

# **Environmental Impact Assessment (EIA)**

## **Scoping Report**

**Emmock 400 kV Substation**

**June 2024**



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## GLOSSARY

Term	Definition
400 kV	400 kilovolt (400,000 volt) operating voltage electrical circuit.
AIL	Abnormal Indivisible Loads (AIL) – Movements of specialised heavy goods vehicles (HGVs) primarily comprising large components of the substation such as transformers.
AIS Substation	An Air Insulated Switchgear (AIS) substation is constructed with switchgear which relies on open air components, which can require large clearance areas for operation and safety, taking up a larger area of land than Gas Insulated Switchgear (GIS) substations.
Ambient Noise	The all-encompassing noise level measured in LAeq,T (total equivalent noise level over measurement period). The Ambient Noise Level incorporates background sounds as well as the industrial source noise under construction.
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.
AOD	Above Ordnance Datum (AOD)
Applicant	A person who makes a formal application for something, in this case, SSEN Transmission.
Associated Works	Other associated works related to the Proposed Development for which separate consent would be sought.
ASTI	Accelerated Strategic Transmission Infrastructure (ASTI) 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 government's ambition to connect up to 50 GW of offshore wind generation to the network by 2030 <sup>1</sup> .
AWI	Ancient Woodland Inventory (AWI) 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.
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 negative) might be expected to occur.
BGS	British Geological Survey (BGS)
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.
BU	Biodiversity Units (BU) is a unit of account. Metrics assign all habitats a unit value according to their relative biodiversity value. The scores assigned to habitats vary between the different metrics.
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.
CEMP	A Construction Environmental Management Plan (CEMP) is a document which defines specific methods for environmental survey, monitoring, mitigation and management throughout construction.

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

Term	Definition
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 the EIA Regulations, defined as meaning the planning authority, NatureScot, the Scottish Environment Protection Agency and Historic Environment Scotland.
Cumulative Effects	Impacts that result from the combination of the Proposed Development with other reasonably foreseeable projects.
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.
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 (EIA) – A formal process codified by EU Directive 2011/92/EU, and subsequently amended by Directive 2014/52/EU. The relevant regulations are set out in The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017. 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 (e.g. bunding and landscaping to screen a substation from surrounding receptors) or from adoption of specific design parameters (e.g. compliance with specific buffer distance from an environmental receptor).
EMF	Electric and Magnetic Fields (EMF)
EMI	Electromagnetic Interference (EMI)
ESO	National Grid is the Electricity System Operator (ESO) for Great Britain – The ESO balances electricity supply and demand to ensure the electricity supply. The ESO also outlines strategic goals for the UK's energy grid.
FRA	Flood Risk Assessment (FRA) – Document that reviews the risk of flooding from a development.
GDL	Garden and Designed Landscape (GDL), 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.
GEMP	General Environmental Management Plans (GEMP) – A series of standardised construction environmental management plans produced by SSEN Transmission.
GIS Substation	A Gas Insulated Switchgear (GIS) substation is constructed with switchgear with gaseous reliant components which allows operation and safety clearances to be reduced compared to an AIS substation.
GWDTE	Groundwater Dependent Terrestrial Ecosystem (GWDTE) – Wetlands which critically depend on groundwater flows. They are safeguarded by the Water Framework Directive (WFD) and are sensitive to hydrological and ecological changes.
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 (HES) – Organisation responsible for investigating, caring for and promoting Scotland's historic environment.



Term	Definition
HGV	Heavy Goods Vehicle (HGV)
Horlock Rules (as modified)	Principles used to inform the siting of substations.
HRA	Habitats Regulations Appraisal (HRA) – Appraisal to determine whether the Proposed Development is likely to have a significant effect on a European designated site, to address the requirements of Regulation 63 of the Conservation of Habitats and Species Regulations 2017.
Impact	Physical constructions or activities that may change or disturb the surrounding environment.
Kilovolt (kV)	One thousand volts.
LCA	Land Capability for Agriculture (LCA) – The classification of land and its associated capability to support types of crops based on environmental and soil characteristics.
LCT	Landscape Character Type (LCT) – A distinct, recognisable and consistent pattern of elements in a landscape that differentiate the area from each other.
LEPO	Long-Established woodlands of Plantation Origin (LEPO) – 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 ‘Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997’ and other planning legislation. Classified in three categories A, B and C(s).
LLA	Local Landscape Areas (LLA) 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.
LNCS	Local Nature Conservation Site (LNCS) – 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.
LPA	The Local Planning Authority (LPA) is the local government body that is empowered by law to exercise planning functions for a particular area.
Mitigation	Term used to indicate avoidance, remediation or alleviation of adverse impacts (see also Embedded Mitigation definition).
NatureScot	Scotland’s statutory nature conservation agency (formerly Scottish Natural Heritage (SNH)).
NNR	National Nature Reserves (NNR) are areas of natural heritage where public access is encouraged, and which usually host nationally or internationally important habitats and species.
NPF4	National Planning Framework 4 (NPF4) – The national spatial strategy for Scotland. It sets out the spatial principles, regional priorities, national developments and national planning policy. It replaces NPF3 and Scottish Planning Policy.
NSR	Noise Sensitive Receptors (NSR) are defined as receptors which are potentially sensitive to noise and vibration. Examples include dwellings, hospitals, schools, community facilities.
OHL	Overhead Line (OHL) – An electric line installed above ground, usually supported by lattice steel towers.
Overall Project	The proposed new Kintore to Tealing 400 kV OHL project together with the proposed substations at Emmock and Hurlie. This term reflects the inter-connected nature of the three proposed projects as part of SSEN Transmission’s wider programme of East Coast 400 kV Phase 2 Upgrade Projects.
PM <sub>10</sub>	Particulate matter with an aerodynamic diameter less than 10 micrometres.
PRI	Public Road Improvement (PRI) – Works required to improve public roads to enable appropriate access.
Prime Agricultural Land	Agricultural land identified as being Class 1, 2 or 3.1 in the land capability classification for agriculture developed by Macaulay Land Use Research Institute (now the James Hutton Institute).

Term	Definition
Proposed Development	The Proposed Development is a description capturing the physical characteristics of the substation.
PWS	Private Water Supply (PWS) – A supply of water which does not come from a licensed water supplier.
Ramsar	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.
RLB	Red Line Boundary (RLB) – This area should include all land necessary to carry out the Proposed Development.
SAC	Special Area of Conservation (SAC) – 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.
Schedule 1 Species	Birds listed on the Schedule 1/A1/1A of the Wildlife & Countryside Act 1981, 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 – 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 the Ancient Monuments and Archaeological Areas Act 1979.
Scoping Opinion	An opinion adopted by the Local Planning Authority (LPA) as to the scope and level of detail of information to be provided in the EIA Report.
SEPA	Scottish Environment Protection Agency (SEPA)
Site	The extent of land encompassed within the Proposal of Application Notice (PoAN) boundary.
SPA	Special Protection Area (SPA) – Designated under Directive 2009/147/EC on the Conservation of Wild Birds (the Birds Directive) to protect important bird habitats.
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 Electricity Act 1989 to develop and maintain an efficient, co-ordinated and economical system of electricity transmission.
Stakeholders	Organisations and individuals who can affect or may be affected by SSEN Transmission works.
Study Area	The 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.
Substation Site Area	Site area identified as necessary to deliver all the substation infrastructure requirements e.g. platform, access tracks, temporary construction area, drainage including SUDS and landscaping.
SuDS	Sustainable Drainage Systems (SuDS) – Drainage solutions that provide an alternative to the direct channelling of surface water through networks of pipes and sewers to nearby watercourses.
Terminal Structures	A structure (tower) required where an overhead transmission line terminates either at a substation or at the beginning and end of an underground cable section.
The Applicant	The person or organisation applying for planning permission. In this instance Scottish and Southern Electricity Networks Transmission (SSEN Transmission).
The National Grid	The electricity transmission network in Great Britain.

