelines and standards. It is not predicted that there would be significant adverse effects on the health of the workforce engaged in construction, operation or decommissioning of the OHL.
- 12.6.10 On the basis that the Proposed Development would operate within the known thresholds for EMFs, and that relevant Embedded Mitigation outlined in this report including the CEMP is adhered to, no significant adverse effects on population and human health from exposure of people to EMFs are predicted as a result of operation of the Proposed Development.
- 12.6.11 The permanent development of the OHL has the potential for significant adverse effects on visual amenity (see **Chapter 5: Landscape and Visual Amenity**). These effects will be assessed in further detail as part of the LVIA process and reported in the EIAR including potential effects on residential visual amenity. They are not predicted to have likely significant population health implications.

#### Issues Scoped Out

- 12.6.12 Potential effects on human health associated with EMF and the potential effects from other topics considered in this chapter on population and human health are scoped out of detailed assessment.

## 12.7 EIA Assessment Scope and Methodology

- 12.7.1 As noted above, it is not predicted that there would be significant adverse effects on population and human health associated with construction or operation of the Proposed Development. It is not proposed that further assessment of health effects will be undertaken for the EIA. Further information reporting the findings of the Applicant's calculations to confirm compliance with the EMF exposure guidelines set out in the UK Code of Practice<sup>146</sup> will be provided as a separate report for the section 37 application.
- 12.7.2 The cumulative assessment set out in the EIAR will consider further the potential for intra-project cumulative effects such as at locations where noise and visual effects could combine for receptors such as residential properties. It is not predicted that such interactive effects, should they occur, would have significant impacts on health at the population level and the cumulative assessment will be confined to a consideration of effects on amenity in locations where it is not possible to mitigate residual adverse effects to a non-significant level. The cumulative effects assessment will be reported in a specific chapter of the EIAR (see **Chapter 3: EIA Approach and Methodology**).

## 12.8 Summary

- 12.8.1 There is no potential for public or occupational exposure to EMFs above appropriate thresholds established to protect human health as a result of the operation of the Proposed Development. The OHL alignment will be designed such that any residential property in proximity to the OHL would be located beyond the distance within which EMF reference and exposure guideline field levels could be reached and in compliance with the UK Government Code of Practice on exposure to EMFs.
- 12.8.2 The potential for significant effects on population and human health has been considered with respect to the typical health determinants for the population in the study area for the Proposed Development. The scoping assessment of health effects has also considered other environmental impacts including on visual amenity, water quality, traffic and transport, noise and vibration and air quality which are assessed in other appropriate sections of this Scoping Report. The scoping assessment has not identified the potential for significant effects on population and human health.
- 12.8.3 As such, a separate human health and population impact assessment chapter will not be presented in the EIAR. However additional information demonstrating the compliance of the electricity transmission systems for the Proposed Development with the UK guidelines on EMF exposure will be provided with the section 37 application.

## 13. AIR QUALITY

### 13.1 Introduction

- 13.1.1 This chapter of the Scoping Report includes a preliminary assessment of effects and identifies the proposed method of assessment for identifying likely significant environmental effects for air quality associated with the construction, operation and decommissioning of the Proposed Development.
- 13.1.2 Stakeholder engagement is a key part of the EIA process. Relevant consultation responses to this topic from consultation events in 2023 and 2024 included reference to concerns over additional pollution and dust as a direct result of the construction and operation of the Proposed Development and from associated increased traffic movements.

### 13.2 Baseline Conditions

#### Study Area

- 13.2.1 The study area considered covers a wide zone of influence (up to 1 km from the Proposed Route of the Proposed Development).
- 13.2.2 A baseline air quality review has been undertaken to determine the existing air quality in the vicinity of the Proposed Development. This desk-top study has been undertaken using the following sources:
- Air quality data for Aberdeen City Council (ACC), including a review of the most recent ACC air quality Annual Progress Reports (APR) (Aberdeen City Council, 2020<sup>150</sup>, 2021<sup>151</sup>, 2022<sup>152</sup> and 2023<sup>153</sup>) and local monitoring data;
  - Air quality data for Aberdeenshire Council (AC), including a review of the most recent AC air quality Annual Progress Reports (APR) (Aberdeenshire Council, 2020<sup>154</sup>, 2021<sup>155</sup>, 2022<sup>156</sup> and 2023<sup>157</sup>) and local monitoring data;
  - Air quality data for Angus Council (AnC), including a review of the most recent AnC air quality Annual Progress Reports (APR) (Angus Council, 2020<sup>158</sup>, 2021<sup>159</sup>, 2022<sup>160</sup> and 2023<sup>161</sup>) and local monitoring data;
  - Background pollution maps from the Department for Environment, Food and Rural Affairs' (Defra) Local Air Quality Management (LAQM) website<sup>162</sup>; and
  - Ordnance Survey data and aerial photography from Google Maps.

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<sup>150</sup> Aberdeen City Council (2020) 2020 Air Quality Annual Progress Report (APR) for Aberdeen City Council. Available at: [https://www.scottishairquality.scot/sites/default/files/publications/2020-12/Aberdeen\\_APR\\_2020\\_001.pdf](https://www.scottishairquality.scot/sites/default/files/publications/2020-12/Aberdeen_APR_2020_001.pdf)

<sup>151</sup> Aberdeen City Council (2021) 2021 Air Quality Annual Progress Report (APR) for Aberdeen City Council. Available at: [https://www.scottishairquality.scot/sites/default/files/publications/2021-09/APR\\_2021\\_001.pdf](https://www.scottishairquality.scot/sites/default/files/publications/2021-09/APR_2021_001.pdf)

<sup>152</sup> Aberdeen City Council (2022) 2022 Air Quality Annual Progress Report (APR) for Aberdeen City Council. Available at: [https://www.scottishairquality.scot/sites/default/files/publications/2023-01/AberdeenCC\\_APR\\_2022.pdf](https://www.scottishairquality.scot/sites/default/files/publications/2023-01/AberdeenCC_APR_2022.pdf)

<sup>153</sup> Aberdeen City Council (2023) 2023 Air Quality Annual Progress Report (APR) for Aberdeen City Council. Available at: [https://www.scottishairquality.scot/sites/default/files/publications/2023-01/AberdeenCC\\_APR\\_2022.pdf](https://www.scottishairquality.scot/sites/default/files/publications/2023-01/AberdeenCC_APR_2022.pdf)

<sup>154</sup> Aberdeenshire Council (2020) 2020 Air Quality Annual Progress Report (APR) for Aberdeenshire Council. Available at: [https://www.scottishairquality.scot/sites/default/files/publications/2020-12/Aberdeenshire\\_APR-1.pdf](https://www.scottishairquality.scot/sites/default/files/publications/2020-12/Aberdeenshire_APR-1.pdf)

<sup>155</sup> Aberdeenshire Council (2021) 2021 Air Quality Annual Progress Report (APR) for Aberdeenshire Council. Available at: [https://www.scottishairquality.scot/sites/default/files/publications/2021-10/Aberdeenshire\\_APR2021v1.pdf](https://www.scottishairquality.scot/sites/default/files/publications/2021-10/Aberdeenshire_APR2021v1.pdf)

<sup>156</sup> Aberdeenshire Council (2022) 2022 Air Quality Annual Progress Report (APR) for Aberdeenshire Council. Available at: <https://www.scottishairquality.scot/sites/default/files/publications/2022-11/APR2022-1.pdf>

<sup>157</sup> Aberdeenshire Council (2023) 2023 Air Quality Annual Progress Report (APR) for Aberdeenshire Council. Available at: [https://www.scottishairquality.scot/sites/default/files/publications/2023-09/APR\\_Scotland\\_2023\\_v1.0.pdf](https://www.scottishairquality.scot/sites/default/files/publications/2023-09/APR_Scotland_2023_v1.0.pdf)

<sup>158</sup> Angus Council (2020) 2020 Air Quality Annual Progress Report (APR) for Angus Council. Available at: [https://www.scottishairquality.scot/sites/default/files/publications/2021-09/Angus\\_Annual\\_Report\\_on\\_Air\\_Quality\\_2020.pdf](https://www.scottishairquality.scot/sites/default/files/publications/2021-09/Angus_Annual_Report_on_Air_Quality_2020.pdf)

<sup>159</sup> Angus Council (2020) 2020 Air Quality Annual Progress Report (APR) for Angus Council. Available at: [https://www.scottishairquality.scot/sites/default/files/publications/2022-10/2021\\_Angus\\_Annual\\_Progress\\_Report.pdf](https://www.scottishairquality.scot/sites/default/files/publications/2022-10/2021_Angus_Annual_Progress_Report.pdf)

<sup>160</sup> Angus Council (2020) 2020 Air Quality Annual Progress Report (APR) for Angus Council. Available at: [https://www.scottishairquality.scot/sites/default/files/publications/2022-10/2022\\_Angus\\_Annual\\_Progress\\_Report.pdf](https://www.scottishairquality.scot/sites/default/files/publications/2022-10/2022_Angus_Annual_Progress_Report.pdf)

<sup>161</sup> Angus Council (2022) 2022 Air Quality Annual Progress Report (APR) for Angus Council.

<sup>162</sup> Department for Environment, Food and Rural Affairs (Defra) (2020) Background Mapping data for local authorities – 2018. Available at: <https://uk-air.defra.gov.uk/data/laqm-background-maps?year=2018>

### Summary of Baseline Data

- 13.2.3 The Tealing to Hurlie section of the Proposed Development (Sections A to D) is located approximately 3 km north of the nearest Air Quality Management Area (AQMA) at the closest point. This is Dundee AQMA, encompassing Dundee, and has been declared for exceedances of the annual mean AQO for NO<sub>2</sub> and PM<sub>10</sub>. Due to the distance of this AQMA from the scoping area, it is not considered that this AQMA will be affected by the Proposed Development.
- 13.2.4 The Hurlie to Kintore section of the Proposed Development (Sections E and F) is located approximately 5 km west at the closest point from the nearest Air Quality Management Area (AQMA). This is Anderson Drive AQMA, located in Aberdeen City, and has been declared for exceedances of the annual mean Air Quality Objectives (AQO) for Nitrogen Dioxide (NO<sub>2</sub>) and Particulate Matter (PM<sub>10</sub>). Due to the distance of this AQMA from the Proposed Route, it is not considered that this AQMA will be affected by the Proposed Development.

### Local Monitoring Data

- 13.2.5 The pollutant concentrations recorded at passive diffusion tubes monitored by the local authorities in 2020 and 2021 are not considered to be representative of 'normal' air quality conditions. Whilst it is expected that as a result of the COVID-19 pandemic behaviours will change in the future, the impact of this on long-term air quality is currently unknown and therefore the use of 2020 and 2021 data are omitted from any analysis but are included for information. Therefore, concentrations from 2022 have been used to establish baseline conditions.
- 13.2.6 Aberdeenshire Council does not currently undertake any automatic air quality monitoring and therefore monitoring data are not available for PM<sub>10</sub> and PM<sub>2.5</sub>. In 2022, 11 passive diffusion tubes were used to monitor annual mean NO<sub>2</sub> concentrations across the Council's administrative area. **Table 13.1: Annual Mean NO<sub>2</sub> Passive Diffusion Tube Data for Aberdeenshire Council and Angus Council Areas** provides the latest annual mean NO<sub>2</sub> concentrations at the passive diffusion tube locations within 3 km of the Proposed Route for the years of 2017 to 2022.
- 13.2.7 Angus Council uses 11 passive diffusion tubes to monitor annual mean NO<sub>2</sub> concentrations across its administrative area. **Table 13.1: Annual Mean NO<sub>2</sub> Passive Diffusion Tube Data for Aberdeenshire Council and Angus Council Areas** provides the latest annual mean NO<sub>2</sub> concentrations at the passive diffusion tube locations within 5 km of the Proposed Route for the years of 2017 to 2022.
- 13.2.8 There are no automatic monitoring or passive diffusion tubes undertaken by Aberdeen City Council within 5 km of the Proposed Route.

**Table 13.1: Annual Mean NO<sub>2</sub> Passive Diffusion Tube Data for Aberdeenshire Council and Angus Council Areas**

Diffusion Tube Name	Location of Diffusion Tube	Site Type	Distance from Site	Annual Mean NO <sub>2</sub> Concentration (µg/m <sup>3</sup> )					
				2017	2018	2019	2020	2021	2022
<b>Aberdeenshire Council</b>									
Westhill 2	Straik Road, Westhill	Roadside	1.2 km	19.0	18.8	17.8	9.4	11.0	9.3
<b>Angus Council</b>									
FOR	High Street, Forfar	Kerbside	2.9 km	14.9	15.2	14.7	10.0	10.1	9.7
F1	St James Road, Forfar	Kerbside	3.0 km	18.2	19.1	19.0	13.2	13.7	11.9

- 13.2.9 The monitoring data indicate that there were no exceedances of the annual mean NO<sub>2</sub> AQO of 40 µg/m<sup>3</sup> at any of the passive diffusion tubes within 3 km of the Proposed Route between 2017 and 2022. The closest monitoring location, Westhill 2 monitored an annual mean NO<sub>2</sub> concentration of 9.3 µg/m<sup>3</sup> or 23.3% of the annual mean NO<sub>2</sub> AQO in 2022, the latest year with available and representative monitoring data. Monitoring location F1 recorded the highest annual mean NO<sub>2</sub> concentration with a recorded annual mean NO<sub>2</sub> concentration of 11.9 µg/m<sup>3</sup> or 29.8% of the annual mean NO<sub>2</sub> AQO in 2022. As such it is considered unlikely that exceedances of the annual mean NO<sub>2</sub> AQO are experienced within the study area.