Term	Definition
The Site	The geographical area where the works for the Proposed Development are proposed, as illustrated by the Site Boundary.
UK BAP	The UK Biodiversity Action Plan (UK BAP) was published in 1994 after the Convention on Biological Diversity (CBD). It summarised the most threatened species and habitats in the UK and gave detailed plans for their recovery.
UK BAP Species	Species identified as being most threatened and requiring conservation action at a national level under the UK Biodiversity Action Plan (UK BAP).
UKHab	UK Habitat Classification (UKHab) – Unified and comprehensive approach to classifying habitats.
Volts	The international unit of electric potential and electromotive force.
WFD	Water Framework Directive (WFD) – The main aims of the Water Framework Directive (WFD) are to: prevent deterioration and enhance status of aquatic ecosystems, including groundwater, promote sustainable water use, reduce pollution, and contribute to the mitigation of floods and droughts.
Works	Constructing new transmission infrastructure such as substations, overhead lines, underground cables; major refurbishment of these; the dismantling and removal of any parts of the system; and ancillary works, which may include formation of access tracks, bridge and road improvements, tree cutting, drainage etc.
ZTV	Zone of Theoretical Visibility (ZTV) – 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.

The Applicant has a statutory duty 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. To meet its duty, the Applicant is planning and seeking consent for a new 106-kilometre 400 kV overhead line (OHL) transmission connection between Kintore and Tealing which includes two 400 kV substations at Emmock (Proposed Development), located next to the existing Tealing 275 kV Substation near Dundee in Angus; and Hurlie in Fetteresso Forest in Aberdeenshire; and related 400 kV reconductoring and tie-ins of the existing Alyth-Tealing and Westfield-Tealing 275 kV OHLs with tie-backs between Emmock and Tealing substations.

The main drivers for this new transmission infrastructure 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. The proposed Kintore -Tealing 400kV OHL supports the UK and Scottish Government's renewable energy targets and transition to net zero emissions in line with National Grid's Pathway to 2030 and Ofgem's Accelerated Strategic Transmission Investment (ASTI) framework for funding projects that are needed to deliver the Government's 2030 ambitions.

Emmock substation will allow future energy generating stations to connect to the National Grid whilst facilitating the transfer of this energy to where it is required. The site of the new proposed substation at Emmock is presently largely agricultural in nature.

This Scoping Report is provided to support a formal request under Regulation 17 of the *Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017* by the Applicant for a Scoping Opinion from Angus Council to determine the information to be provided within the Environmental Impact Assessment (EIA) Report for the Proposed Development. The proposed topics to be scoped in are summarised in **Table ES1: Topics Scoped In** below, noting that the final scope will be agreed following the receipt of a Scoping Opinion.

**Table ES1: Topics Scoped In**

Topic	Comments of Scope
Landscape and Visual Amenity	<b>Scoped In</b> Potential impacts on designated landscape areas, landscape character and visual receptors cannot be discounted. Therefore, further assessment is required.
Cultural Heritage and Archaeology	<b>Scoped In</b> Effects on the setting of cultural heritage assets in the wider landscape and impacts on buried archaeology cannot be discounted. Therefore, further assessment is required.
Ecology	<b>Scoped In</b> Effects on ecological receptors within and using the Site are anticipated and have some potential to be significant. Therefore, further assessment is required.
Ornithology	<b>Scoped In</b> Effects on assemblages of avian species within and using the Site cannot be discounted. Therefore, further assessment is required.
Hydrology and Hydrogeology	<b>Scoped In</b> Effects on the water environment cannot be discounted. Therefore, further assessment is required.
Traffic and Transport	<b>Scoped In</b> Effects on traffic and the local transport network cannot be discounted. Therefore, further assessment is required.
Noise and Vibration	<b>Scoped In</b>

Topic	Comments of Scope
	Effects on the local noise profile cannot be discounted. Therefore, further assessment is required.

Further details of the topics which have been scoped out of the EIA and the rationale for so doing is set out in **Chapter 4**. A summary of the proposed scope of the EIA is presented in **Chapter 13: Summary of Proposed EIA Scope**.

# 1. INTRODUCTION

## 1.1 The Proposal

- 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. In this Scoping Report the Applicant and SSEN Transmission are used interchangeably unless the context requires otherwise.
- 1.1.2 SSEN Transmission has a statutory duty 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. Where there is a requirement to extend, upgrade or reinforce its transmission network, SSEN Transmission'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.
- 1.1.3 The Applicant is proposing to submit a planning application to construct a new 400 kV substation on land at Balkemback Farm, Kirkton of Tealing, north of Dundee in Angus (described hereafter as the 'Proposed Development' or 'Emmock substation'). In this Scoping Report reference to 'The Site' refers to the geographical area where the works for the Proposed Development are proposed, as illustrated by the Site Boundary as shown in **Figure 1.1: Site Boundary**. The Proposed Development is part of a wider project which comprises a 400 kV OHL between Kintore and Tealing, Tealing – Emmock 400 kV tie-ins, and the proposed Hurlie 400 kV substation in Fetteresso Forest near Stonehaven. These proposals are collectively defined as the 'Overall Project'.
- 1.1.4 The construction of the Overall Project is part of the East Coast 400 kV Phase 2 programme of new transmission projects and upgrades being promoted by SSEN Transmission. Consent for the Kintore - Tealing 400 kV OHL will be sought by the Applicant through an application to the Scottish Government under section 37 of the *Electricity Act 1989*<sup>2</sup>.
- 1.1.5 As part of this programme SSEN Transmission is applying to the Scottish Government for a separate section 37 consent for reconductoring of two existing 275 kV lines that connect Tealing Substation with the Alyth and Westfield OHLs. The upgrading of these OHLs to 400 kV capacity would also require their redirection and connection to the proposed Emmock 400 kV substation before being tied back to the Tealing Substation.
- 1.1.6 This Scoping Report and the forthcoming EIA Report (EIAR) for the Proposed Development focus on the likely significant environmental effects of the proposed Emmock substation. The EIAR for the Overall Project which will be submitted by the Applicant to the Scottish Government will incorporate the key findings and predicted effects of the three projects drawing on the EIARs for the two substations, including their potential cumulative environmental effects.

### Project Need

- 1.1.7 In July 2022, National Grid, the Electricity System Operator (ESO), published the Pathway to 2030 Holistic Network Design (HND)<sup>3</sup>, 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 respectively.
- 1.1.8 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, as part of the East Coast 400 kV Phase 2 upgrade reinforcement project, the Kintore – Tealing 400 kV OHL is required to be progressed accordingly. The need for these reinforcements has been further underlined within the recent British Energy Security Strategy<sup>4</sup>. This sets out the UK Government's plans to accelerate homegrown power to support increased UK energy independence.
- 1.1.9 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 400 kV connection between these sites to enable the significant power transfer capability needed to take power from onshore and large scale offshore renewable

<sup>2</sup> Scottish Government (1989) *Electricity Act 1989 – Sections 36 and 37: Applications Guidance*

<sup>3</sup> National Grid ESO (2022) *Pathway to 2030: Holistic Network Design*

<sup>4</sup> HM Government (2022) *British Energy Security Strategy*

generation which is proposed to connect at onshore locations on the East Coast of Scotland before then being transported to areas of demand.

- 1.1.10 The Kintore - Tealing 400 kV OHL (Overall Project) requires that the Emmock and Hurlie 400 kV substations be constructed to enable future connections and export routes to areas of demand. The Overall Project will support the delivery of the UK and Scottish Government's renewable energy targets in-line with both National Grid's Pathway to 2030 and OFGEM's Accelerated Strategic Transmission Investment (ASTI) framework for funding projects that are needed to deliver the Government's 2030 ambitions. The 400 kV network on the East Coast of Scotland is specifically referred to within the ASTI projects.

## 1.2 The Environmental Impact Assessment (EIA) Regulations

- 1.2.1 The Proposed Development is not defined as Schedule 1 Development or Schedule 2 Development in the Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017 ('The Regulations')<sup>5</sup>. However, as set out in Part 2, Regulation 6 of the EIA Regulations, if the Applicant submits an Environmental Impact Assessment (EIA) Report (EIAR) within its planning application to the Local Planning Authority, then the Proposed Development is considered an EIA development.
- 1.2.2 This Scoping Report supports the Applicant's request for a Scoping Opinion from Angus Council under Regulation 17 of the Regulations; furthermore, by submitting this EIA Scoping Report, the Applicant confirms that the Proposed Development should be determined as an EIA development.
- 1.2.3 The EIA process followed by the Applicant will aim to avoid, reduce and, where necessary, mitigate likely significant environmental effects through an iterative design process for the substation. The findings of the EIA will be presented within the EIAR which will report on the effects of construction and operation of the Proposed Development.
- 1.2.4 The EIAR will also consider the cumulative effects of the Proposed Development with other development projects which share the study area, and which have progressed to the application stage, or which have been specifically identified by Statutory Consultees for inclusion within the cumulative impact assessment. The projects which are proposed to be included, and the proposed approach to the assessment, are discussed further in **Chapter 12: Cumulative Effects**.
- 1.2.5 In accordance with Regulation 17 (2) of the EIA Regulations, this EIA Scoping Report contains:
- A plan sufficient to identify the location of the Proposed Development (see **Figure 1.1: Site Boundary**);
  - A brief description of the nature and purpose of the Proposed Development and its possible effects on the environment (see **Chapter 2: Description of the Proposed Development** for description and subsequent report chapters (**Chapters 5 to 12**) for possible effects); and
  - Additional supporting information and representations (**Chapters 13 to 14**).

## 1.3 Purpose of the EIA Scoping Report

- 1.3.1 The purpose of this EIA Scoping Report is:
- To summarise the main elements of the Proposed Development to allow consultees to comment meaningfully on the proposed scope of the EIA;
  - To summarise the current understanding of the environmental baseline and to explain the sources and methods of further baseline information collection where it is considered necessary;
  - To set out the potential significant environmental and cumulative effects of the Proposed Development, and to set out the tools and techniques (where applicable) that will be adopted to predict the scale and assess the significance of effects in the EIA; and
  - To identify those environmental issues which, on the basis of the preliminary environmental assessment undertaken at this scoping stage, are considered unlikely to represent a predicted significant environmental effect and which are proposed to be 'scoped out' of the EIA process.

## 1.4 Overview of the Approach to the EIA Scoping Report

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<sup>5</sup> [HM Government \(2017\) Town and Country Planning \(Environmental Impact Assessment\) \(Scotland\) Regulations 2017](#)

- 1.4.1 This Scoping Report has been prepared in accordance with the EIA Regulations, with other relevant best practice guidance as specified in each relevant chapter and taking account of the Applicant’s own procedures for substation projects (in particular for the selection and appraisal of substation sites). 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.
- 1.4.2 Consideration of relevant factors in this Scoping Report has primarily been shaped by Regulation 4 of the EIA Regulations to the extent that they are relevant to the specific characteristics of the Proposed Development and to the environmental features likely to be affected. In addition, current best practice and planning advice, which advocate a proportionate and efficient approach to EIA (Scottish Government, 2013<sup>6</sup>; and IEMA, 2017<sup>7</sup>), have been considered.
- 1.4.3 The EIA Regulations require the EIAR to identify, describe and assess the likely significant effects on the factors specified in Regulation 4(3)<sup>8</sup> and the interaction between those factors to the extent that they are relevant to the specific characteristics of the Proposed Development and to the environmental features likely to be affected. **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.

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

Regulation 4(3) Factor	How this is Addressed within this EIA Scoping Report
Landscape	<b>Chapter 5: Landscape and Visual Amenity</b> considers the potential for likely significant effects on designated landscape areas, landscape character and visual receptors.
Cultural Heritage	<b>Chapter 6: Cultural Heritage and Archaeology</b> considers the potential for likely significant effects on cultural heritage and archaeology assets, including on their setting.
Biodiversity	<b>Chapter 7: Ecology</b> considers the potential for likely significant effects on terrestrial habitats, protected mammals, reptiles and amphibians, and aquatic ecology. <b>Chapter 8: Ornithology</b> considers the potential for likely significant effects on avian species.
Water	<b>Chapter 9: Hydrology and Hydrogeology</b> considers the potential for likely significant effects on the water environment including hydrology, hydrogeology and water supplies.
Soil	<b>Chapter 4: Topics Scoped Out of the EIA</b> considers the potential for effects on soils.
Material Assets <sup>9</sup>	<b>Chapter 4: Topics Scoped Out of the EIA</b> considers existing infrastructure in and adjacent to the Site.
Land	<b>Chapter 4: Topics Scoped Out of the EIA</b> considers the potential for likely significant effects on land use including agricultural land use.
Population and Human Health	<b>Chapter 4: Topics Scoped Out of the EIA</b> considers the potential for likely significant effects on human health and wellbeing as well as local populations dynamics.
Air	<b>Chapter 4: Topics Scoped Out of the EIA</b> considers the potential for likely significant effects for construction and operation of the Proposed Development to affect local air quality including from arisings of dust during construction works.
Climate	<b>Chapter 4: Topics Scoped Out of the EIA</b> considers the potential for likely significant effects from greenhouse gas emissions and future changes in climate on the Proposed Development.

## 1.5 Structure of the EIA Scoping Report

- 1.5.1 This EIA Scoping Report follows the structure outlined below:

<sup>6</sup> Scottish Government (2013) Planning Advice Note 01/2013: Environmental Impact Assessment

<sup>7</sup> Institute of Environmental Management and Assessment (2017) Delivering Proportionate EIA: A Collaborative Strategy for Enhancing UK Environmental Impact Assessment Practice

<sup>8</sup> HM Government (2017) The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 – Regulation 4: Environmental impact assessment

<sup>9</sup> Material assets are not specifically defined by the EIA Regulations. This Scoping Report has considered material assets with reference to a range of topics which are considered in the EIA.



- **Chapter 1: Introduction**, provides an overview of the Proposed Development, the EIA legislation as well as the purpose of the EIA Scoping Report.
- **Chapter 2: Description of the Proposed Development**, summarises the need for the Proposed Development, provides a description of the key components of the Proposed Development as well as the construction methodology.
- **Chapter 3: EIA Methodology**, provides a description of the proposed EIA methodology to progress a proportionate EIA. This chapter also provides an overview of engagement with stakeholders to date and planned future engagement.
- **Chapter 4: Topics Scoped Out of the EIA**, sets out the topics to be scoped out of the EIAR and the justification for so doing.
- **Chapters 5-12** address the environmental factors scoped into the EIA, detailing in each case, the approach to assessment of potential significant effects, the baseline conditions, any sensitive receptors and potential significant effects as well as the assessment scope and issues that have been scoped out. The topics covered in these chapters are as follows:
  - **Chapter 5: Landscape and Visual Amenity**
  - **Chapter 6: Cultural Heritage and Archaeology**
  - **Chapter 7: Ecology**
  - **Chapter 8: Ornithology**
  - **Chapter 9: Hydrology and Hydrogeology**
  - **Chapter 10: Traffic and Transport**
  - **Chapter 11: Noise and Vibration**
  - **Chapter 12: Cumulative Effects**
- **Chapter 13: Summary of Proposed EIA Scope**, provides an overview of the factors scoped in for each of the technical scoping topics.
- **Chapter 14: Next Steps**, provides an overview of the steps to be undertaken following completion of the EIA Scoping Report.

1.5.2 The following appendices are also provided:

- **Appendix A: Competent Expert Information**
- **Appendix B: Figures**
- **Appendix C: List of Proposed Scoping Consultees**
- **Appendix D: List of Applied Mitigation Documents**

## 2. DESCRIPTION OF THE PROPOSED DEVELOPMENT

### 2.1 Description of the Site

- 2.1.1 The Site comprises arable land at Balkemback Farm (**Figure 2.1: Land Capability for Agriculture**), with an approximate centroid National Grid Reference (NGR) at NO 38862 37812. There are two landowner owned low output wind-turbines on site, which will be demolished prior to construction. While the planning application boundary is yet to be finalised, the Proposal of Application Notice (PoAN) Site boundary currently extends to 91.39 ha. The Site is bounded to the south and southwest by Fithie Burn, which is heavily modified. To the west the Site is demarcated by traditional agricultural boundary treatments. At the northern periphery the Site boundary currently terminates mid-field with the aim to return much of the field to agricultural use post construction. This would make the effective site boundary proximal to the existing field boundary immediately north of the proposed location of the substation platform. To the eastern extent, a culverted watercourse runs near the periphery of the agricultural land, separating the fields from a minor public road.
- 2.1.2 The wider site setting is similar in character to the Site, comprising relatively level agricultural land with small pockets of residential properties to the north and east of the Site, of which eight properties are located within 200 m from the northern edge of the Site boundary edge. The settlement of Tealing lies approximately 1.5 km to the northeast of the Site. Two notable exceptions to the general pattern of the wider landscape are: Craigowl Hill, some 2 km north, with its associated elevations and woodland to the northwest; and the existing Tealing Substation to the southeast along with its attendant infrastructure, including two existing 275 kV OHLs connecting the existing Tealing Substation with Alyth and Westfield (Glenrothes) Substations which will be removed and relocated under a separate consenting process (see **Section 1.1: The Proposal**).