13.2.10 The 1-hour mean AQO for NO<sub>2</sub> is 200 µg/m<sup>3</sup> and should not be exceeded more than 18 times within a year. In line with Local Air Quality Management Technical Guidance (LAQM.TG22)<sup>163</sup> (Defra, 2022) exceedances of the 1-hour mean NO<sub>2</sub> AQO are unlikely to occur where the annual mean concentration is below 60 µg/m<sup>3</sup>. Concentrations at nearby passive diffusion tubes shown in **Table 13.1: Annual Mean NO<sub>2</sub> Passive Diffusion Tube Data for Aberdeenshire Council and Angus Council Areas** are all below the 60 µg/m<sup>3</sup> threshold from 2017 to 2022 and therefore the 1-hour mean NO<sub>2</sub> AQO is unlikely to be exceeded at these locations.

13.2.11 Angus Council also undertakes PM<sub>10</sub> and PM<sub>2.5</sub> monitoring to monitor annual mean PM<sub>10</sub> and PM<sub>2.5</sub> concentrations at one automatic monitoring station within 5 km of the Proposed Route and is shown in **Table 13.2: Angus Council Annual Mean PM<sub>10</sub> Automatic Monitoring Data** and **Table 13.3: Angus Council Annual Mean PM<sub>2.5</sub> Automatic Monitoring Data**.

**Table 13.2: Angus Council Annual Mean PM<sub>10</sub> Automatic Monitoring Data**

Diffusion Tube Name	Location of Diffusion Tube	Site Type	Distance from Site	Annual Mean PM <sub>10</sub> Concentration (µg/m <sup>3</sup> )					
				2017	2018	2019	2020	2021	2022
AFR1	Glamis Road, Forfar	Roadside	2.7 km	9.9	12.7	12.7	10.0	9.1	9.6

**Table 13.3: Angus Council Annual Mean PM<sub>2.5</sub> Automatic Monitoring Data**

Diffusion Tube Name	Location of Diffusion Tube	Site Type	Distance from Site	Annual Mean PM <sub>2.5</sub> Concentration (µg/m <sup>3</sup> )					
				2017	2018	2019	2020	2021	2022
AFR1	Glamis Road, Forfar	Roadside	2.7 km	-	-	-	-	-	5.4

NOTE: “-” represents no monitored data available

13.2.12 There were no exceedances of the annual mean PM<sub>10</sub> AQO of 18 µg/m<sup>3</sup> or annual mean PM<sub>2.5</sub> AQO of 10 µg/m<sup>3</sup> at this automatic monitoring station between 2017 and 2022. AFR1 monitored an annual mean PM<sub>10</sub> concentration of 9.6 µg/m<sup>3</sup> and annual mean PM<sub>2.5</sub> concentration of 5.4 µg/m<sup>3</sup> which is 53.3% and 54% of the respective annual mean AQOs in 2022, the latest year with available and representative monitoring data. As such it is considered unlikely that exceedances of the annual mean PM<sub>10</sub> and PM<sub>2.5</sub> AQOs are experienced within the study area.

13.2.13 In addition, it should be noted that there have been no exceedances of the PM<sub>10</sub> 24-hour mean AQO at any automatic monitoring station within the Angus Council administrative area from 2017 to 2022. As such it is considered unlikely that exceedances of the PM<sub>10</sub> 24-hour mean AQO are experienced within the study area.

*Predicted Defra Background Monitoring*

13.2.14 Data on background air pollutant concentrations from Defra’s air quality programme have been obtained from the national maps published by Defra<sup>164</sup>. These estimated concentrations are produced on a 1 km by 1 km grid basis for the whole of the UK. The study area falls into multiple grid squares across the circa. 106 km<sup>2</sup> Proposed Route, as such the maximum predicted background pollutant concentrations for NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> across the administrative areas are provided in **Table 13.4: Maximum Defra Predicted Annual Mean Background Concentrations in 2022 and 2024** for 2022, the most recent year with available and representative monitoring data, and for 2024, the current year.

**Table 13.4: Maximum Defra Predicted Annual Mean Background Concentrations in 2022 and 2024**

Administrative Area	Year	Predicted Annual Mean Concentration (µg/m <sup>3</sup> )		
		NO <sub>2</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
Aberdeenshire	2022	24.7	12.6	7.5
	2024	24.3	12.4	7.3
Aberdeen City	2022	27.0	12.0	6.7

<sup>163</sup> Department for Environment, Food and Rural Affairs (Defra) (2022) Local Air Quality Management – Technical Guidance (TG22). Available at: <https://laqm.defra.gov.uk/wp-content/uploads/2022/08/LAQM-TG22-August-22-v1.0.pdf>

<sup>164</sup> Defra (2020) Background Pollution Maps – 2018. Available at: <https://uk-air.defra.gov.uk/data/laqm-background-maps?year=2018>

Administrative Area	Year	Predicted Annual Mean Concentration ( $\mu\text{g}/\text{m}^3$ )		
		NO <sub>2</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
	2024	25.5	11.8	6.5
Angus	2022	8.0	14.7	6.9
	2024	7.5	14.4	6.8

13.2.15 As shown in **Table 13.4: Maximum Defra Predicted Annual Mean Background Concentrations in 2022 and 2024**, there have been no exceedances for annual mean NO<sub>2</sub>, PM<sub>10</sub> or PM<sub>2.5</sub> background concentrations across the three administrative areas. Therefore, it is considered unlikely that exceedances of the respective annual mean NO<sub>2</sub>, PM<sub>10</sub> or PM<sub>2.5</sub> AQOs of 40  $\mu\text{g}/\text{m}^3$ , 18  $\mu\text{g}/\text{m}^3$  and 10  $\mu\text{g}/\text{m}^3$ , respectively, would be experienced within the study area.

### 13.3 Sensitive Receptors

13.3.1 The key air quality receptors within the air quality study area are identified as follows:

- Existing sensitive human receptors in the vicinity of the Proposed Route including high sensitivity receptors such as residential properties, health facilities and schools, as well as medium/low sensitivity receptors such as commercial and industrial properties; and
- Designated ecological receptors within 50 m of the OHL with potential sensitivity to dust emissions, including SSSI, SPA and SAC.

### 13.4 Potential Effects

13.4.1 The potential significant effects on air quality are identified and assessed in **Table 13.5: Scoping Assessment for Local Air Quality**. This is based on a combination of the likely location of the Proposed Development at the Scoping stage, Embedded and Applied Mitigation, understanding of the baseline conditions at this stage, the evidence base for air quality effects and professional judgement.

13.4.2 The Proposed Development is not predicted to give rise to any significant effects on air quality. During the construction phase there is potential for localised and temporary construction phase air quality effects as a result of localised mobilisation of dust from construction areas during dry weather conditions, and from construction Non-Road Mobile Machinery (NRMM) and road traffic exhaust emissions. It is considered that these will not be significant due to the short-term nature of the construction phase activities and on the assumption that they will be limited and controlled through Embedded and Applied Mitigation to minimise potential significant effects (see **Section 13.5: Mitigation**).

13.4.3 Once constructed and energised, operation of the OHL would not give rise to any emissions to air.

**Table 13.5: Scoping Assessment for Local Air Quality**

Impact Pathway	Embedded / Applied Mitigation	Scoped In/Out	Justification
Construction and Decommissioning			
Fugitive Dust Emissions	Implementation of comprehensive CEMP incorporating measures to avoid and reduce arisings of dust at, and near to, construction working areas.	Scoped Out	Impacts to air quality at sensitive human and ecological receptors due to fugitive dust emissions during the construction phase are expected to be adequately managed through Embedded and Applied Mitigation measures. A Construction Dust Risk assessment will be undertaken if required by the contractor to inform appropriate mitigation and incorporated within the CEMP (which would be submitted in outline as part of the EIAR). As such, there are not predicted to be any significant impacts from dust emissions during the construction phase. The future baseline conditions (environmental and other developments) cannot be predicted accurately at this stage and the proposals for refurbishment/decommissioning are not currently known. Impacts to air quality at sensitive human and ecological receptors due to fugitive dust emission during the decommissioning phase are expected to be adequately managed through mitigation measures. Appropriate mitigation measures would be implemented through a CEMP. As such, there are not anticipated to be any significant impacts from dust emissions during the decommissioning phase.
Construction Traffic Emissions	A Traffic Management Plan will be prepared, agreed with relevant road authorities and implemented on site. It will link with the CEMP to ensure that the potential for dust arisings and emissions of local air pollutants are managed and reduced in line with best site practices.	Scoped Out	Construction traffic numbers and the OHL alignment are unknown at this stage. However, the construction traffic will be routed away from sensitive receptors as a best practice measure where possible. Whilst it is anticipated that there will be some elevated traffic levels generated by the Proposed Development during the construction works, impacts would be short-term in nature and limited to the peak period of works. It is not expected that construction traffic flows would exceed the EPUK and IAQM screening criterion <sup>165</sup> for either sensitive human receptors of more than 500 Light Duty Vehicles (LDV) and/or more than 100 Heavy Duty Vehicles (HDV) Annual Average Daily Traffic (AADT) or the Design Manual for Roads and Bridges (DMRB) ecological receptors of more than 1000 LDV and/or more than 200 HDV. However, if required, when further construction traffic information becomes available a detailed assessment may be undertaken if flows exceed the above criteria and if there is potential for significant effects in accordance with these methodologies. Given the short-term nature of construction works and associated traffic generation it is considered unlikely that there would be any predicted significant effects on local air quality from this source. The future baseline conditions (environmental and other developments) cannot be predicted accurately at this stage and the proposals for restoration/decommissioning are not currently known. However, traffic flows are expected to be no worse than during the construction phase and given short-term nature of elevated traffic levels and the amount of headroom in the baseline year NO <sub>2</sub> concentrations, it is not expected that there would be any significant impacts due to traffic associated with the Proposed Development during the decommissioning phase.
Non-road Mobile Machinery (NRMM) Emissions	Adherence to Emissions Standards through appropriate specification and maintenance	Scoped Out	Emissions of nitrogen oxides (taken to be NO <sub>2</sub> + NO) (NOX) and PM <sub>10</sub> from NRMM will be required to adhere to emissions standards, therefore it is not predicted that the impacts of construction plant on air quality at sensitive human and ecological receptors would be significant.

<sup>165</sup> Environmental Protection UK and Institute of Air Quality Management (2017) Land-Use Planning & Development Control: Planning For Air Quality. Available at: <https://www.iaqm.co.uk/text/guidance/air-quality-planning-guidance.pdf>

TRANSMISSION

Impact Pathway	Embedded / Applied Mitigation	Scoped In/Out	Justification
	of construction plant and use of electric plant where practical.		<p>The future baseline conditions (environmental and other developments) cannot be predicted accurately at this stage and the proposals for refurbishment/decommissioning are not currently known.</p> <p>Emissions of nitrogen oxides (taken to be NO<sub>2</sub> + NO) (NOX) and PM<sub>10</sub> from NRMM will be required to adhere to emissions standards, therefore it is not predicted that the impacts of construction plant on local air quality at sensitive human and ecological receptors will be significant.</p>
Operation			
Road Traffic Emissions	Not required.	Scoped Out	<p>It is expected that once operational there will be very few vehicles accessing the Proposed Development as this would be for maintenance purposes only. Therefore, it is not predicted that traffic flows would exceed the EPUK and IAQM screening criterion for either sensitive human (more than 500 LDV and/or more than 100 HDV AADT) or DMRB criteria for ecological receptors (more than 1,000 LDV and/or more than 200 HDV)<sup>166</sup>. As such, it is not anticipated that the impacts of road traffic emissions associated with the Proposed Development would be significant.</p>

<sup>166</sup> Highways England, Transport Scotland, Welsh Government and Department for infrastructure (2019) Design Manual for Roads and Bridges – LA 105: Air quality. Available at: <https://www.standardsforhighways.co.uk/tses/attachments/10191621-07df-44a3-892e-c1d5c7a28d90?inline=true>

### 13.5 Mitigation

- 13.5.1 In-line with the hierarchy of mitigation set out in **Section 3.4: Mitigation**, the following section describes the Embedded and Applied Mitigation which is considered relevant to the Proposed Development in the context of this local air quality scoping assessment. The mitigation outlined below has been considered and applied when determining the potential for likely significant effects arising from the construction and operation of the Proposed Development as described in **Section 13.4: Potential Effects**.
- 13.5.2 Applied Mitigation for air quality would include development of, and adherence to, a CEMP, which will be developed in outline through the EIA and will be presented in outline within the EIAR. The CEMP will be implemented as part of the construction phase and will incorporate commitments to relevant and comprehensive measures to avoid and reduce dust arisings and its implementation and monitoring on site would mitigate any impacts on local air quality generated, particularly in regard to the production of dust and use of NRMM. This is likely to evolve over the development process as the EIA progresses and in response to stakeholder consultation.
- 13.5.3 As a result of the commitment to implement these measures, and to align the Proposed Development with standard best environmental management practices and procedures, the Embedded and Applied Mitigation measures are considered inherently part of the design of the Proposed Development's construction.
- 13.5.4 Embedded and Applied Mitigation will be set out in a Schedule of Mitigation as a chapter of the EIAR. It is assumed that implementation will be assured by consent conditions.

### 13.6 Preliminary Assessment of Likely Significant Effects

- 13.6.1 Following the implementation of committed mitigation measures outlined in **Table 13.5: Scoping Assessment for Local Air Quality**, and the presumption of their implementation in design and construction, it is not predicted that there would be any significant adverse residual local air quality effects from the Proposed Development associated with the mobilisation of dust from construction activities around tower sites, forming of access tracks and movement of construction vehicles.

Regarding traffic flows during the construction, operation and decommissioning phases, given that the maximum NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> background concentration shown in **Table 13.4: Maximum Defra Predicted Annual Mean Background Concentrations in 2022 and 2024** are below their respective AQOs, there is substantial headroom before any exceedance of the NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> annual mean AQOs would occur, it is not predicted that there is potential for cumulative effects with other projects.