### 2.2 Outline of the Proposed Development

- 2.2.1 The Proposed Development comprises the construction and operation of a new 400 kV air insulated substation located on a level platform and the formation of associated earthworks, access, drainage, landscaping, and security, including the creation of temporary construction compounds.
- 2.2.2 The electrical components of the substation are shown in **Figure 2.2: General Arrangement**. The key elements of the Proposed Development would, in brief, comprise:
- Creation of a new permanent access track from the east of the Site on Emmock Road.
  - Cut and fill operations to create a development platform to accommodate the electrical infrastructure. The platform dimensions are currently anticipated to be 675 m x 300 m with an elevation of 139 m AOD.
  - The erection and commissioning of electrical equipment which would comprise new 400 kV Air Insulated Switchgear (AIS) with an approximate height of 15 m above platform level, including shunt reactors, transformers, connection bays and gantries; and four terminal connection towers at a height of approximately 57 m on average for new and upgraded overhead transmission lines, although tower heights may be increased where local topography dictates in order to achieve sufficient clearance distances (see below).
  - The erection of a single storey control building approximately 7 m in height.
  - Screening bunds and new planting to deliver landscape and visual mitigation, habitat loss mitigation and biodiversity net gain (BNG) targets.
  - Creation of Sustainable Drainage System (SuDS), to the south of the platform, draining into Fithie Burn.
  - Internal accesses and vehicle parking within the substation platform area.
  - Security fencing.
  - Temporary site compound lay down area and access tracks.
  - Temporary site offices and welfare facilities for on-site construction workers.
- 2.2.3 The new substation would provide for the following overhead connections:
- A new 400 kV OHL from Kintore to Tealing;
  - The existing Alyth to Tealing 275 kV OHL, which will require upgrading to enable operation at 400 kV (known as reconductoring);

- The existing Westfield to Tealing 275 kV OHL, which will require upgrading to enable operation at 400 kV; and
- A new 275 kV OHL to connect the new substation with the nearby existing Tealing Substation.

2.2.4 The terminal connection towers for these OHLs will form part of a separate section 37 consent application. Where these OHLs give rise to cumulative impacts, in combination with each other and the substation, they will be considered in the respective EIARs/supporting environmental information. The approach to identifying and assessing cumulative impacts is detailed in **Chapter 12: Cumulative Effects**.

### 2.3 Construction of the Proposed Development

2.3.1 The design of the substation platform and site landscaping has sought to avoid the need to import fill or export surplus excavated material; this will be confirmed through subsequent detailed design work and further information presented in the EIAR.

2.3.2 The main construction activities include:

- Topsoil stripping and stockpiling (across the Site in phases);
- Earthworks to form the access;
- Site levelling and laying of hardcore for the compound and offices;
- Excavation and fill to create the platform, and drainage features;
- Formation of landscaping features and early planting of some bunds to establish early screening;
- Piling to form the foundations of major structures;
- Erection of control building;
- Steel work supporting the electrical equipment; and
- Installation of the transformers, conductors and associated electrical equipment.

#### Hours of Working

2.3.3 Construction working is likely to be during daytime periods only, Monday to Friday. Weekend working may be proposed by exception. Working hour assumptions would be set out within the EIAR and confirmed with Angus Council.

#### Access During Construction

2.3.4 It is anticipated that the primary access route for substation construction traffic would reach the Site from the A90 trunk road to the east of the Site, along Emmock Road from the south. All construction and staff movements are anticipated to exit the A90 to the north of Dundee. The route then follows Emmock Road to the southeast of the Site, passing the Tealing Substation to the east. Abnormal Indivisible Loads (AIL) only are anticipated to arrive at the site via the stretch of Emmock Road to the south of the Site that connects to the Old Glamis Road in Dundee. Access in and around the Site will be contained within the Proposal of Application Notice boundary.

#### Construction Compounds

2.3.5 Temporary site compounds and laydown areas would be required during construction, located within the Site. These would provide office and welfare facilities for site staff, parking, laydown areas and holding and servicing space for construction. Precise locations of compounds and lay down areas are yet to be determined.

#### Delivery of Materials

2.3.6 All materials would be delivered to a construction compound which is proposed to be formed prior to the main phase of construction works on the substation at the east of the Proposed Development.

2.3.7 It is anticipated that the delivery of the three transformers could constitute three abnormal loads to the proposed substation site during construction.

#### Construction Environmental Management

2.3.8 The approach to impact assessment in the EIAR will be undertaken on the basis that mitigation will be applied at various stages in the design, construction and operations phases. This can be considered mitigation through design; embedded mitigation and

control measures. The intention during construction will be to avoid, reduce or manage potential significant effects through the adoption of SSEN Transmission management plans<sup>10</sup> which have been developed and implemented effectively on other SSEN Transmission projects, as a condition of the construction contracts entered into by the Principal Contractor.

- 2.3.9 A Construction Environment Management Plan (CEMP) will be developed and implemented by the appointed Principal Contractor during the construction phase. The CEMP provides information on the proposed infrastructure and aids in avoiding, minimising, and controlling adverse environmental impacts associated with the Proposed Development. Furthermore, this document will include relevant consent conditions, industry good practice, as well as specific actions required to implement mitigation identified in the EIA Report, the planning process and/or other licencing or consenting processes. It is not proposed to submit an Outline CEMP alongside the EIA Report; instead, the mitigation measures and SSEN's management procedures, including GEMPs and SPPs listed in **Appendix D: List of Applied Mitigation Documents**, will be referred to, with a specific mitigation detailed within the EIA Report Schedule of Mitigation.

#### Reinstatement

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

#### Landscape and Drainage Design

- 2.3.11 Features to mitigate impacts on landscape and visual amenity will be integrated into the design of the Proposed Development. Features would include partial visual screening and measures to assimilate the Proposed Development into the surrounding landscape, taking advantage of the open low-lying nature of the area and creating an undulating and varied landform. Such measures would also provide opportunities for habitat and biodiversity enhancement.
- 2.3.12 The design will introduce new elements formed from excavated material, new shelter belts and new field edge treatments. Planting will include a mix of new woodland planting, the creation of shrub and scrub and new grass and wildflower habitat, contributing to increasing the biodiversity of the Site compared to its current character.
- 2.3.13 The drainage features are integrated into the design as elements of the landscape creating visual diversity. Following the principles of sustainable drainage systems (SUDs), the drainage network will comprise a network of grass lined swales (channels) which will collect drainage from the substation platform. A cut off swale (vegetation lined channel) will intercept field run off from the higher parts of the site to the north of the platform. The existing field drainage network will be reinstated following the earthworks and convey drainage to the cut off drain.
- 2.3.14 Run off will drain to a network of ponds to slow, hold and treat (by settlement) drainage water before being released to the Fithie Burn ensuring that the volume, rate and quality of surface water discharge will be no greater than the level of run off currently. A network of interceptors will capture grit and contaminants from internal roadways and hardstanding.
- 2.3.15 Materials storage areas within the substation will be self-contained with drainage being conveyed to the SuDS via an interceptor. Office, canteen and hygiene facilities will be connected to the foul sewer which runs beneath Emmock Road to the east of the site.
- 2.3.16 The landscape and drainage design will be refined as the substation site design evolves and following the landscape and visual assessment, flood risk assessment and hydrology assessment as part of the EIA process.

#### Anticipated Construction Programme

- 2.3.17 It is anticipated that construction of the Proposed Development would take place over an approximately 3-year period, following the granting of consents. Detailed programming works will be the responsibility of the Principal Contractor in agreement with the Applicant. The construction start date is proposed for 2026 with the energisation of the 400 kV substation in 2029. Further information will be provided in the EIAR on the indicative construction programme.

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<sup>10</sup> SSEN Transmission General Environmental Management Plans (GEMPs) and Species Protection Plans (SPPs) etc.

### Biodiversity Net Gain

- 2.3.18 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. SSEN Transmission has developed a BNG toolkit based upon the Natural England metric, which quantifies biodiversity based upon the value of habitats for nature. It is an efficient and effective method for demonstrating whether development projects have been able to maintain or increase the biodiversity value of a development site after construction works.
- 2.3.19 The BNG toolkit would be applied to the Proposed Development to quantify the overall biodiversity impacts for the Proposed Development; this includes a biodiversity baseline assessment, analysis of habitat losses due to temporary works and permanent structures during construction works, and analysis of biodiversity gains following reinstatement of habitats in areas of temporary construction work.
- 2.3.20 SSEN Transmission is committed to protecting and enhancing the environment by minimising the potential impacts from their construction and operational activities. As part of this approach, SSEN Transmission plc has made commitments within its Sustainability Strategy (2018), Sustainability Plan (2019) and RIIO-T2 Business Plan, for new infrastructure projects 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; positively contribute to the UN and Scottish Government Biodiversity strategies by committing to deliver 110% Biodiversity Net Gain on all Transmission projects gaining consent on or after 22 May 2023, actively enhancing biodiversity and leaving a positive legacy at all of our SSEN Transmission sites as we deliver the UK and Scotland's Net Zero targets; and
  - Work with their supply chain to understand enhancement opportunities to gain the maximum benefit during asset replacement and upgrades.
- 2.3.21 The design and evolution of the Proposed Development will be carried out in line with these commitments.

## **2.4 Future Maintenance of the Substation**

- 2.4.1 The Proposed Development would be unmanned, with operations largely being controlled remotely from SSEN Transmission's control centre, with some occasional visits for routine maintenance, inspection or repairs.
- 2.4.2 The Proposed Development requires maintenance and inspection at regular intervals and SSEN will undertake maintenance as necessary. There will be other visits as required for operational duties.

## **2.5 Decommissioning**

- 2.5.1 The Proposed Development would not have a fixed operational life and in the event that the Proposed Development is decommissioned the effects associated with the construction phase can be considered to be representative of worst-case decommissioning effects, and therefore no separate assessment is necessary.
- 2.5.2 Should the Proposed Development be decommissioned, the site would be restored as follows:
- The substation infrastructure would be removed;
  - Where removal of infrastructure such as substation foundations would result in more damage than leaving them in place, they would be left in-situ; and
  - Disturbed ground would be reinstated.
- 2.5.3 It is likely that a decommissioning strategy would be made a condition of any grant of planning consent. Full details of any subsequent decommissioning plan would be agreed with the appropriate authorities as appropriate prior to any decommissioning works commencing.

## **2.6 Residues and Emissions**

- 2.6.1 The EIA Regulations require, to the extent relevant to the specific characteristics of the Proposed Development and the environmental features likely to be affected, 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.

2.6.2 **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 potential significant environmental effects of these residues and emissions for the Proposed Development is set out in **Chapters 5 to 11** of this Scoping Report.

**Table 2.1: Residues and Emissions**

Topic	Potential Residues and Emissions
Water	<p>Construction: Surface water runoff and discharge is likely during construction. In addition, occasional discharges may arise from pumping, or over-pumping to dewater excavations for the substation platform. 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 and Hydrogeology</b>.</p> <p>Operation: Drainage from the Proposed Development will be attenuated through the use of SuDS which will discharge flows at no greater than greenfield run-off rates.</p>
Air	<p>Construction: The construction phase would require the transport of people and materials by road with associated emissions to the atmosphere. Additionally, construction activities including preparatory works and creation of the earthworks associated with the installation of the civils element of the Proposed Development have the potential to generate dust emissions along with, potentially, the operation of plant on Site. The nearest AQMA lies circa 2.5 km to the south. Dundee AQMA covers the city of Dundee and was implemented due to breaches of NO<sub>2</sub> and PM<sub>10</sub>. The proposed haul route for the majority of traffic for the Proposed Development takes access from a roundabout on the A90 which lies just within the northern periphery of the AQMA. The potential for environmental effects associated with air emissions is presented in <b>Chapter 4: Topics Scoped Out of the EIA</b>.</p> <p>Operation: No significant point source or diffuse air emissions would be produced during 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 Pollution	<p>Construction: Soil and subsoil excavation, handling and storage would be required during construction particularly for the substation platform and some access tracks. All soil and subsoil would be stored temporarily for use in reinstatement. The Applicant will adopt measures in the Construction Environmental Management Plan (CEMP) and Soil Management Plan to avoid contamination of top and subsoil during construction. There will be no offsite disposal of arisings from the construction of the Proposed Development. The potential for environmental effects associated with soil handling during construction is presented in <b>Chapter 4: Topics Scoped Out of the EIA</b>.</p> <p>Operation: 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>Construction: Noise sources during the construction phase would include increased traffic flows and noise from construction activities and plant at the Site and for forming access tracks. Further detail is provided in <b>Chapter 11: Noise and Vibration</b>.</p> <p>Operation: Transformers and other electrical equipment can emit continuous and consistent tonal noise. The potential for significant operational noise effects is considered further in <b>Chapter 11: Noise and Vibration</b>.</p>
Light	<p>Construction: The temporary construction compounds and platform working areas 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>Operation: temporary construction compounds and platform working areas are likely to be equipped with lighting installations for use during low light conditions and passive infra-red sensor-controlled security lighting.</p>
Heat and Radiation	<p>Construction: 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>Operation: Electromagnetic fields (EMFs) are emitted from the operation of substations but is typically contained within the boundary of the substation development. The potential effects</p>

Topic	Potential Residues and Emissions
	of EMFs are proposed to be scoped out of detailed assessment in the EIA as detailed in <b>Chapter 4: Topics Scoped Out of the EIA.</b>
Waste	<p>Construction: Construction operations would generate some arisings of waste such as domestic and commercial wastes and other material arisings, for example, wood, metals, and plastics. Waste will be managed in accordance with good practice guidance and implementation of Site Waste and Materials Management Plans<sup>11</sup>, to implement the waste management hierarchy<sup>12</sup>.</p> <p>Operation: Substation operation does not produce any waste. However, the general maintenance of the substation has the potential to produce a small amount of waste. This is likely to be restricted to waste associated with employees and visiting contractors, which will be recycled or disposed of as appropriate.</p>

<sup>11</sup> [NetRegs \(undated\) Site waste management plans](#)

<sup>12</sup> [Scottish Government \(2017\) Applying the waste hierarchy: guidance](#)

## 3. EIA METHODOLOGY

### 3.1 The EIA Report

- 3.1.1 The EIA Report will be prepared in accordance with the EIA Regulations, and the approach to the assessment will be informed by current best practice guidance, including the following:
- Scottish Government Planning Advice Note (PAN) 1/2013 (revision 1.0); and
  - Planning Circular 1/2017<sup>13</sup>.
- 3.1.2 The EIA work will comprise a series of specialist environmental studies which will be targeted to assess the potential significant effects which the Proposed Development is likely to have on the environment. Each topic included within the EIAR will be incorporated as a separate chapter in the main body of the EIAR, or included as an appendix if the assessment of the subject matter is required to be more detailed.
- 3.1.3 On receipt and consideration of this Scoping Report, Angus Council, following input by Statutory and non-statutory Consultees, will issue its Scoping Opinion confirming the scope of the EIAR. Throughout the EIAR, where an issue raised in the Scoping Opinion is addressed, this will be clearly referenced in the relevant chapter.

### 3.2 Baseline Definition

- 3.2.1 Environmental baseline surveys determine the character of an area prior to the implementation of a project. The area considered varies by technical discipline and is specified in the technical chapters of this Scoping Report.
- 3.2.2 Once the initial environmental baseline character is determined and key receptors identified and categorised, the potential for the impacts on this baseline, arising from completion of the Proposed Development are assessed using an appropriate methodology for each technical discipline.
- 3.2.3 A broad assessment approach for this is set out in **Section 3.3: Scoping Methodology**. For some disciplines consideration of a future baseline condition is required to fully understand the potential for significant effects of reasonably foreseeable changes at the time of preparation of the EIAR. Such changes in baseline conditions may arise due to, for example, climate change, habitat succession or land use changes. The EIAR will set out the rationale for considering a future baseline and the assumptions made in defining it. Consideration will also be given to the potential for cumulative effects where the assessment would describe effects associated with the Proposed Development in combination. The in-combination effects are described in each technical chapter respectively with the interactive effects described in **Chapter 12: Cumulative Effects**.

### 3.3 Scoping Methodology

- 3.3.1 Scoping is an important phase of the EIA process as it helps to focus the EIA on assessing the potential significant environmental effects arising from the Proposed Development that are considered most relevant to the determination of the planning application.
- 3.3.2 **Chapters 5-11** of this Scoping Report aim to provide sufficient detail to characterise the potential interactions between the Proposed Development and the receiving environment and relevant sensitive receptors, so that the potentially significant effects are identified. At this stage of the project design and EIA process the design of the Proposed Development has not been finalised. The assessments in this Scoping Report have been based on the design details to date or, where these remain uncertain, on a broader conceptual design.
- 3.3.3 In presenting a rationale for the proposed scope of environmental assessment this Scoping Report has taken the sensitivity of the current state of the receiving environment into account, utilising an understanding of the current baseline land-use and environmental conditions within and proximal to the Proposed Development. This understanding has been informed by desk-based studies and field survey. The spatial extent of the data collation and survey effort has been defined, where relevant, by study areas. These study areas are defined in the relevant technical chapters.