- 13.6.2 Significant cumulative interactions relating to emissions during the construction phase are not predicted to occur, provided that the Embedded and Applied Mitigation measures outlined above and in **Table 13.5: Scoping Assessment for Local Air Quality** are implemented. It is assumed that other developments for which construction might be concurrent with the Proposed Development would implement their own mitigation measures consistent with best environmental management practices.

#### Issues Scoped Out

- 13.6.3 No significant local air quality effects are predicted during construction and decommissioning of the Proposed Development and there would be no emissions to air during its operation. The scoping assessment presented above and summarised in **Table 13.5: Scoping Assessment for Local Air Quality** confirms that all aspects of air quality assessment are proposed to be scoped out of the EIA.

### 13.7 EIA Assessment Scope and Methodology

- 13.7.1 The Proposed Development is not anticipated to result in significant adverse effects on air quality during construction, operational or decommissioning phases. Therefore, this issue is scoped out of the EIA and no further assessment of air quality is proposed as part of the EIAR.

### 13.8 Summary

- 13.8.1 It is considered that air quality for construction, operation and decommissioning is scoped out of any further assessment within the EIA, as there is expected to be negligible impact upon identified receptors when the Embedded and Applied Mitigation measures that will be contained within the project CEMP are considered for the Proposed Development.

## 14. CLIMATE CHANGE

### 14.1 Introduction

- 14.1.1 This chapter of the Scoping Report considers the potential effects of the Proposed Development with respect to climate change. The assessment has been undertaken in line with the EIA Regulations which require, to the extent relevant to the specific characteristics of the development and to the environmental features likely to be affected, “A description of the likely significant effects of the development on the environment resulting from, inter alia: (f) the impact of the project on climate (for example the nature and magnitude of greenhouse gas emissions) and the vulnerability of the project to climate change”.
- 14.1.2 Climate change is a relatively new topic in EIA. Guidance is evolving and there is no prescribed way in which climate change should be incorporated. However, this scoping assessment has been carried out in accordance with the principles contained in the following documents:
- Institute of Environmental Management and Assessment (IEMA) (2022) *Guide to Assessing Greenhouse Gas Emissions and Evaluating their Significance*<sup>167</sup>; and
  - Institute of Environmental Management and Assessment (IEMA) (2020) *Guide to Climate Change Resilience & Adaptation*<sup>168</sup>.
- 14.1.3 Climate change interacts with a range of other environmental and social factors and the approach to the EIA will take account of future climate changes as part of the consideration of the future baseline condition for other environmental topics, and how these might interact with the potential impacts of the Proposed Development.
- 14.1.4 To ensure that both climate mitigation and climate change adaptation are fully and consistently considered, this chapter considers these two elements separately:
- Climate Mitigation<sup>169</sup>: The potential effects of the Proposed Development on climate change, with measures included in the project to reduce the emissions of direct and indirect GHGs<sup>170</sup>.
  - Climate Change Adaptation: Addressing the vulnerability of the Proposed Development to climate change and considering the implications of climate change for other predicted impacts of the project, as assessed by the relevant topic specialists (known as ‘in-combination climate impacts’).
- 14.1.5 The Proposed Development, a 400 kV overhead transmission line, will play an important role in facilitating the achievement of Scotland’s national climate targets<sup>171</sup> to become a net zero greenhouse gas (GHG) emitting nation by 2045, supporting the ‘reducing greenhouse gas emissions’ policy action<sup>172</sup> and the ‘Electricity’ strategy as set out in the Update to Scotland’s Climate Change Plan<sup>173</sup>, as well as contributing to the UK’s Net Zero Strategy<sup>174</sup>.
- 14.1.6 The GHG assessment undertaken in support of the preparation of the National Planning Framework 4 as it related to Strategic Renewable Electricity Generation and Transmission Infrastructure, indicates that, at the strategic level, the negative effects predicted in relation to grid infrastructure are not expected to be greater than minor in significance. Specifically, the

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167 Institute of Environmental Management and Assessment (IEMA) (2022) Environmental Impact Assessment Guide to: Assessing Greenhouse Gas Emissions and Evaluating their Significance (2<sup>nd</sup> Edition). Available at: <https://www.iema.net/resources/blog/2022/02/28/launch-of-the-updated-eia-guidance-on-assessing-ghg-emissions>

168 Institute of Environmental Management and Assessment (IEMA) (2020) Environmental Impact Assessment Guide to: Climate Change Resilience and Adaptation. Available at: <https://www.iema.net/resources/reading-room/2020/06/26/iema-eia-guide-to-climate-change-resilience-and-adaptation-2020>

169 This is not to be confused with EIA mitigation. Climate change mitigation seeks to specifically reduce a development’s GHG emissions. EIA mitigation involves measures that aim to avoid, prevent, reduce, or offset any identified significant adverse effects of a development.

170 Direct emissions are emissions from sources controlled by a reporting entity, while indirect emissions arise as a consequence of the activities of the reporting entity but are from sources not controlled by it. The principal GHGs relevant to this assessment are carbon dioxide (CO<sub>2</sub>) and nitrous oxide (NO<sub>x</sub>).

171 Scottish Government (2019) Climate Change (Emissions Reduction Targets) (Scotland) Act 2019. Available at: <https://www.legislation.gov.uk/asp/2019/15>

172 Scottish Government (undated) Climate Change Policy. Available at: <https://www.gov.scot/policies/climate-change/>

173 Scottish Government (2020) Update to the Climate Change Plan 2018-2032 – Securing a Green Recovery on a Path to Net Zero. Available at: <https://www.gov.scot/publications/securing-green-recovery-path-net-zero-update-climate-change-plan-20182032/>

174 HM Government (2021) Net Zero Strategy: Build Back Greener. Available at: <https://www.gov.uk/government/publications/net-zero-strategy>

assessment highlighted that when direct and indirect effects are combined, a development as proposed will have a net positive effect on lifecycle GHG emissions due to potential for substantial generation and transmission of renewable electricity. The scale of the positive effect is assumed to be between medium and very high positive, where it is assumed that the current scale of renewable energy generation and the role of the development in facilitating further renewable energy development as currently applied and expected.

- 14.1.7 The lifecycle greenhouse gas emissions assessment of the National Developments identified in NPF4 concludes that a development of the scale proposed by the Applicant will, when considered as part of a national priority, be likely to have an overall net positive impact on achieving national greenhouse gas emissions reduction targets.
- 14.1.8 The Proposed Development forms part of the 'Strategic Renewable Electricity Generation and Transmission Infrastructure' National Development within Scotland's National Planning Framework (NPF4). It is therefore inherently supported by NPF4 (and explicitly supported by Policy 11(a)(ii) (Energy)).
- 14.1.9 NPF4 sets out a clear policy emphasis on consideration of climate/carbon issues. A Climate Change Assessment (CCA) was undertaken for NPF4 as part of an Integrated Impact Assessment and reported in the Strategic Environmental Assessment (SEA) Report. A lifecycle greenhouse gas (GHG) assessment was undertaken for the National Developments. This assessment concluded that the Proposed Development (as a National Development identified above) would likely have an overall net positive impact on achieving national GHG emissions reductions targets<sup>175</sup>.
- 14.1.10 Based on the GHG assessment of the National Development, and the summary of this in Annex B of NPF4, grid transmission projects are identified as an overall and inextricable part of the renewables infrastructure required and collectively they deliver (net) emissions reductions.
- 14.1.11 Review of the findings of the GHG assessment (and SEA Environmental Report) indicates that, at the strategic level, the adverse effects predicted in relation to grid infrastructure are not predicted to be greater than minor in significance. These effects relate to lifecycle emissions from carbon in embodied materials and components and (for some projects) from disturbance of carbon rich soils and vegetation that store or absorb significant amounts of carbon. Specifically, the assessment highlighted that when direct and indirect effects are combined, a development as proposed will have a net positive effect on lifecycle GHG emissions due to potential for substantial generation and transmission of renewable electricity.
- 14.1.12 This analysis provides a strategic context for the scoping approach to climate issues in this Scoping Report, which sets out to scope out effects from GHG emissions on the basis that they would not be significant. Since the NPF4 GHG assessment identified some issues around emissions associated with lifecycle carbon in materials and land use change issues these have been addressed further in this chapter to identify the potential for adverse significant effects, to propose mitigation, and to inform the proposed decision to scope them out from the EIA.

## 14.2 Baseline Conditions

### Summary of Baseline

#### *Climate Mitigation*

- 14.2.1 The baseline for the Climate Mitigation assessment is a 'do nothing' scenario whereby the Proposed Development is not implemented.
- 14.2.2 Since climate change is a global problem related to the emissions of GHGs regardless of their source location, the baseline is essentially represented by the current concentration of GHGs in the atmosphere. Changes in emissions predicted to result from the Proposed Development may be assessed with respect to this baseline and where relevant presented in the context of appropriate emissions inventories and budgets (see **Section 14.3: Sensitive Receptors**). A conservative (worst-case) scenario of zero net baseline GHG emissions has therefore been assumed for the assessment of climate mitigation.

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<sup>175</sup> Scottish Government (2022) NPF4 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/>

*Climate Change Adaptation*

- 14.2.3 The baseline for the climate change adaptation assessment is represented by the existing climate conditions and recorded extreme weather events for the area. It has been established from the climate records between the years of 1991 and 2020 (a 30-year climate average) for the East of Scotland using Met Office defined regions for generating climatologies.
- 14.2.4 The average maximum and minimum summer temperatures in this period were 17.1°C and 8.9°C, respectively, whilst the average maximum and minimum winter temperatures were 5.5°C and -0.3°C, respectively<sup>176</sup>. The average rainfall during the same period for this region was 89.8 mm and 114.4 mm for summer and winter, respectively, and average wind speeds for these seasons were 8.7 knots and 11.6 knots, respectively.
- 14.2.5 The baseline has also been established with reference to a summary of relevant past extreme weather events published by the Met Office<sup>177</sup> to inform an understanding of the assessment of potential climate change impacts and extreme weather events. Key events include:
- Storm Otto in February 2023, which caused power cuts, transportation disruption, and damage to buildings and vehicles across north and east Scotland;
  - Extreme heatwave in July 2022 across most of the UK, including a record temperature recorded in Scotland at 34.8°C;
  - Storm Malik and Storm Corrie in January 2022; which resulted in loss of human life, caused structural damage, falling trees, and loss of power in northern Scotland including in Aberdeenshire;
  - Storm Babet, which brought heavy rainfall and strong winds to parts of eastern Scotland in October 2023 resulting in the wettest day on record since 1891 in Angus and causing a number of fatalities and damage to property;
  - Severe winter weather in February 2021; where much of Eastern Scotland experienced temperatures as low as minus 20 °C and deep lying snow.

**14.3 Sensitive Receptors***Climate Mitigation*

- 14.3.1 The assessed receptor is the global atmosphere since GHG emissions are not geographically limited. Therefore, all emissions have a global effect rather than directly affecting any specific local receptor(s).

*Climate Change Adaptation*

- 14.3.2 The receptors used when considering the impact of climate change on the predicted effects of the Proposed Development (in-combination climate assessment) are consistent with those potentially subject to significant effects defined in each relevant topic chapter of the EIAR. The assessment considers the influence of climate change and project-related impacts on the identified receptors in each of the key environmental assessments.
- 14.3.3 At this stage, identified potential receptors include:
- environmental receptors (eg habitats and species);
  - infrastructure receptors (including infrastructure materials, equipment, and infrastructure operations/processes); and
  - human and population receptors (eg road users, construction workers, employees).
- 14.3.4 The receptor in terms of project resilience to climate change will be the Proposed Development itself, specifically the OHL infrastructure including towers, conductors, earth wires and insulators.

**14.4 Potential Effects**

- 14.4.1 The construction and operation of Proposed Development has the potential to result in the following types of effects:

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176 Met Office (2019) Met Office MIDAS Open: UK Land Surface Stations Data (1853-current). Available at: <https://catalogue.ceda.ac.uk/uuid/dbd451271eb04662beade68da43546e1>

177 Met Office (undated) Past weather events. Available at: <https://www.metoffice.gov.uk/weather/learn-about/past-uk-weather-events>

Climate Mitigation

14.4.2 The generation of direct and indirect GHG emissions, including:

- Emissions from embodied carbon and energy used in the processing, manufacturing and installation of transmission assets (materials and components), principally carbon dioxide (CO<sub>2</sub>);
- Emissions arising from land use change during construction (typically including methane (CH<sub>4</sub>), nitrogen oxides (NO<sub>x</sub>) and CO<sub>2</sub>);
- CO<sub>2</sub> and NO<sub>x</sub> arising from road traffic, and construction and installation activities associated with combustion of fossil fuels, during the OHL construction process; and
- CO<sub>2</sub> and NO<sub>x</sub> emissions from transport, maintenance activities and the consumption of materials required for maintenance activities during operation.

Climate Change Adaptation

14.4.3 Potentially significant effects are considered regarding the 'in-combination' impacts of climate change acting on environmental receptors together with the potential significant effects of the Proposed Development (as assessed by other topic specialists), which could give rise to an exacerbation of the predicted effects on the relevant receptors. The potential for these effects has been considered in relation to each key topic of the EIA.

14.4.4 The Proposed Development will also be vulnerable to climate change, particularly in relation to extreme weather events such as flooding, extreme heat, and storms to which the OHL towers and conductors would be exposed.

## 14.5 Mitigation

14.5.1 Inherent in the design of the Proposed Development, the Applicant is committed to implementation of Applied Mitigation which comprises a suite of SSEN Transmission standard management plans and contractor authored documentation, which details general and site-specific measures which will be implemented to avoid or mitigate likely significant effects. See **Section 3.4: Mitigation** and **Appendix B: List of Applied Mitigation Documents**.