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<sup>13</sup> [Scottish Government \(2017\) Planning Circular 1/2017: The Town and Country Planning \(Environmental Impact Assessment\) \(Scotland\) Regulations 2017](#)



- 3.3.4 The approach to this preliminary impact assessment has taken account of the work undertaken to date defining the baseline sensitivity, the typical construction and operational activities (as far as they are understood at this stage), the physical characteristics of the Proposed Development and the potential associated emissions and residues. The potential for significant effects has then been determined using professional judgment of the EIA team based on experience from other, similar, projects with reference to relevant policy, guidance and best practice.
- 3.3.5 Where there is sufficient evidence to support scoping a topic (or part topic) out of the EIA process, this is presented in **Chapter 4: Topics Scoped Out of the EIA**.
- 3.3.6 The potential significance of residual effects identified in this Scoping Report has also taken account of key mitigation, which is termed as either Embedded or Applied Mitigation, see **Section 3.5: Mitigation**.

### 3.4 Impact Assessment Methodology

- 3.4.1 The EIA will focus on the assessment of potential significant environmental effects drawn from the preliminary findings in this Scoping Report, in agreement with the consenting authority and relevant statutory consultees. Significant effects are those which are deemed, following consideration of sensitivity of the receptors and magnitude of the potential impact, to be moderate or major as set out in **Table 3.1: Matrix for Determining the Significance of Effects**.
- 3.4.2 The assessments presented in the EIAR will consider the sensitivity of a given receptor as well as the magnitude of a potential impact. Receptor sensitivity is typically characterised in terms of sensitivity to change. Magnitude of impact is typically characterised in terms of the extent of change, or the geographical extent over which an impact may be experienced. The interaction of receptor sensitivity and predicted magnitude of impact is used to determine the likely significance of effect as set out in **Table 3.1: Matrix for Determining the Significance of Effects**.
- 3.4.3 The determination of significance of effect will broadly follow the process outlined, drawing on the environmental data collection and analysis undertaken as part of the assessments underpinning the EIAR and the professional judgment and experience of the assessor. Some assessments may reference specific thresholds to assign sensitivity, magnitude and/or significance. Where appropriate, these will be stated in the relevant chapter.

**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

### 3.5 Mitigation

- 3.5.1 The proposed substation design has been progressed through 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 site topography, slope, drainage, existing land uses and vegetation. A landscape design has been developed to define the location and position of landscaping structures which provide visual screening of the Proposed Development, and other design features and planting which mitigate landscape and visual impacts, and which provide opportunities to enhance biodiversity within the Site.
- 3.5.2 The process of mitigating impacts through design is referred to in this Scoping Report and the EIA Report 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 (i.e. after the application of other mitigation) significant effects and which are identified through the EIA process.

- 3.5.3 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.
- 3.5.4 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 Angus Council 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 D: List of Applied Mitigation Documents**. The EIA will identify and assess potentially significant effects taking account of the Embedded and Applied Mitigation.
- 3.5.5 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 to the extent possible. Where Additional Mitigation measures are required, these will be identified clearly within the relevant chapters of the EIA Report 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.

### 3.6 Cumulative Effects

- 3.6.1 Consideration will also be given to the potential for cumulative effects, where the assessment would describe effects associated with the Proposed Development, in combination with itself or other projects. The in-combination effects are described in each technical chapter respectively with the interactive effects described in **Chapter 12: Cumulative Effects**.

### 3.7 Consultation

- 3.7.1 Stakeholder engagement is a key part of the EIA process. Input from, and collaboration with consultation bodies can help address concerns. 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. 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

- 3.7.2 A first round of stakeholder and public consultation on the Proposed Development was undertaken between May and July 2023. The consultation presented information on the options which has been appraised regarding the site selection for the proposed 400 kV substation. The consultation included information regarding site options, environmental and technical considerations, and the project development process, and explained the factors which were taken into consideration in the process.
- 3.7.3 The consultation sought to capture views from:
- Statutory consultees;
  - Non-statutory consultees;
  - Community members and local organisations, including local elected members; and
  - Landowners and occupiers.
- 3.7.4 Project documents prepared to inform this consultation is available on the SSEN Transmission project website: <https://www.ssen-transmission.co.uk/projects/project-map/emmock-400kv-substation/>. 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 environmental technical assessments presented. Relevant EIA feedback is summarised in each of **Chapters 5 to 11**.

#### Outcome of Consultation

- 3.7.5 Feedback from the consultation was collated, analysed and used to inform the substation design process.
- 3.7.6 The Report on Consultation (RoC) was published by the Applicant in December 2023 which presented the outcomes of the consultation process, the responses to the feedback received and confirmed the selection of the substation site for the Proposed Development.

#### Pre-Application Consultation

- 3.7.7 A formal Proposal of Application Notice (PAN) was published in January 2024. The PAN notice was presented as an agenda item by planning officers to the Committee, supported by a paper setting out issues Angus Council consider material to the determination of the planning application.
- 3.7.8 A Pre-Application Consultation event was undertaken at Tealing Village Hall on 7 March 2024 to present the background to the Proposed Development, the site selection process, the preliminary substation designs together with a summary of the environmental and technical factors taken into account in the design process. The PAC event was an opportunity for the community to see the initial proposals and to provide feedback. A Consultation Booklet was prepared to support the event and circulated to statutory and non-statutory consultees and other interested parties. It was also published on the SSEN Transmission project website.
- 3.7.9 A second PAC event was held on 5 June 2024, at which the feedback from the consultation, the response and the Proposed Development designs will be presented.
- 3.7.10 The consultation process and outcomes will be presented in a Pre-Application Consultation Report which will be submitted alongside the Planning Application for the Proposed Development.

## 4. TOPICS SCOPED OUT OF THE EIA

### 4.1 Topics Scoped Out

4.1.1 This chapter provides the justification for excluding certain topics from the EIA. **Table 4.1: Topics Scoped Out** below lists the topics proposed to be 'Scoped Out', and the rationale for doing so.

4.1.2 It is proposed that Population and Human Health is scoped out as an individual topic for assessment in the EIAR for the reasons stipulated in **Table 4.1: Topics Scoped Out**. However, elements of Population and Human Health are inherent within the assessments that are 'Scoped In' to the EIAR. The noise assessment, for example, will consider the likely significant effects of the Proposed Development with regard to the levels of noise that can be harmful to human health and the Traffic and Transport Assessment will identify matters of road safety concern.

**Table 4.1: Topics Scoped Out**

Topic	Justification
Land Use and Recreation	<p>Land Use – The Site currently comprises agricultural land primarily given over to grass crop with traditional boundary treatments including stonewalls, ditches and fences. There are no other land uses within the Site.</p> <p>The agricultural land classification is Class 3.2, which is considered non-prime agricultural land as defined under the Macaulay Institute’s Land Capability for Agriculture Assessment (see <b>Figure 2.1: Land Capability for Agriculture</b>). The need to avoid prime agricultural land was one of the factors informing the site selection process and the Proposed Development avoids land in Classes 1, 2 and 3.1 which is present in land adjacent to the Site. Agricultural land-use in-line with that contained within the Site is common within the wider environment, resultantly the Proposed Development will not significantly detract from the agricultural land available. Land returned to agricultural use following construction will be achieved through careful design and liaison with the relevant landowner with no operational impacts on land-use beyond direct land-take anticipated.</p> <p>Recreation – Although in Scotland there is public access to most land, there are no footpaths or cycleways present on, or immediately adjacent, to the Site, and the Site supports no other forms of recreational activity. Resultantly the Proposed Development is not anticipated to have likely significant effects on recreation (see <b>Figure 4.1: Forestry and Recreation</b>).</p>
Population and Human Health	<p>Electromagnetic Fields (EMF) arise from electric charges. To prevent known effects of EMFs on health, the International Commission on Non-Ionizing Radiation Protection (ICNIRP) developed health protection guidelines in 1998 for both public and occupational exposure. In the UK, the National Institute for Health Protection’s (NIHP) Centre for Radiation, Chemical and Environmental Hazards (CRCE) has set out guidelines for exposure to EMFs.</p> <p>In March 2004, the UK adopted the ICNIRP 1998 guidelines on the advice of the National Radiological Protection Board (now part of NIHP CRCE). These guidelines set conservative exposure levels for the public to electric and magnetic fields, and they are endorsed by the World Health Organisation and the UK Government.</p> <p>The NIHP CRCE keeps under review emerging scientific research and/or studies that may link EMF exposure with health problems and provides advice to the Department of Health and Social Care on the possible need for introducing further precautionary measures.</p> <p>Transmission lines comply with the government policy of adopting the guidelines of the International Commission on Non-Ionising Radiation Protection (ICNIRP) on exposure to EMF. The Applicant ensures at all times that it complies with relevant legislation, which in turn is based on the advice of the UK Government’s independent scientific advisers, to ensure the appropriate level of protection for the public from these fields.</p> <p>In determining the level of impact, SSEN Transmission closely observe these independent guidelines which in conjunction with a Code of Practice, published in 2012 by industry and the Department for Energy and Climate Change (now part of the Department for Energy Security and Net Zero), sets out all the practical details needed to apply the exposure limits for substations.</p> <p>EMF resulting from the Proposed Development are compliant with National Policy and Industry Standards as specified with the <i>Energy Network Association Code of Practice and Electricity Safety, Quality and Continuity Regulations 2002</i>. Consequently, in setting out the scope of an EIA, SSEN Transmission can demonstrate that levels of exposure are within the limits set within these standards, within the exposure guidelines as specified in the Code of</p>