14.5.2 In order to mitigate emissions of GHGs, the assessment has assumed that good practice environmental management during construction would be followed through implementation of SSEN Transmission's General Environmental Management Plans (GEMPs) and through requirements for a detailed and effective CEMP whose implementation would be the responsibility of the Principal Contractor. The following measures relevant to emissions reduction would typically be implemented as part of the CEMP:

- Core waste management principles of prevention, reuse, recycle, recover and disposal will be embedded within the CEMP through implementation of a Site Waste Management and Materials Plan (SWMMP). This will include construction initiatives to minimise the creation of waste and plans and procedures for on-site segregation of surplus materials to increase the downstream re-use and recycling of materials removed from site;
- Reusing and recycling resources and construction waste within the site where possible to minimise the use of natural resources and unnecessary materials (eg reusing excavated soil for fill requirements, balancing cut and fill for tracks etc);
- The Contractor would use local workforce and suppliers where reasonably and commercially practical to minimise construction (and decommissioning) transport emissions;
- Implementing rideshare options for staff and employees to transport construction and decommissioning personnel to site where possible;
- Abatement controls on road vehicles and mobile and static plant with combustion engines to reduce emissions and pollutants created during construction. Incorporation of measures within the CEMP and Traffic Management Plan (TMP) to reduce emissions and pollution from fossil-fuel powered vehicles and plant;
- Adoption of electric vehicles for construction transport and electrically powered construction plant where practical;
- Switching vehicles and generators off when not in use and ensuring construction vehicles conform to current UK emissions standards;
- Best practice operational controls to manage and regulate site activities to minimise vegetation loss and disturbance to soil, such as designated machinery and lay-down areas and designated construction access routes; and

- Conducting regular planned maintenance of the construction plant and machinery to optimise efficiency.

14.5.3 Further mitigation measures will be developed and included within the EIAR to support minimisation of life cycle emissions for the Proposed Development. These will include measures such as:

- Procurement of key infrastructure components for towers, conductors and insulators to conform with industry best practice for carbon reduction in design and manufacture including following SSEN Transmission's commitments to reduction of scope 3 emissions including supply chain requirements for adoption of Science Based Targets.
- Implementation of a Carbon Management Plan (CMP) based on the principles of PAS 2080:2016 Carbon Management in Infrastructure to inform detailed design and construction. This may take account of relevant datasets for embodied carbon including, for example, the National Grid Carbon Asset Database and the UK Transmission Operator Carbon Product Calculator.
- Maximising the use of alternative materials with lower embodied carbon, such as those with a higher re-used and recycled content where feasible within specifications for key components and for materials used in the construction process.
- Using local sourced products, services, suppliers and materials wherever possible. Procurement models and contracts will be reviewed to encourage use of local supply chains and, where appropriate, to set performance specifications for materials and components which include embodied carbon criteria.

14.5.4 To mitigate the potential for in-combination climate adaptation impacts, it has been assumed that the following measures would be implemented together with mitigation set out in other chapters of this Scoping Report relevant to the consideration of climate change effects in combination with the Proposed Development:

- Best practice construction methods to protect soils and avoid water pollution, silt laden run-off, and any adverse effects on the surface water drainage regime;
- Best practice construction measures for protected species, including birds and ensuring existing habitats adjacent to works areas, including hedgerows, grasslands and ditches, are protected from disturbance;
- Provision of shaded refuges, emergency drinking water supplies, and adequate personal protective equipment (PPE), for employees during construction to reduce the risk of overheating/hypothermia in line with procedures to implement the overarching requirements of relevant legislation including *the Health and Safety at Work Act 1974*<sup>178</sup> and the *Management of Health and Safety at Work Regulations 1999* (as amended);
- When possible, construction activities will be avoided during periods of extreme weather events in accordance with emergency plans that will be adopted by the Contractor for all construction works;
- Best practice operational (maintenance) controls to manage and regulate site activities to minimise vegetation loss and disturbance to soil, such as designated machinery and lay-down areas, designated access routes, and avoidance, including fencing off/marketing out areas of constraint including trees, vegetation, and environmentally sensitive areas; and
- Repair of degradation or damage to biodiversity features and ecosystem services from project-related impacts that cannot be completely avoided and/or minimised.

14.5.5 In order to mitigate the effects of climate change on the Proposed Development itself (resilience), the following measures will be implemented:

- Ensuring materials and infrastructure is built to withstand extreme weather including floods, storm winds, fallen trees from storms, and lightning (using lightning diverters/earth wires);
- Implementing considerations for thermal rating at the design stage to accommodate projected temperature rises as rising temperatures can impact power lines by reducing their thermal rating and cause lines to sag; and
- A programme of condition monitoring of transmission assets as well as performing maintenance where reasonably practicable and in line with industry-standard practices.

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<sup>178</sup> HM Government (1974) Health and Safety at Work etc. Act 1974. Available at: <https://www.legislation.gov.uk/ukpga/1974/37/contents>

## 14.6 Preliminary Assessment of Likely Significant Effects

### Climate Mitigation

14.6.1 The Proposed Development would contribute to Scotland's net zero targets, facilitating the transmission of renewably generated electricity and the decarbonisation of energy demand in various sectors of the economy. Notwithstanding this, some GHG emissions would unavoidably result from the Proposed Development as materials, energy and fuel use, and transport would be required for its construction. This section presents the findings of the scoping assessment of potentially significant climate mitigation effects.

### *Life Cycle Emissions from Embodied Carbon in Components and Construction Materials*

- 14.6.2 There will be embodied carbon emissions arising from the extraction, processing and manufacture, fabrication, transport to site and any waste arisings of materials and components of the OHL, including from any temporary structures used. The contribution of embodied carbon to the whole life carbon of OHLs is dependent on type, distance, and procurement locations, however, this contribution can be as much as 60% in some cases<sup>179</sup> and as low as 10% in others<sup>180</sup>.
- 14.6.3 Carbon in materials and components for OHLs and substations are acknowledged in NPF4 as requiring consideration for adverse climate effects. It is not possible to assess in detail the quantities of embodied carbon from the Proposed Development due to uncertainties surrounding material selection and equipment specification and procurement.
- 14.6.4 The manufacture of key components such as steel for OHL towers and aluminium for conductors means that there will be some unavoidable carbon emissions associated with the project, dependent on the processes and technologies adopted. Comparison of carbon emissions estimates for this project with existing 'baselines' (such as national or sectoral carbon budgets or targets) indicate that life cycle emissions from the project's material requirements would be insignificant in relative numeric terms. Further, the life cycle emissions associated with the infrastructure are not predicted to be significant in relation to the carbon saving potential of the Proposed Development and its contribution to carbon reduction targets at a national level (see **Section 14.1: Introduction**).
- 14.6.5 Following IEMA guidance which focuses on reducing emissions in line with trajectories towards carbon net zero targets, and drawing on the mitigation measures outlined above in this context, it is not considered that emissions from materials and components would be significant and further detailed assessment is scoped out of the EIA. The priority will be to ensure that the carbon embodied in construction materials and components is minimised as far as possible, as NPF4 Policy 2a requires. It is proposed therefore that the EIAR will incorporate a schedule of relevant mitigation commitments in relation to activities such as re-use, recycling of materials, adoption of circular economy principles, supply chain procurement requirements in contracts and adoption of low carbon construction methods. These measures will help to ensure that lifecycle emissions from electricity transmission infrastructure would be minimised in delivering the Proposed Development.

### *Emissions During the Construction Process*

14.6.6 The construction phase of the Proposed Development would result in CO<sub>2</sub> and NO<sub>x</sub> emissions arising from transport, and from some construction and installation activities. With the adoption and implementation of effective mitigation measures for construction environmental management, it is not predicted that emissions from these sources would have significant environmental effects. This source of emissions is therefore scoped out of the EIA. The EIAR will incorporate further general mitigation measures with a particular focus on opportunities to reduce emissions arising from fossil fuel use (see **Section 14.5: Mitigation**).

### *Land Use Change Emissions*

14.6.7 Land use change can contribute to baseline levels of GHG emissions however, these are not considered to be significant taking account of the land use and soils character of the study area. Impacts from loss or damage to peatlands and/or from extensive

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<sup>179</sup> Jones, C. I. and McManus, M. C. (2010) Life-cycle assessment of 11 kV electrical overhead lines and underground cables. *Journal of Cleaner Production*, 18(14), p.1464-1477. Available at: <https://www.sciencedirect.com/science/article/abs/pii/S0959652610001812?via%3Dihub>

<sup>180</sup> Harrison, G. P., MacLean, E. J., Karamanlis, S. and Ochoa, L. F. (2010) Life cycle assessment of the transmission network in Great Britain. *Energy Policy*, 38(7), p.3622-3631. Available at: <https://www.sciencedirect.com/science/article/abs/pii/S0301421510001205>

loss of woodlands are also acknowledged in the NPF4 CCA as having some potential for adverse climate effects although these were typically evaluated at the strategic level as being likely to be 'negligible'.

- 14.6.8 The Proposed Route predominantly crosses areas of arable and grazing land and through the process of design development for the OHL, areas of peaty soils have generally been avoided and woodland loss associated with the OHL operational corridor has been minimised. The EIAR will incorporate further mitigation measures in relevant chapters to ensure that construction work is undertaken sensitively and with minimum impact in areas of sensitive habitats and to protect soils from avoidable damage. compensatory planting will be committed by the Applicant for woodland areas which would be unavoidably affected.
- 14.6.9 The required excavation activities for the OHL would generally be limited to the disturbance of the area of the foundations for transmission towers and for some new access tracks. The locations disturbed would be small in area, particularly in the context of the predominantly agricultural land in the study area, and the potential emissions from the associated land use change would not be predicted to be material. The effects of land use change emissions are therefore considered not significant and will not be considered further within the scope of the EIA.

#### *Operational Emissions*

- 14.6.10 Following construction of the OHL, it is not predicted that the operational phase would result in significant CO<sub>2</sub> and NO<sub>x</sub> emissions from travel, maintenance activities and the consumption of materials required for maintenance activities, requiring mostly planned maintenance activities.
- 14.6.11 Consideration has also been given to emissions from electricity losses during transmission which can amount to about 8% of the UK total generated electricity<sup>181</sup> and 2.75% for the Applicant's network in 2022 according to the recent SSEN Transmission Sustainability Report<sup>182</sup>. Some losses are an inevitable consequence of electricity transmission but are lowered when electricity is transmitted at high voltage. Conductor materials would be chosen with low resistive values along with the use of dynamic reactive compensation to reduce further transmission losses. The role of the Proposed Development is to facilitate the transmission of renewable energy which will increase the Applicant's share of low carbon generation to approximately 88%. Therefore, it is anticipated that any additional energy generated to compensate for grid losses would be generated largely from renewable energy sources, reducing the level of GHG emissions from this source.
- 14.6.12 As such, it is not predicted that the operational emissions effect for the Proposed Development would be significant and will be scoped from further assessment.

#### *Climate Change Adaptation*

- 14.6.13 The in-combination scoping stage impact assessment has taken into account the predicted effects of the Proposed Development from relevant topics of the EIA with receptors considered to have high sensitivity to climate change including effects on receptors identified in Ornithology, Ecology, Land Use and Recreation, Cultural Heritage, Traffic and Transport, Hydrology, Hydrogeology, Geology and Soils and the Population and Human Health topics.
- 14.6.14 The assessment considers the future baseline climate conditions and the potential for interaction of the predicted effects of the proposals with the baseline conditions, taking account of the potential for projected climate change to exacerbate predicted effects.

#### *In-combination Effects: Ornithology*

- 14.6.15 Extreme weather events and changes in average temperature and precipitation can affect bird habitats and the phenology, survival and productivity of animals, including the timing of bird nesting, roosting and migration during the operational phase of the Proposed Development.
- 14.6.16 The UK Climate Change Projections 2018 (UKCP18) predict changes in key climate characteristics on the east coast of Scotland up to the 2070s, the period during which the Proposed Development is likely to operate. In summary, the projections suggest that by the 2070s summer and winter temperatures are likely to be slightly elevated compared to the current baseline with

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<sup>181</sup> Department for Energy Security and Net Zero (DESNZ) (2023) Digest of UK Energy Statistics (DUKES) – Electricity supply, availability and consumption historical time series. Available at: <https://www.gov.uk/government/statistics/digest-of-uk-energy-statistics-dukes-2023>

<sup>182</sup> SSEN Transmission (2023) Sustainability Report 2022/23. Available at: <https://www.ssen-transmission.co.uk/news/news-views/2023/9/ssen-transmissions-202223-sustainability-annual-performance-and-getting-to-net-zero-reports-published/>

winter rainfall increased and summer rainfall decreased. The predicted effects of climate change have some potential to affect the future ornithological community in the vicinity of the Proposed Development.

14.6.17 Qualitative predictions of avian population change (notably wildfowl) in the UK in relation to climate change have been attempted. For example, the BTO in 2004<sup>183</sup> noted that ‘*the number of wintering ...geese might be predicted to fall as (they) will have to move shorter distances south to avoid harsh winter conditions of the highest latitudes*’. The UK Icelandic-breeding pink-footed goose population has, however, risen substantially in the last 20 years to over 450,000 wintering birds (*Brides et al. 2021*)<sup>184</sup>, driven by factors in the breeding and winter grounds, including increased productivity and food availability associated with higher temperatures (eg in *Burton et al., 2023*)<sup>185</sup>.

14.6.18 Thus, the predicted temperature and precipitation changes across the East of Scotland may result in some changes to bird distribution and bird behaviour in the longer-term, however there is uncertainty as to the direction of change. Nevertheless, the baseline bird community as described, including the wintering wildfowl population, is considered to provide a valid description of the ornithological assemblage over the lifespan of the Proposed Development, with wintering goose populations likely to remain stable or even increase with the predicted increase in winter temperatures.