Topic	Justification
	<p>Practice on compliance, and with the policy on phasing as specified in the Code of Practice on optimal phasing, there is no potential for significant effects.</p> <p>Therefore, an assessment on EMF is proposed to be scoped out of the EIA Report in its entirety.</p> <p>The potential for significant effects on human health has also been considered with respect to other predicted effects from the Proposed Development which have the potential to affect human health determinants. Some changes in noise are predicted during construction for people living close to the Proposed Development and construction access, and there is some potential for elevated levels of dust from some construction works during dry periods. However, taking account of relevant mitigation commitments for construction environmental management, it is not predicted that there would be significant adverse effects on the health of people resident in the area. Once installed and operational the new substation would not be predicted to have significant effects from sources such as noise, emissions to air or visual impact which would give rise to significant human health effects. Population and Human Health is therefore scoped out of the EIA.</p>
Air Quality	<p>Local air quality is a combination of background air quality, representative of general levels of pollution away from busy roads and industrial activity and added emissions from local emission sources. Due to the generally rural nature of the Site, emissions from road traffic and industrial sources are likely to be minimal. The Proposed Development is not located within or adjacent to an Air Quality Management Area (AQMA). The nearest AQMA is the Dundee AQMA which lies approximately 2.5 km to the south of the Site and covers the city of Dundee, implemented due to breaches of NO<sub>2</sub> and PM<sub>10</sub>.</p> <p>Construction Phase – Emissions associated with the Proposed Development will be limited to temporary and short-term emissions during key phases of construction. Although access to Emmock Road is currently proposed to be drawn from just within the northern periphery of the Dundee AQMA, exhaust gases from vehicles and construction plant are considered unlikely to result in significant adverse effects on the basis that effects will be short-lived, associated only with key stages of construction and management plans will ensure construction traffic is directed from the north, travelling south down the A90, therefore limiting the potential for construction traffic to interact with the AQMA.</p> <p>Operational Phase – There are no operational or maintenance activities that will give rise to emissions to air. Of note, the adoption of an Air Insulated substation design deliberately avoids the risk of fugitive losses of insulating gas which can occur at gas insulated substations. Resultantly, likely significant effects on air quality as a result of the operation are not anticipated.</p>
Climate Change	<p>NPF4 sets out a clear policy emphasis on consideration of climate/carbon issues. The policies make clear that lifecycle emissions and effects on peatlands are prominent issues in this context. However, they do not replace the process that needs to be followed through EIA, in particular the ability to scope out considerations where significant environmental effects are not considered to be likely.</p> <p>Based on the Greenhouse Gas (GHG) assessment of the National Development, and the summary of this in Annex B of NPF4, grid transmission projects are an overall and inextricable part of the renewables infrastructure required and collectively they deliver (net) emissions reductions. Therefore, further consideration at the individual project level is not needed.</p> <p>However, review of the findings of the GHG assessment (and SEA ER) indicates that, at the strategic level, the negative effects predicted in relation to grid infrastructure are not predicted to be greater than minor in significance and therefore this provides some support for a scoping approach which sets out to scope out effects on the basis they would not be significant.</p> <p>Overall, the Climate Change Assessment (CCA) for NPF4 predicts a significant beneficial impact on climate for the National Development. NPF4 Policies, particularly Policy 2 (Climate Mitigation and Adaptation) and Policy 5 (Soils) imply further specific consideration (for any development) is required in relation to the potential for projects to have adverse effects on climate.</p> <p>Scoping of the climate topic, or elements of it, should follow the EIA process, i.e. the assessment is based on the potential for significant effects and should take account of committed mitigation. In determining the significance of effects for GHGs for ASTI projects which are not replacing existing developments as they support a wider network of generators and transmission grid, these projects have an overall net beneficial GHG effects.</p>

Topic	Justification
Life Cycle/Embodied Carbon and Land Use Change Carbon	<p>The CCA undertaken for NPF4 identified some potential for negative impacts relating to emissions associated with changes in land use (particularly peat loss) and from life cycle emissions associated with materials and components for new wind farms and transmission infrastructure, although these were not predicted to be significant.</p> <p>Lifecycle emissions from carbon in embodied materials and components can be scoped out from all ASTI projects, but with coverage included in EIARs (including mitigation commitments) to demonstrate minimisation of emissions through circular approaches, e.g. sustainable construction etc.</p> <p>These need to be considered in the context of the approach to scoping in EIA which is based on likely significant effects taking account of mitigation for each ASTI project. The approach taken to scoping of climate effects from land use change, particularly from effects associated with impacts on peatland, takes account of project design and mitigation to avoid peatlands, as well as the nature and type of carbon rich soils present within OHL alignments and substation sites.</p> <p>Comparison of carbon emissions estimates for the Proposed Development with existing 'baselines' (such as national or sectoral carbon budgets or targets) indicate that emissions from the Proposed Development were insignificant in relative numeric terms. Therefore, in line with IEMA guidance<sup>14</sup> to demonstrate that the Proposed Development contributes to reducing GHG emissions relative to a comparable baseline consistent with a trajectory towards net zero by 2050, the approaches and mitigation opportunities with respect to emissions from life cycle and land use sources for the Proposed Development further support the conclusions of net beneficial effects.</p> <p>Carbon in materials and components for OHLs and substations are acknowledged in NPF4 as requiring consideration for adverse climate effects. However, the calculation of the embodied carbon would arrive at an estimated carbon quantum (for example with reference to relevant carbon targets, inventories etc) and would determine that the value was not significant. The priority is to ensure that the carbon embodied in the projects would be an absolute minimum (as NPF4 Policy 2a requires) through commitment via mitigation in relation to re-use, recycling of materials, circular economy principles, supply chain procurement requirements in contracts and adoption of low carbon construction methodologies etc. This would also support demonstration of compliance with the principles of NPF4 Policy 12 (Zero Waste).</p> <p>In the context of the EIA, mitigation is therefore considered in determining whether the effects of the Proposed Development are significant. This will include a clear demonstration of the process to avoid peat through design and siting/alignment and (as the NatureScot peatland guidance<sup>15</sup> identifies) securing the production of relevant plans such as CEMPs, HMPs and PMPs. Further compensatory measures also provide clear opportunities to create carbon sequestering habitats albeit these are not considered to be 'mitigation' in the context of an environmental assessment.</p> <p>The requirement for scoping-out of climate change assessment is based on the following parameters as not being significant, namely, land use change issues (particularly with respect to peatlands) and life cycle emissions embodied in project construction materials and components.</p> <p>While they are scoped out for the Proposed Development, there is a commitment to present further information as well as key mitigation measures in the Environmental Impact Assessment Report (EIAR). This will be set out in the project description chapter to demonstrate how SSEN Transmission are at the forefront of sustainable approaches which would minimise life cycle emissions from this source.</p> <p>The design development and consideration of alternatives chapters of the EIAR includes narrative on the approach to following the mitigation hierarchy and with specific reference to how the 'detailed site-specific assessment' has been followed to show compliance with the approach inherently required in NPF4 Policy 5d. This will cross reference to specific sections of the EIAR including the ecology and biodiversity assessments which will carry more information on mitigation plans and compensation/enhancement.</p>