14.6.19 As such, in-combination climate change effects are scoped out of the assessment as there is no likely prospect of these resulting in significant effects on ornithological receptors.

*In-combination Effects: Ecology*

14.6.20 The construction of the Proposed Development and associated permanent changes to baseline ecological conditions has the potential to impact designated sites, habitats, and protected species, for example, from disturbance, habitat loss or fragmentation. During the construction period, there is some potential for extreme weather events to affect the areas where construction works are underway. However, these impacts would be predicted to have only short-term effects, and it is not anticipated that extreme weather events would significantly change the significance of any adverse effects predicted for ecology when considered in combination.

14.6.21 Therefore, the predicted in-combination climate change effects on designated sites, habitats, and protected species are not considered to be significant and will not be assessed further in the EIA.

*In-combination Effects: Land Use and Recreation*

14.6.22 Construction of the OHL is predicted to have some minor impacts on land use from the loss of small areas of agricultural land in areas where towers are placed and permanent access tracks are required. Some adjustments may be required to the management of agricultural operations around towers and tracks however, these effects are not predicted to be significant (see **Chapter 4: Land Use and Recreation**). It is likely that a changing climate in the future will affect some agricultural practices, growing conditions and tolerance of crops and vegetation to climatic change and other impacts such as new pests. These changes are predicted regardless of the influence of the Proposed Development and it is not predicted that the OHL would have significant in-combination climate change effects on land use.

14.6.23 On this basis, the in-combination effects are considered to be not significant and will not be assessed further in the climate change adaptation in-combination assessment.

*In-combination Effects: Cultural Heritage*

14.6.24 Changes in rainfall patterns and intensity as well as extreme weather can affect above and below ground heritage assets through changes to soils conditions which have some potential to alter the ground conditions in which buried archaeological remains exist. The OHL alignment will be designed and constructed to avoid direct impacts on known archaeology wherever possible. It is not predicted that climate change would significantly alter or interact with the predicted effects of the Proposed

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<sup>183</sup> Leech, D.I., Crick, H.Q.P. and Rehfisch, M.M. 2004. *The effect of climate change on bird species in the UK*. BTO Research Report 369

<sup>184</sup> Brides, K., K.A. Wood, S.N.V. Auhage, A. Sigfússon & C. Mitchell. 2021. *Status and distribution of Icelandic-breeding geese: results of the 2020 international census*. Wildfowl & Wetlands Trust Report, Slimbridge. 19pp

<sup>185</sup> Burton, N.H.K., Daunt, F., Kober, K., Humphreys, E.M. and Frost, T.M. (2023) *Impacts of Climate Change on Seabirds and Waterbirds in the UK and Ireland*. MCCIP Science Review 2023, 26pp

Development on buried archaeological remains, therefore, no further assessment on climate change adaptation in-combination effects will be required.

*In-combination Effects: Traffic and Transport*

14.6.25 Climate change will increase the incidence and intensity of rainfall and storms which have the potential to lead to road traffic and other transport system disruption during flooding episodes and, occasionally, extreme low temperature events, with impacts on road and rail users. Increased summer temperatures may cause some disruption and discomfort to people using transport networks, although this is unlikely to be a significant concern. The principal focus of the traffic and transport assessment for the Proposed Development is on the construction (and decommissioning) period when there will be some temporary increases in road traffic associated with construction vehicle movements. Provided that construction traffic is managed safely and in accordance with a Traffic Management Plan (TMP) to be agreed with the relevant local road authorities, it is not predicted that climate change would significantly affect traffic and transport, therefore, this in-combination climate effect is not predicted to be significant and is scoped out of the EIA.

*In-combination Effects: Hydrology, Hydrogeology, Geology and Soils*

14.6.26 The projected increase in rainfall and frequency and incidence of storm events has the potential to result in the mobilisation of ground contaminants when the soil is saturated leading to potential consequences for water quality, as well as result in increased sedimentation, and potential loss/disturbance of soils. Changes in climate will also change the extent and duration of future flooding events. These impacts are considered further in **Chapter 9: Hydrology, Hydrogeology, Geology and Soils** taking account of predicted future hydrological conditions and as such will not be carried further in the climate change adaptation in-combination impact assessment.

*In-combination Effects: Population and Human Health*

14.6.27 Extreme weather events such as flooding, heavy rain, drought, and extreme heatwaves and low temperatures can affect economic activity and human health and welfare. Increases in temperatures may lead to overheating concerns to which construction operatives may be particularly exposed. It is considered that this topic can be scoped out of the climate change adaptation assessment as mitigation including management plans and contingency measures for adverse weather events to be implemented through the CEMP and in compliance with *the Health and Safety at Work Act 1974* would be predicted to avoid significant effects.

*Project Resilience*

14.6.28 Projected climate change has the potential to impact on the project's ability to transmit electricity through the increased risk of extreme and ambient temperatures, as well as extreme weather events which may damage the OHL infrastructure. The main risks to the Proposed Development are:

- Temperature increases, which can cause OHLs to sag.
- Increases in precipitation and rainfall intensity, which can increase the risk of surface water flooding. Although OHLs are generally not susceptible to flooding and the alignment will be designed to avoid locating towers in flood risk areas wherever possible, there is a potential for safety clearances between conductors and the ground, trees, buildings, and any other structure, to be affected in flood conditions and for maintenance activities to be hampered.
- Storms and lightning, can damage OHLs. While extreme weather events can be disruptive, repairs can normally be carried out relatively quickly and electricity supplies are usually restored within a few days. Installation of lightning conductors as part of the earth wire on the OHL helps to avoid damage from electrical storms.

14.6.29 The OHL will be designed and constructed in compliance with all relevant technical codes and standards to ensure that it is resilient to adverse weather. This includes proactive climate resilience assessments for adequate preparation, response, and recovery from adverse climate events such as floods and storms, as detailed in the Annual Sustainability Report<sup>186</sup>. Therefore,

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<sup>186</sup> SSEN Transmission (2023) Sustainability Report 2022/23. Available at: <https://www.ssen-transmission.co.uk/globalassets/documents/sustainability-strategy/Annual-Sustainability-Report-2023>

it is not predicted that the OHL infrastructure would be subject to significant effects arising from climate resilience, and the project resilience effect is considered to be not significant.

14.6.30 Further consideration of other potential impacts on resilience of the Proposed Development is set out in **Chapter 15: Major Accidents and Disasters**.

#### Issues Scoped Out

14.6.31 The scoping assessment has considered various potential effects on climate mitigation and assessment. The assessment has identified that following effects have been scoped out of the climate mitigation assessment as they are not predicted to have significant effects:

- Emissions of GHGs from the materials and components required to install the Proposed Development and from construction activities;
- Emissions of GHGs from changes in land use associated with construction and permanent development of the OHL infrastructure;
- GHG emissions from operation of the transmission infrastructure and its maintenance;

14.6.32 Based on the scoping assessment of climate effects, the following effects have been scoped out of the climate change adaptation in-combination assessment, as they are not predicted to have significant effects:

- Impacts on protected bird species – Ornithology;
- Impact to designated sites, habitats, and protected species – Ecology;
- Loss or fragmentation of agricultural land – Land Use and Recreation;
- Effects on archaeological remains – Cultural Heritage;
- Impacts to road users as a result of driver delay, pedestrian delay, and road safety – Traffic and Transport;
- Impacts on pollution of surface watercourses, waterbodies, groundwater, and PWS and impacts on loss/disturbance of soils – Hydrology, Hydrogeology, Geology and Soils; and
- Impacts on the health and safety of people living and working in the vicinity of the OHL including the construction workforce – Population and Human Health.

14.6.33 Project resilience has also been scoped out from further assessment as the OHL will be designed to withstand adverse effects of climate change in line with industry regulations and standards.

## **14.7 EIA Assessment Scope and Methodology**

### Proposed Scope of Assessment

14.7.1 It is proposed that assessment of climate mitigation, adaptation and resilience effects are scoped out of further consideration in the EIAR.

### Assessment Methodology

14.7.2 No further assessment of climate mitigation, adaptation or resilience effects is proposed for the EIA based on the findings of the scoping assessment presented in this report. The EIAR will include further mitigation measures to support the process of GHG emissions reduction and minimisation for the selection of materials and components for the Proposed Development and for its construction. These will be presented in the proposed Schedule of Mitigation in the EIAR.

## **14.8 Summary**

14.8.1 This chapter has set out the findings of a scoping assessment of the potentially significant effects of the Proposed Development on climate taking account of the strategic climate change assessment reported for NPF4. The assessment has considered the principal sources of GHG emissions from the design, construction and operation of the OHL project and the opportunities to reduce predicted emissions through mitigation. It is not predicted that there would be significant environmental effects on climate mitigation and this aspect is scoped out of further assessment in the EIA, although relevant mitigation measures will be incorporated within the EIAR to set out SSEN Transmission's commitments to sustainability and emissions reduction in delivery of transmission infrastructure.

14.8.2 The scoping assessment has also considered aspects of climate adaptation and resilience as they relate to the Proposed Development. The key sources of in-combination climate adaptation have been identified and appraised and it is not predicted that the OHL would have significant effects in relation to this aspect. Similarly, the proposed infrastructure is not considered to be at significant risk in relation to future climatic changes and therefore further consideration of climate resilience issues has been scoped out of the EIA.

## 15. MAJOR ACCIDENTS AND DISASTERS

### 15.1 Introduction

- 15.1.1 This chapter sets out the proposed approach to consideration of potential effects associated with construction and operation of the Proposed Development on major accidents and disasters which could potentially result in significant adverse environmental and human health effects. Through identifying the potential for major accidents and disasters at an early stage, it is possible to prevent such events, reduce the risk of them occurring, or decrease the extent of their potential harm to the local area, transmission workers and local communities.
- 15.1.2 Although ‘accident’, ‘risk’ and ‘disaster’ are well known terms and used in everyday language, there is potential for their meaning to be interpreted differently. IEMA’s *Major Accidents and Disasters in EIA: A Primer*<sup>187</sup> provides definitions for these in an EIA context as part of general guidance on approaches to the assessment of major accidents and disasters, which is considered to be the most relevant and recent EIA guidance in this area. The Primer defines ‘major accidents’ as *“Events that threaten immediate or delayed serious environmental effects to human health, welfare and/or the environment and require the use of resources beyond those of the client or its appointed representatives to manage. Whilst malicious intent is not accidental, the outcome (e.g. train derailment) may be the same and therefore many mitigation measures will apply to both deliberate and accidental events”*.
- 15.1.3 The Primer’s definition of ‘disaster’ is *“May be a natural hazard (e.g. earthquake) or a man-made/external hazard (e.g. act of terrorism) with the potential to cause an event or situation that meets the definition of a major accident”*.
- 15.1.4 Risk is defined in the Primer as *“The likelihood of an impact occurring, combined with the effect or consequence(s) of the impact on a receptor if it does occur...”*.
- 15.1.5 This chapter, therefore, considers whether:
- The Proposed Development would be more vulnerable to major accidents and disasters than the surrounding areas.
  - The Proposed Development would be a source of hazard that could result in a major accident or would interact with an external source of hazard.
  - The presence of the Proposed Development could be expected to increase the risk of serious harm to people or the environment, in the event of an external disaster or accident.
- 15.1.6 Responses to consultation through the early stages of the project and the routeing process in 2023 and 2024 have identified some issues of relevance to this assessment. For example, Aberdeen City Council highlighted the increasing likelihood of extreme weather events associated with climate change and the potential risk of failure of OHLs and power cuts. Issues relating to flood risk were also highlighted by a number of statutory and non-statutory consultees.

### 15.2 Baseline Conditions

#### Summary of Baseline

- 15.2.1 The Proposed Development comprises approximately 106 km of new 400 kV OHL between the existing Substation at Kintore (northwest of Aberdeen) and a proposed new 400 kV substation to be built near Tealing in Angus, just north of Dundee, which would be known as the proposed Emmock substation. The OHL would also connect to a proposed new 400 kV substation at Hurlie near Stonehaven in Aberdeenshire. At this stage, a 1 km wide route has been identified within which the Proposed Development would be located known as the Proposed Route (see **Figure 1.1: Location Plan**) and this has been used to define a study area for the assessment of effects on and from major accidents and disasters.
- 15.2.2 Whilst the Proposed Route is predominantly rural in nature, it crosses a number of existing gas pipelines, runs in proximity to the A90 trunk road in several locations (Sections B, D and E) and runs close to a number of existing OHLs (see **Chapter 4: Land Use and Recreation**). There are also a number of operational wind farms located adjacent to the Proposed Route, including Meikle Carewe northwest of Stonehaven in Section E.

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<sup>187</sup> Institute of Environment Management and Assessment (IEMA) (2020) *Major Accidents and Disasters in EIA: A Primer*. Available at: <https://www.iema.net/resources/blog/2020/09/23/iema-major-accidents-and-disasters-in-eia-primer>

- 15.2.3 There are a number of residential properties within the approximately 1 km wide corridor of the Proposed Route, however, the majority of larger settlements (ie towns and villages with over 500 inhabitants) are located over 500 m from the Proposed Route which will be developed as far as possible to achieve a set-back of 170 m from residential properties, with a minimum distance of 100 m wherever possible.
- 15.2.4 It is assessed that, in its current condition, the area within the Proposed Route is no more vulnerable to major accidents and disasters than the surrounding areas, and the area is not known to have a history of such events.

### 15.3 Sensitive Receptors

- 15.3.1 The potential sensitive receptors considered as being potentially at risk from effects associated with major accidents and disasters affecting the Proposed Development are:

- Population and human health (including construction workers, members of the public);
- Biodiversity (species and habitats);
- Land, soil, water, air and climate;
- Material assets, cultural heritage, and landscape; and
- the potential for interaction between the factors above.

- 15.3.2 These receptors have been considered in relation to their sensitivity to impacts such as those that might arise from potential major accidents and disasters inherently within the scoping assessment presented in this chapter.

### 15.4 Potential Effects

- 15.4.1 The potential for the risk of a major accident and disaster affecting the vulnerability of the OHL is 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 for transmission assets.
- 15.4.2 In line with the Primer, only “*low-likelihood but potentially high-consequence events*” are taken forward for further consideration, noting that the scoping assessment of the risks of major accidents and/or disasters in the context of EIA needs to be proportionate to the likelihood of such events occurring.
- 15.4.3 Risks that could result in a ‘*significant effect*’ are considered further in **Section 15.6: Preliminary Assessment of Likely Significant Effects** below; these types of effect are defined in the Primer as “*the loss of life, permanent injury and temporary or permanent destruction of an environmental receptor which cannot be restored through minor clean-up and restoration*”.
- 15.4.4 Following the above definitions, the Proposed Development’s vulnerability to major accidents or disasters has been assessed based on professional judgement, available evidence at the scoping stage of key hazards and the EIA team’s understanding and experience of the typical effects of OHL projects.

### 15.5 Mitigation

- 15.5.1 In-line with the hierarchy of mitigation set out in **Section 3.4: Mitigation**, the following section describes the Embedded and Applied Mitigation which is considered relevant to the Proposed Development in the context of this scoping assessment. The mitigation outlined below has been considered and applied when determining the potential for likely significant effects arising from the construction and operation of the Proposed Development as described in **Section 15.4: Potential Effects**.
- 15.5.2 A number of risks associated with major accidents and disasters are covered by legislation such as *the Health and Safety at Work Act 1974, the Construction and Design Management (CDM) Regulations 2015, the Management of Health and Safety at Work Regulations 1999, the Workplace (Health, Safety and Welfare) Regulations 1992 and the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995*. As such it is assumed that all regulatory requirements during construction and operation of the Proposed Development would be adhered to. It is also assumed that the OHL would be designed and constructed in accordance with the relevant engineering specifications and relevant technical codes and requirements.
- 15.5.3 The assessment of residual effects also takes account of implementation of standard best practice measures for health and safety and environmental management during construction, for example through adherence to the CEMP and other relevant

requirements which would be made a condition of the contract. These measures have been taken into account in consideration of the potential for significant effects from major accidents and disasters.

## 15.6 Preliminary Assessment of Likely Significant Effects

15.6.1 Potential major accidents and disasters which could present risks during the construction and operation phase of the Proposed Development are summarised in **Table 15.1: Assessment of Potential Major Accidents and Disasters**. The potential for each major accident or disaster type (or hazard) to have significant environmental effects has been considered with reference to the following key guiding criteria:

- Could the Proposed Development cause/worsen a major accident or disaster?
- Could the Proposed Development be affected by the major accident or disaster?

**Table 15.1: Assessment of Potential Major Accidents and Disasters**

Event/Accident Type	Could the Proposed Development Cause/Worsen a Major Accident or Disaster?	Could the Proposed Development be Affected by the Major Accident or Disaster?
Construction Accident	Yes	Yes
Structural Collapse and Fallen OHLs	Yes	Yes
Transport Accidents	Yes	No
Ground Subsidence/Landslide	Yes	Yes
Pollution Event	Yes	No
Disease Epidemics and Pandemics	Yes	No
Acts of Terrorism	No	Yes
Flooding	No	Yes
Storms and Gales	No	Yes
Extreme Temperatures	No	Yes
Droughts	No	Yes

15.6.2 The findings of the scoping of events and accidents from the above table are considered in the next section with reference to their potential for significant environmental effects by considering the nature and likelihood of the hazard/risk, the potential pathway between the hazard source and the receptor and with reference to the sensitivity of the key receptor/groups in each case.

### Construction Accidents

15.6.3 As with most new developments, there is the potential for accidents to occur during the construction period with the potential for a significant adverse effect on human receptors, specifically injury to construction workers should an accident occur. It is assumed that employee safety during construction will be compliant with the CDM Regulations, *the Management of Health and Safety at Work Regulations 1999*, *the Workplace (Health, Safety and Welfare) Regulations 1992* and *The Electricity at Work Regulations 1989*. All relevant codes of practice will be implemented on site by the contractor and sub-contractors to ensure health and safety is managed effectively. As such, the risk of accidents will be reduced as low as reasonably practicable and it is not predicted that this effect will be significant and it is proposed to be scoped out of the EIA.

### Structural Collapse and Fallen OHLs

15.6.4 OHLs and towers have been safely constructed and operated in the UK for almost 100 years. The final design of the Proposed Development will be informed by detailed ground investigation and engineering expertise to ensure that all structures are safely constructed and appropriately sited. It would be constructed and operated in line with relevant design and safety codes including the Health and Safety Executive Guidance Note GS6 'Avoiding danger from overhead power Lines'<sup>188</sup>. The design

<sup>188</sup> Health and Safety Executive (2013) Avoiding danger from overhead power lines – Guidance Note GS6 (Fourth edition). Available at: <https://www.hse.gov.uk/pubns/g6.pdf>

process will adhere to ENA *Technical Specification 43-8 2004: Overhead Line Clearances*<sup>189</sup>. The design will also seek to avoid the potential for impacts arising from major accidents or disasters in two key ways:

- Altitudes over 300 m above sea level are avoided to reduce the extent of tower strengthening (and speed of refurbishment) required due to the higher potential for ice and high winds in such locations; and
- Tower locations are chosen that are at least 100 m from sensitive receptors wherever possible (particularly residential properties<sup>190</sup>); which is significantly greater than the topple distance of the OHL towers.

15.6.5 Routine maintenance will be undertaken once the Proposed Development is operational to ensure that all structures are operating safely. As such, the risk of structural collapse and associated power outages from a major accident or disaster is considered to be very low, and a detailed assessment of any effects on receptors such as people, habitats and cultural heritage receptors is proposed to be scoped out of the EIA. Further information on operational crisis management and resilience plans put in place for OHL operation by the Applicant are set out in **Section 2.14: Disaster Resilience**.

#### Transport Accidents

15.6.6 Increased vehicle movements to the Proposed Development, particularly during construction, have some potential to increase the risk of road traffic accidents with potential effects on people and the environment including for example from spillages of fuels and oils to watercourses. It is expected that the risk of any major transport accidents during the construction phase would be included in a CTMP and mitigated for, to reduce the risk to the workforce, roadside residents, and other road users. The predicted changes in numbers and types of traffic movements during construction will be assessed in detail in the assessment of effects on traffic and transport and this assessment will consider the requirement for further mitigation in any sensitive areas where an increased risk of accidents is predicted.

15.6.7 As the risk of accidents can be reduced with the implementation of mitigation measures, and will be assessed separately in the EIAR, it is anticipated that this effect will not be significant and is therefore scoped out of the assessment of construction effects associated with major accidents and disasters. Once operational, traffic numbers associated with the Proposed Development will be low, and an assessment of operational effects has been scoped out of detailed assessment as set out in **Chapter 10: Traffic and Transport**.

#### Ground Subsidence/Landslide

15.6.8 Detailed engineering and ground investigation works will be undertaken before finalising the design of the Proposed Development (particularly for tower foundations and access tracks) and commencing construction. Any higher risk areas of ground subsidence (for example due to historical mining in the area or peat slide risk) would be identified and avoided where possible, or engineering solutions put in place to mitigate the risk. As such, it is not proposed to undertake a detailed assessment of potential accidents and disasters associated with ground stability or landslides during construction or operation of the Proposed Development, and this is scoped out of the EIA.

15.6.9 In a few discrete locations along the route of the OHL targeted peat probing surveys will be undertaken in the next few months to inform the alignment design of the Proposed Development by avoiding tower (and track) locations within any areas of peat as far as possible. This approach will ensure that Embedded Mitigation through design of the Proposed Development is incorporated and it is not predicted that there would be any significant residual effects from encountering areas of unstable ground. Further information on this will be provided in the EIAR chapter dealing with ground conditions (see **Chapter 9: Hydrology, Hydrogeology, Geology and Soils**).

#### Pollution Event

15.6.10 There is a risk of pollution events occurring during the construction phase of the Proposed Development, which could result in adverse effects on receptors such as watercourses, habitats, protected species and public and Private Water Supplies. This risk will be effectively managed through adhering to standard construction good practice and the measures which would be set out in the CEMP, relevant supporting pollution and environmental management plans, and implemented on site. These risks will

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<sup>189</sup> Energy Networks Association (2016) Technical Specification 43-8, Issue 4 2015 + Amendment 1 2016 – Overhead line clearances. Available at: [https://www.ena-eng.org/ena-docs/DOC3XTRACT/ENA\\_TS\\_43-08\\_Extract\\_180902050446.pdf](https://www.ena-eng.org/ena-docs/DOC3XTRACT/ENA_TS_43-08_Extract_180902050446.pdf)

<sup>190</sup> Wherever possible, a buffer distance of 170 m will be targeted during development of the OHL alignment, with 100 m being the minimum distance.

also be considered in other relevant assessments of the EIAR, such as for ecology, ornithology and hydrology. As such, it is considered that the potential risk of a major accident or disaster occurring from a pollution event during construction or operation of the Proposed Development can be scoped out of detailed assessment.

#### Disease, Epidemics and Pandemics

- 15.6.11 The Proposed Development would not encourage large numbers of people to congregate during construction or operation which could increase the risk of transmission of any disease epidemic or pandemic. Furthermore, it is anticipated that any quarantine procedures and additional health and safety measures required by relevant public health agencies would be adhered to during the construction and operational phases of the Proposed Development in the event of an outbreak. On the assumption that public health measures and controls would be in place, effects on outbreaks of human diseases as a result of the Proposed Development are unlikely to be a significant risk and this is therefore scoped out of the EIA.

#### Acts of Terrorism

- 15.6.12 It is not considered likely that the Proposed Development would have a high risk of attracting terrorist activities. Though the risk is low, it is anticipated that the Proposed Development would implement risk-assessed and appropriate public security protocols during the construction and operational phases to avoid or reduce the impact of such an event, including use of CCTV and temporary security fencing etc during construction works. Once installed, the OHL asset would be managed and maintained in accordance with SSEN Transmission's existing safety and security protocols for high voltage transmission lines. As the risk of terrorist acts is considered to be low, and security measures would be implemented, the effects of such incidents on people or the environment is considered unlikely to be significant and is scoped out of the EIA.

#### Flooding

- 15.6.13 Based on a review of available SEPA desk based data on flooding, and from ongoing hydrological surveys, the Proposed Route is not located in areas at risk of coastal flooding, but the OHL does cross some discrete areas where there is a risk of fluvial and surface water (pluvial) flooding. The design of the alignment for the Proposed Development will be progressed through avoidance of areas of particularly high risk areas of flooding wherever possible to reduce the risk of flooding impacts affecting construction and operation (maintenance) of the OHL and to minimise impacts of the Proposed Development on flooding. Further consideration of mitigation and assessment of the predicted effects of the Proposed Development on hydrology will be included in the EIAR. The potential effects associated with a major accident or disaster related to flooding are scoped out of detailed assessment. Further details on the scoping approach to the assessment and mitigation of flood risk impacts are provided in **Chapter 9: Hydrology, Hydrogeology, Geology and Soils**.

#### Storms and Gales

- 15.6.14 Gusts from storms and gales which originate from hurricanes and from deep climatic depressions (also known as 'low pressure systems') are experienced frequently in Scotland. Extreme storms can have significant adverse effects on structural, human and environmental receptors, however, it is anticipated that weather warnings issued by the Met Office and SEPA on extreme adverse weather conditions will be considered in the management of the Proposed Development both during construction and operation. Additionally, it is assumed that safety and management procedures will be implemented to mitigate any effects caused by severe storms and gales during the construction phase. Design of the Proposed Development would accord with relevant structural requirements to minimise the risk of major accidents resulting from OHL tower collapse (see section above on 'Structural Collapse and Fallen OHLs').
- 15.6.15 Therefore, effects associated with storms and gales, and other extreme weather, are not anticipated to be significant and are scoped out of the EIA. It is acknowledged that there is some overlap between this risk and the consideration of the vulnerability and resilience of the Proposed Development to future projected changes in climate and these are further addressed in **Chapter 14: Climate Change**.

#### Extreme Temperatures (Heatwaves and sub-zero Temperatures)

- 15.6.16 The latest UK climate projections (see **Chapter 14: Climate Change**) suggest that the UK will experience hotter and drier summers as well as warmer and wetter winters. Warming UK temperatures may lead to an increased risk of overheating and the occurrence of sub-zero temperatures can cause disruptions to human receptors. The occurrence of these extreme temperatures is expected to increase as a result of climate change. Measures will be implemented to comply with *the*

*Construction (Design and Management) (CDM) Regulations 2015* to reduce the risks from extreme temperatures to employees during the construction period and for maintenance and these will be managed and implemented as part of the contractor's health and safety management policies and procedures. As the risks associated with extreme temperatures can be mitigated during construction (and are unlikely to lead to environmental effects in relation to operation), these are not considered to have significant adverse effects and are therefore scoped out of further detailed assessment in the EIA.

#### Droughts

- 15.6.17 Periods of drought are projected to be increasingly common as a result of climate change (see **Chapter 14: Climate Change**). Droughts are caused by insufficient rainfall and in the UK, a drought is defined as at least 15 consecutive days where there is no more than 0.2 mm of precipitation. Drought planning is, however, undertaken by SEPA and Scottish Water. It is anticipated that management plans and strategies will be informed by warnings from these organisations during the construction and operation period for the OHL and that measures would be put in place to conserve water during a drought. As this risk can be reduced with appropriate planning and mitigation measures, the risk to or from drought is not predicted to have significant effects on human or environmental receptors associated with the OHL or increase the risk of incidence of other major accidents and disasters and is therefore scoped out of the EIA.

#### Cumulative Effects

- 15.6.18 It is anticipated that any other projects considered cumulatively with the Proposed Development will be regulated by environmental protection legislation, health and safety regulations and design standards in the same way as the Proposed Development, all of which are focussed on preventing and/or mitigating major accidents and disasters from occurring. As such, it is not proposed to undertake a detailed assessment of the potential cumulative effects associated with major accidents and disasters and this will be scoped out of the assessment of cumulative effects presented in the EIAR.

#### Issues Scoped Out

- 15.6.19 The assessment of the potential for major accidents and disasters and their consequences in relation to predicted environmental effects is set out above. The findings of this assessment are that no significant adverse environmental effects are predicted as a result of the potential accidents and disasters which have been considered. Further assessment of these issues is therefore scoped out of the EIA. A number of the events considered in relation to accidents and disasters are also relevant in the consideration of projected changes in climate and the vulnerability of the Proposed Development to climate change. These issues are considered further in **Chapter 14: Climate Change** with specific reference to resilience of the OHL to changes in the intensity of future climatic events.

## **15.7 EIA Assessment Scope and Methodology**

### Proposed Scope of Assessment

- 15.7.1 No likely significant effects are predicted in relation to the vulnerability of the Proposed Development to major accidents and disasters, taking account of the existing SSE Group crisis management and continuity plans and the above scoping assessment, this topic is proposed to be scoped out of the EIAR in its entirety.

### Assessment Methodology

- 15.7.2 No further assessment of the environmental effects of major accidents and disasters is proposed for the EIA based on the findings of the scoping assessment presented in this report.

## **15.8 Summary**

- 15.8.1 This chapter has presented a review of the potential for major accidents and disasters of relevance to the Proposed Development and the likelihood of hazards from such events giving rise to significant effects on human and environmental receptors. The scoping appraisal has taken into account the mitigation assumed to be embedded in the management of health and safety and technical risks associated with the construction and operation of the OHL project. The assessment has not identified significant predicted environmental effects of the Proposed Development arising from, or contributing to, major accidents and disasters. It is therefore proposed that further specific consideration of major accidents and disasters is scoped from the EIA.

15.8.2 Whilst the potential major accidents and disasters included in this chapter have been scoped out, some of the other topic assessments undertaken as part of the EIA will consider a number of the issues identified in this assessment. These include consideration of relevant risks and hazards with potential effects on people and the environment from the following:

- Changes in road traffic flows and movements as a result of construction vehicles using the local road network (potential for changes in road traffic accidents);
- The potential for OHL infrastructure to require siting in small areas of ground with peat characteristics which may require further consideration in relation to ground conditions and stability;
- Locations where the route of the Proposed Development cannot completely avoid areas of flood risk generally associated with watercourses and where particular mitigation may be required to avoid effects of flooding on the OHL and effects of OHL construction on hydrology and water quality; and
- The implications of predicted future climatic conditions for operation of the OHL, which will be considered as part of the assessment of climate change in the EIA (for relevant scoped-in issues).

15.8.3 Further consideration of these effects is set out in the relevant chapters of this Scoping Report.

## 16. SUMMARY OF PROPOSED EIA SCOPE

### 16.1 Scope of the EIAR

- 16.1.1 The scoping assessment has identified that a number of potential environmental effects of the Proposed Development are not predicted to be significant and would be scoped out from further consideration within the EIA process. **Table 16.1: Environmental Topics and Effects Scoped In and Out** lists each EIA topic area and identifies the key groups of effects (referred to as elements) which are proposed to be scoped in and out from further assessment. These draw on the findings of the scoping assessments presented in the preceding chapters of this report with a short summary of the justification for the scoping decisions.

**Table 16.1: Environmental Topics and Effects Scoped In and Out**

Topic	Scoped In		Scoped Out	
	Construction	Operation	Construction	Operation
Land Use and Recreation	<p><b>Land Use</b></p> <p>Whilst the effects described for land use are not predicted to be significant, a land use chapter will be included in the EIA to provide a land use context for the proposals and to allow for commentary on the overall permanent loss of prime agricultural land predicted from the proposals in a regional context which recognises the importance of this resource.</p> <p>The land use chapter of the EIA will also capture key mitigation measures to ensure significant effects to land use and recreational receptors during construction are avoided including setting out key commitments to implementation of relevant management plans for recreation and access, particularly during construction.</p> <p><b>Forestry</b></p> <p>The assessment will consider the direct effects of woodland loss from the requirement to form an Operational Corridor (OC) for the OHL through each affected woodland.</p> <p>A dedicated EIA chapter will be prepared to report the forestry assessment.</p>		<p><b>Land Use</b></p> <p>Impacts on agricultural land including deterioration of soil classification, disruption of agricultural operations and effects on farm units which are not predicted to be significant.</p> <p>Temporary and permanent changes in other land uses including utilities and commercial and residential properties which are not predicted to be significant.</p> <p>Effects on land use for residential properties, communities and commercial properties as land take is not predicted to have significant effects.</p> <p><b>Forestry</b></p> <p>The scope will not address any felling or woodland management undertaken outwith the OC which would be under the control of the landowner over which the Applicant would have no influence.</p> <p><b>Recreation</b></p> <p>Impacts on users of core paths and NCN routes, other recreational routes, tourism and recreational fishing where land use changes is not predicted to have significant effects.</p>	
Landscape and Visual Amenity	<p><b>Landscape Character</b> Physical effects on local LCTs that intersect with/are crossed by the Proposed Development and perceptual effects upon LCTs in the study area from which potential visibility is indicated by ZTV maps.</p> <p>Landscape designations: The Dee Valley SLA, and The Braes of the Mearns SLA.<sup>191</sup></p> <p><b>Representative Viewpoints</b></p>	<p><b>Landscape Character</b></p> <p>Landscape designations: The Dee Valley SLA and The Braes of the Mearns SLA.</p> <p><b>Representative Viewpoints</b></p> <p>Visual receptors at settlements/communities/residential properties.</p>	<p>Assessment of effects at night on landscape character, designated landscapes and visual amenity as there are no likely significant effects predicted.</p> <p>Effects on residential visual amenity at properties within 170 m of the OHL as assessed in the RVAA. Construction effects are deemed unlikely to breach the residential visual amenity threshold.</p>	<p>Assessment of effects at night on landscape character, designated landscapes and visual amenity as there are no likely significant effects predicted.</p>

<sup>191</sup> The progress of the formal adoption of the proposed Angus LLAs will be monitored throughout the EIA process, and adopted or finalised LLAs will be included in the LVIA as appropriate.

Topic	Scoped In		Scoped Out	
	Construction	Operation	Construction	Operation
	<p>Visual receptors at settlements/communities/residential properties.</p> <p>Recreational receptors, including core paths, hill summits and visitor attractions.</p> <p>Receptors travelling on roads and railway in the vicinity of the Proposed Development.</p>	<p>Recreational receptors, including core paths, hill summits and visitor attractions.</p> <p>Receptors travelling on roads and railway.</p> <p>Effects on residential visual amenity at relevant properties within 170 m of the OHL as assessed in the RVAA.</p>		
Cultural Heritage	<p>Direct effects of construction of the Proposed Development on cultural heritage assets that lie within the inner study areas.</p> <p>Direct effects on buried archaeological remains that potentially survive within the inner study areas.</p> <p>Cumulative effects during construction on cultural heritage assets within the inner study areas.</p>	<p>Effects on the setting of cultural heritage assets within the outer study area.</p> <p>Cumulative effects on the setting of cultural heritage assets within the outer study area.</p>	<p>Direct effects on heritage assets beyond the inner study areas where there will be no construction works.</p> <p>Indirect effects on standing archaeological remains or structures and buried archaeological remains or deposits. The Proposed Development is unlikely to give rise to significant adverse effects through hydrological changes or from vibration and seismic events.</p> <p>Temporary setting effects on cultural heritage assets resulting from construction activities such as the presence of pull-through/machine positions, erection of scaffolding and creation of temporary access tracks and working areas.</p> <p>Assessment of the effect of the Proposed Development on the (localised) settings of Listed Buildings within built areas such as settlements due to the screening effect of intervening buildings.</p>	<p>Assessment of direct effects from maintenance or replacement works. As a consequence of design and pre-construction mitigation there are no heritage assets likely to receive a direct effect during operation and any required maintenance or replacement works would use the as-built tracks and infrastructure to facilitate such works.</p>
Ecology	<p>Designated sites for which a possible impact pathway has been identified.</p> <p>Loss or fragmentation of habitats of conservation concern.</p> <p>Impacts upon protected species, including otter, bats, beaver, red squirrel,</p>	<p>No operational effects are scoped in.</p>	<p>Designated sites for which no impact pathway has been identified.</p> <p>Impacts upon protected and notable species as a result of disturbance during construction.</p> <p>Aquatic ecological features including fish (with the exception of freshwater pearl mussel).</p>	<p>Once operational the OHL is not predicted to have significant adverse ecological effects, therefore operational impacts on designated sites, habitats of conservation concern, and protected and notable species are scoped out.</p>

Topic	Scoped In		Scoped Out	
	Construction	Operation	Construction	Operation
	<p>pine marten, water vole, and badger, as a result of habitat loss or fragmentation.</p> <p>Disturbance to aquatic environments that support populations of freshwater pearl mussel.</p>		<p>Brown hare, hedgehog and water shrew.</p> <p>Amphibians and reptiles.</p> <p>Invertebrates. Potential effects would be managed through standard best practice construction methods and following relevant guidance to mitigate environmental impacts.</p> <p>With the adherence to a CEMP, and SSEN Transmission's GEMP and SPPs, as overseen by an ECoW, it is not predicted that there would be significant disturbance effects on the receptors scoped out as a result of construction activities.</p>	
Ornithology	<p>Designated sites, particularly SPAs, for which qualifying features show connectivity (ie within 20 km for foraging goose species).</p> <p>Impacts on protected bird species, including Schedule 1/1A/A1 species and red-list BoCC arising from habitat loss, collision with the installed OHL and disturbance from construction works.</p>		<p>Designated sites for which qualifying features show no connectivity (including those beyond 20 km for foraging goose species).</p>	<p>Designated sites for which qualifying features show no connectivity (including those beyond 20 km for foraging goose species).</p> <p>Barrier effects – on qualifying features/ Schedule 1 birds and BoCC are predicted to be negligible as birds are unlikely to recognise the OHL tower structures as barriers to flight.</p> <p>Electrocution – on qualifying features/ Schedule 1 birds and BoCC as the gaps between the conductors and the perch points would be greater than any bird wingspan and therefore electrocution is not possible.</p>
Hydrology, Hydrogeology, Geology and Soils	<p>Effects on the following hydrological and soil receptors:</p> <p>Surface and ground water quality.</p> <p>Private (PWS) and public water supplies (DWPA) and groundwater abstractions.</p> <p>GWDTes (if found to be present).</p> <p>Hydrology (flood risk).</p> <p>Peat and peat soils.</p>	<p>Effects on hydrology from the installed OHL infrastructure (flood risk).</p>	<p>Effects on bedrock geology during construction and operation. There are no geological SSSIs within the Proposed Route and any excavation for tower construction is localised, thus no significant adverse effects are predicted.</p> <p>Contaminated land assessment will be included in the EIA if upon further review and investigation, it is concluded that there is a potential risk of encountering contaminated land, however at this time no significant adverse effects are predicted.</p>	<p>With the application of SSEN Transmission's GEMPs, no significant operational effects from the Proposed Development are predicted on surface water quality, PWS, groundwater abstractions and GWDTes. The main impacts on peat (if any) will be in the construction phase and are scoped out of assessment during operation.</p>

Topic	Scoped In		Scoped Out	
	Construction	Operation	Construction	Operation
	Contaminated land (if required)		Information from a SSEN Transmission commissioned study has been used in the design development to date whereby areas of high UXO hazard constraint have been avoided.  Where potential constraints cannot be avoided, risk mitigation will be recommended which will be dependent on the proposed scope of works in the area and the identified hazard. Risk mitigation will be undertaken and form part of the CEMP by the Principal Contractor.	During operation, the presence of tower bases and other permanent hardstanding could have a minor and localised effect on surface run-off rates (and associated hydrology/flood risk/flood storage effects) depending on tower locations. At this stage, it is considered unlikely that this will have a significant adverse effect on hydrology but this will be quantified in the EIA.
Traffic and Transport	Effects on users of road networks associated with predicted construction traffic movements across the proposed study area.	No operational effects are scoped into the assessment.	No construction effects are scoped out of the assessment although more detailed assessment may identify that most effects are not significant.	No significant effects are predicted due to low traffic generation during the operational phase, therefore these effects are scoped out of the assessment.
Noise and Vibration	Construction noise and vibration effects (including from traffic where relevant) on sensitive receptors identified in proximity to construction working areas/routes.	Operational noise effects associated with OHL conductor noise for nearby sensitive receptors.	No construction effects are scoped out of the assessment.	Operational vibration effects as a commissioned OHL does not produce vibration effects.
Population and Human Health	All elements of this topic are scoped out of the assessment. The assessment presented in <b>Table 12.2</b> has identified that no significant adverse effects on health outcomes are predicted for the population in the study area for the Proposed Development. However, additional information demonstrating the project-specific compliance of the electricity transmission systems for the Proposed Development with the UK guidelines on EMF exposure will be separately provided for the section 37 application.			
Air Quality	It is considered that air quality for construction, operation and decommissioning is scoped out of any further assessment within the EIA, as there is expected to be negligible impact upon identified receptors when the Applied Mitigation measures that will be contained within the project CEMP are considered for the Proposed Development.			
Climate Change	It is not predicted that there would be significant environmental effects on climate mitigation, adaptation or resilience during construction or operation, therefore effects are scoped out of assessment. However, the EIA will include further mitigation measures to support the process of GHG emissions reduction and minimisation for the selection of materials and components for the Proposed Development and for its construction.			
Major Accidents and Disasters	No construction or operational effects on major accidents and disasters are scoped in. No significant environmental effects from a comprehensive review of a series of potential accidents and disasters have been predicted from the scoping assessment.			
Telecommunications and Aviation	It is not predicted that there would be significant technical issues with telecommunications, television and radio broadcasting or aviation systems interference caused by the Proposed Development and this issue is proposed to be scoped out from further consideration within the EIA process.			

TRANSMISSION

Topic	Scoped In		Scoped Out	
	Construction	Operation	Construction	Operation
Socio-Economics	<p>A Socio-Economic Assessment is scoped out of the EIAR as the project 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.</p> <p>A stand-alone report will be provided to accompany the EIAR as part of the section 37 application to provide information on this topic to be considered in relation to wider policy, as part of the determination process.</p>			

## 16.2 Topics to be Scoped Out of the EIA

16.2.1 The following additional technical assessments are proposed to be scoped out of the EIA:

1. Socio-economic assessments (see **Section 1.5: Overview of Approach to the EIA Scoping Report**) and below; and
2. Effects on telecommunications, TV/radio signals and aviation (see **Section 2.11: Operation and Management of the OHL**).

## 16.3 Socio Economic Assessment

16.3.1 It is proposed that a Socio-Economic Assessment is scoped out of the EIAR as the project 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. This is supported by its status as a National Development 3 (ND3) "*Strategic Renewable Electricity Generation and Transmission Infrastructure*" in NPF4 <sup>192</sup> & <sup>193</sup>.

### Introduction

16.3.2 The information provided in this section has been included for the purposes of explaining the basis upon which SSEN Transmission proposes to scope out socio-economic assessment on the basis that aggregated positive socio-economic impacts of SSEN Transmission's programme are high and therefore the adverse significance of effect of the Proposed Development is low and unlikely to provide a meaningful assessment for an EIAR. However, a stand-alone socio-economic report will be provided to accompany the planning statement for the application for consent. This report will demonstrate how the Proposed Development aligns with national and local development policy and the predicted socio-economic benefits of the development.

### National Significance

16.3.3 In July 2022, National Grid, the Electricity System Operator (ESO), published the Pathway to 2030 Holistic Network Design (HND), setting out the blueprint for the onshore and offshore electricity transmission network infrastructure required to enable the forecasted growth in renewable electricity across Great Britain, including the UK and Scottish Government's 2030 offshore wind targets of 50 GW and 11 GW. This confirms the need for significant and strategic increase in the capacity of the onshore electricity transmission infrastructure to deliver 2030 targets and a pathway to net zero. The need for these reinforcements is also underlined within the British Energy Security Strategy.

### National Developments

16.3.4 NPF4 identifies 18 National Developments (ND) described as: "*significant developments of national importance that will help to deliver the spatial strategy*". National Developments are acknowledged as projects expected to provide substantive support to the economy of Scotland in terms of direct and indirect employment and business investment, with wider economic benefits. It adds that: "*Their designation means that the principle for development does not need to be agreed in later consenting processes, providing more certainty for communities, businesses and investors*".

16.3.5 The Proposed Development falls within the category of National Development 3 (ND3) "*Strategic Renewable Electricity Generation and Transmission Infrastructure. This national development supports renewable electricity generation, repowering, and expansion of the electricity grid.*" The location for ND3 is set out as being all of Scotland and in terms of need it is described as: "*Additional electricity generation from renewables and electricity transmission capacity of scale is fundamental to achieving a net zero economy and supports improved network resilience in rural and island areas.*"

16.3.6 The designation and classes of development which would qualify as ND3, are: "*A development contributing to 'Strategic Renewable Electricity Generation and Transmission' [in the location described], within one or more of the Classes of Development described below and that is of a scale or type that would otherwise have been classified as 'major' by 'The Town and Country Planning (Hierarchy of Developments) (Scotland) Regulations 2009', is designated a national development: (a) on and off shore electricity generation, including electricity storage, from renewables exceeding 50 megawatts capacity; (b) new and/or replacement upgraded on and offshore high voltage electricity transmission lines, cables and interconnectors of 132kV or*

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<sup>192</sup> National Planning Framework 4. Available at: <https://www.gov.scot/publications/national-planning-framework-4/>

<sup>193</sup> Scotland 2045 – Fourth National Planning Framework – draft. Part 2: National Developments. Available at: <https://www.gov.scot/publications/scotland-2045-fourth-national-planning-framework-draft/>

*more (emphasis added); and (c) new and/or upgraded Infrastructure directly supporting on and offshore high voltage electricity lines, cables and interconnectors including converter stations, switching stations and substations.”*

16.3.7 The Proposed Development falls within the category of development described in ND3 in part (b).

Conclusion

16.3.8 Those projects which are proposed as National Developments, of which the Proposed Development is one, are acknowledged as being expected to provide substantive support to the economy of Scotland in terms of direct and indirect employment and business investment<sup>194</sup>, with wider economic benefits including the facilitation that the project provides to large scale deployment of renewable generation in the North of Scotland<sup>192 & 193</sup>. The National Planning Framework 4 adds that: "*Their designation means that the principle for development does not need to be agreed in later consenting processes, providing more certainty for communities, businesses and investors*"<sup>195</sup>. It is on this basis that the Applicant is scoping out socio economic assessment from the EIA as the Proposed Development falls within the ambit of development supported by established national policy.

16.3.9 A stand-alone report will be provided to accompany the EIAR as part of the section 37 application to provide information on this topic to be considered in relation to wider policy, as part of the determination process.

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194 NPF4 Delivery Research Report (21 April 2022). Available at: <https://www.scottishfuturestrust.org.uk/publications/documents/npf4-delivery-research-report>

195 NPF4. Annex A – How to use this document. Available at: <https://www.gov.scot/publications/national-planning-framework-4/>

## 17. NEXT STEPS

### 17.1 Inviting Comments

- 17.1.1 This Scoping Report will be submitted to the Scottish Government ECU by the Applicant with a request for a Scoping Opinion in accordance with Part 4 of the EIA Regulations.
- 17.1.2 A proposed list of consultees to be contacted by ECU to seek their views on the proposed scope of the EIA for the Proposed Development is included in **Appendix C: Proposed Scoping Consultee List**. It has been prepared having regard to the requirements of Regulation 12(4) of the EIA Regulations. The list of proposed consultees has therefore been grouped under the headings of consultation bodies, statutory consultees, non-statutory consultees and other public bodies.
- 17.1.3 Following receipt of a Scoping Opinion, the Applicant will prepare an EIAR to capture the findings of the EIA process. The EIAR will be undertaken in accordance with the scope defined by the Scoping Opinion. The EIAR will report the predicted significant environmental effects of the Proposed Development together with measures proposed to provide mitigation for predicted likely significant effects. The EIAR will be submitted by the Applicant with the application for section 37 consent for the Proposed Development to the ECU.
- 17.1.4 Separate applications for planning permission for the proposed 400 kV substations at Emmock and Hurlie will be submitted to the relevant local planning authorities in which the substation sites are located (Angus Council and Aberdeenshire Council respectively). These planning applications will be supported by EIARs for each development proposal.
- 17.1.5 The EIARs for the Proposed Development and for each of the proposed substations will be prepared to take account of predicted respective cumulative environmental effects arising from the connections of the proposed OHL with the proposed substation sites (The Proposed Development and Associated SSEN Transmission Developments).

### 17.2 Consultee Questions

- 17.2.1 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 for the Proposed Development described here?
  - 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?
- 17.2.2 Responses to this Scoping Report should be directed to the Energy Consents Unit (ECU) of the Scottish Government to ensure that all responses of relevance to the EIA are collated and considered for the purposes of adopting a Scoping Opinion. Responses can be sent:
- Through the website: [www.energyconsents.scot](http://www.energyconsents.scot)
  - Via email: [representations@gov.scot](mailto:representations@gov.scot)
  - By writing to:
    - Energy Consents Unit
    - Scottish Government
    - 5 Atlantic Quay
    - 150 Broomielaw
    - Glasgow
    - G2 8LU

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

- Via email to: [sarah.cane-ritchie@sse.com](mailto:sarah.cane-ritchie@sse.com)

OR

- By writing to:

For the Attention of Sarah Cane-Ritchie

SSEN Transmission

Inveralmond House

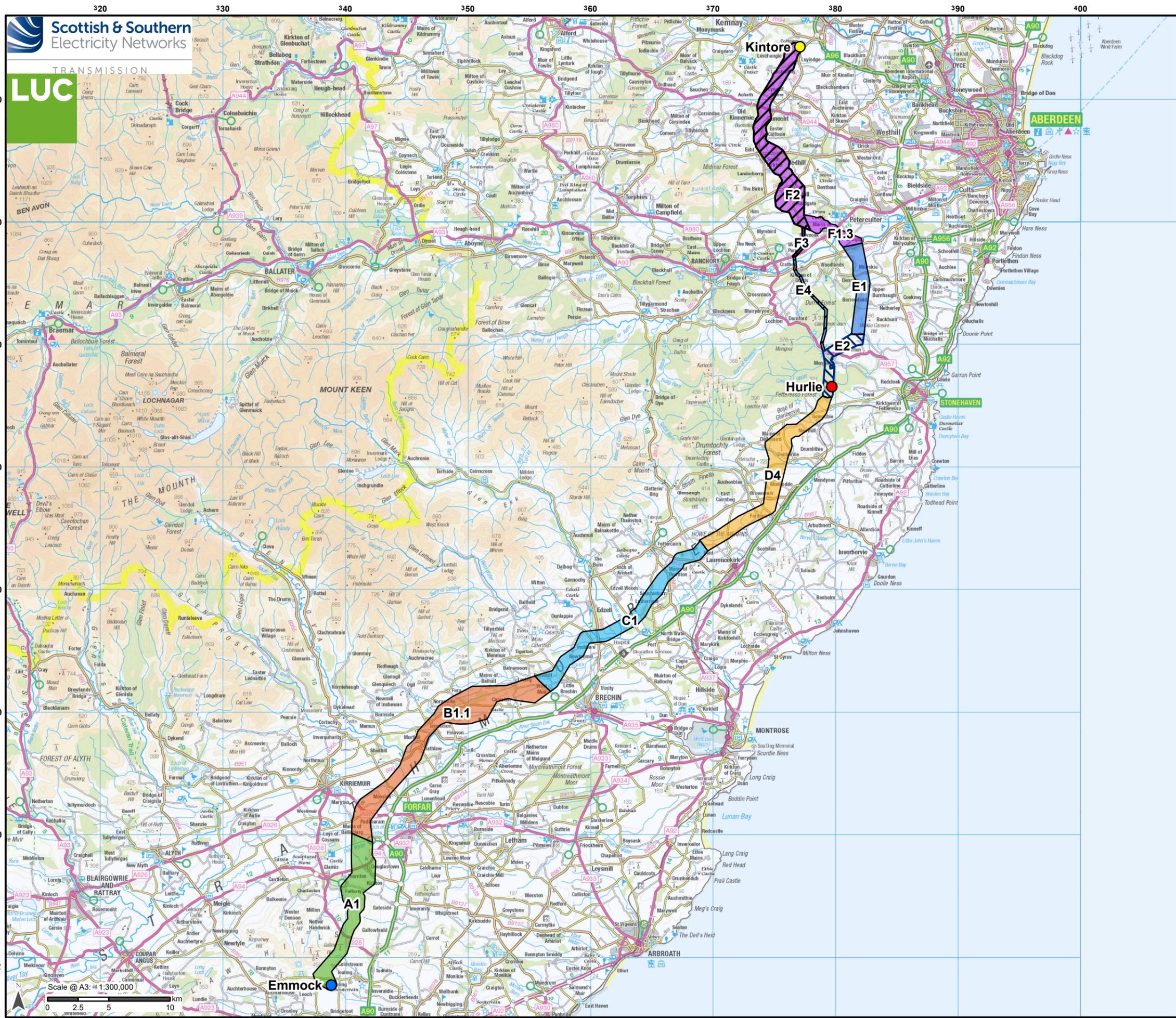
200 Dunkeld Road

Perth

PH1 3AQ

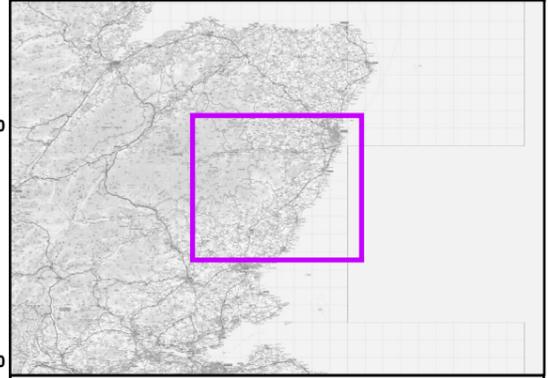
17.2.4 All comments received will be included in the EIAR for reference, unless consultees request otherwise.

## **APPENDIX A: FIGURES**



- Proposed Route Sections**
- A1
  - B1.1
  - C1
  - D4
  - E1
  - E2
  - F1.3
  - F2
  - F3
- Additional options (identified following March 2024 consultation)**
- E4
  - F3
- Substations**
- Existing Kintore Substation
  - Proposed Hurlie substation
  - Proposed Emmock substation

OS base maps are the latest available version from Ordnance Survey, dated June 2024. SSEN Transmission take no responsibility for the release or accuracy of latest version Basemaps from Ordnance Survey.



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Project No: LT455  
Project: Kintore to Tealing 400kV Overhead Line  
EIA Scoping Report

Title: Location Plan

Drawn by: HW Date: 30/08/2024

Figure: 1.1