<sup>14</sup> Institute of Environmental Management and Assessment (2022) Institute of Environmental Management and Assessment (IEMA) Guide: Assessing Greenhouse Gas Emissions and Evaluating their Significance

<sup>15</sup> NatureScot (2023) Advising on peatland, carbon-rich soils and priority peatland habitats in development management

Topic	Justification
Socio-Economic Considerations and Assessments	<p>The socio-economic assessment undertaken as part of the needs case for National Developments as defined in National Planning Framework 4 is an established and settled policy in Scotland. Given that the Proposed Development fits within the provisions of the policy and its supporting framework it is unnecessary to revisit or argue material relevance of socio-economic impact. Furthermore, any socio-economic statement would be best set out as a standalone assessment of socio-economic impacts in the context of evidence of compliance with national and local development policy. This will be found in the Planning Statement.</p> <p><b>National Policy on Energy Infrastructure and Transmission</b></p> <p>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 underlined within the British Energy Security Strategy.</p> <p>SSEN Transmission holds a licence under the <i>Electricity Act 1989</i> for the transmission of electricity in Scotland and has a statutory duty under Schedule 9 of the <i>Electricity Act 1989</i> to develop and maintain an efficient, co-ordinated, and economical electrical transmission system in its licence area. Where there is a requirement to extend, upgrade or reinforce its transmission network, SSEN Transmission’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.</p> <p><b>National Developments</b></p> <p>NPF4 identifies 18 National Developments (ND) described as “<i>significant developments of national importance that will help to deliver the spatial strategy</i>”. Developments proposed as 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 “<i>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</i>”.</p> <p>National Development 3 (ND3) states that “<i>Strategic Renewable Electricity Generation and Transmission Infrastructure... support renewable electricity generation, repowering, and expansion of the electricity grid. A large and rapid increase in electricity generation from renewable sources will be essential for Scotland to meet its net zero emissions targets. Certain types of renewable electricity generation will also be required, which will include energy storage technology and capacity, to provide the vital services, including flexible response, that a zero-carbon network will require. Generation is for domestic consumption as well as for export to the UK and beyond, with new capacity helping to decarbonise heat, transport and industrial energy demand.</i></p> <p><i>The electricity transmission grid will need substantial reinforcement including the addition of new infrastructure to connect and transmit the output from new on and offshore capacity to consumers in Scotland, the rest of the UK and beyond. Delivery of this national development will be informed by market, policy and regulatory developments and decisions</i>”.</p> <p><b>Designation and Classification</b></p> <p>The location for ND3 is set out as being all of Scotland and in terms of need it is described as “<i>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</i>”.</p> <p>The designation and classes of development which would qualify as ND3, are “<i>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 more; 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</i>”.</p>

Topic	Justification
	<p><b>Statement of Need</b></p> <p>Underpinning the justification for scoping out socio economic assessment is the grounding principles of established national policy. This policy is reflected in both National UK and Scottish policy documents where National Grid, the Electricity System Operator (ESO), published the Pathway to 2030 Holistic Network Design (HND) in July 2022, 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 Governments’ 2030 offshore wind targets of 50 GW and 11 GW respectively. These settled policies promoted by the Scottish Government and not being challenged and consequently we argue that ND3 supports renewable electricity generation, repowering, and expansion of the electricity grid wholly in line with the spirit and practical objectives of national policy.</p> <p>The Socio-economic assessments as part of a wider needs case form an integral part of the justification for development of Scotland’s ‘Strategic Renewable Electricity Generation and Transmission Infrastructure’. This infrastructure is designated as a National Development and explicitly supported by NPF4 under the provisions set out in Policy 11(a)(ii) (Energy).</p> <p>A large and rapid increase in electricity generation from renewable sources will be essential for Scotland to meet its net zero emissions targets. Certain types of renewable electricity generation will also be required, which will include energy storage technology and capacity, to provide the vital services, including flexible response, that a zero-carbon network will require. Generation is for domestic consumption as well as for export to the UK and beyond, with new capacity helping to decarbonise heat, transport and industrial energy demand. This has the potential to support jobs and business investment, with wider economic benefits.</p> <p>The electricity transmission grid will need substantial reinforcement including the addition of new infrastructure to connect and transmit the output from new on and offshore capacity to consumers in Scotland, the rest of the UK and beyond. Delivery of this national development will be informed by market, policy and regulatory developments and decisions.</p> <p>Additional electricity generation from renewables and electricity transmission capacity of scale is fundamental to achieving a net zero economy and supports improved network resilience across Scotland. The development proposed will facilitate capturing renewable energy potential in [the areas] as well as delivering wider social and economic benefits.</p> <p>These proposals have been determined as critical to enable the delivery of the UK and Scottish Government’s renewable energy targets.</p> <p>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. The need for these reinforcements has been further underlined within the recent British Energy Security Strategy. This sets out the UK Government’s plans to accelerate homegrown power to support increased UK energy independence.</p> <p>In considering the proposed developments direct and indirect effects, the lifecycle greenhouse gas emissions assessment concludes this development will likely have an overall net positive impact on achieving national greenhouse gas emissions reduction targets.</p> <p>Where statements of need, set out in as a requirement of the <i>Town and Country Planning (Scotland) Act 1997</i> as development considered as a national development aligned with settled national policy, socio economic assessments sits within the wider planning statement that support a planning application. Accordingly, a socio-economic assessment is scoped out of EIA based on an understanding of the relative scales of individual transmission infrastructure projects proposed in this project where any assessment of impacts is minor and likely not significant.</p> <p>The assessment is based on the founding principles of need as set out in Annex B of NPF4, as sufficient justification for development of Scotland’s ‘Strategic Renewable Electricity Generation and Transmission Infrastructure’.</p>
Major Accidents and Disasters	<p>Given the nature and rural location of the Proposed Development, the potential for effects related to the vulnerability to major accidents and disasters is limited. Notably, the Proposed Development will be designed in-line with the <i>Construction (Design and Management) Regulations 2015</i> (CDM Regulations). These regulations ensure the consideration of safety during the design, construction and operation of the Proposed Development and make it unlikely the Proposed Development would contribute to major accidents.</p>



Topic	Justification
	<p>The Proposed Development is largely inert and, by design, will be resilient to the likely effects of climate change. Further, the Proposed Development itself is unlikely to have the potential to act as either a source or a pathway for a hazard, making it unlikely the Proposed Development would contribute to effects arising from a disaster.</p> <p>Additionally, the Site will be secured by perimeter fencing and other relevant security measures which will limit the likelihood of the wider public or road traffic interacting with the Proposed Development. This further reduces the likelihood that the Proposed Development will contribute to major accidents or effects arising from disasters.</p>
Geology and Soils	<p>The underlying geology at the Site is the Dundee Flagstone Formation which comprises a mixture of medium to coarse grained, cross-bedded sandstones and substantial, distinctive, flaggy sandstones interbedded with minor siltstones and mudstones, interdigitated with the Ochil Volcanic Formation. This is overlain with a surface deposits of Devensian Till. This assemblage is common within the wider area and does not comprise an area of geological rarity or interest.</p> <p>The area is not associated with the release of Radon gas with the Site lying in the lowest band of Radon potential.</p> <p>Although the Site is given over to agriculture, the soils on Site are not Prime Agricultural Land and resultantly are not a material consideration in planning. Given the Site's history, and current use, as arable land it is not anticipated that soil pollution is present and therefore construction of the Proposed Development is considered unlikely to mobilise contaminants.</p>
Material Assets and Waste	<p>The location of the Proposed Development was selected to avoid key utilities infrastructure, such as gas pipelines. The two wind turbines on-site will be decommissioned ahead of construction. The construction phase of the Proposed Development will generate some waste that will be managed in accordance with good practice guidance and implementation of a Site Waste Management Plan (SWMP) to implement the waste management hierarchy. Waste that arises is likely to be domestic and commercial wastes and other material arisings, for example, wood, metals and plastics, that will be segregated to allow recycling and appropriate disposal of non-recyclable materials and surplus building materials that will be returned to suitable secondary material processors. Greater information on these measures will be included in the outline Construction Environmental Management Plan (CEMP) that will be prepared by the Principal Contractor.</p> <p>Substation operation does not produce any waste. During the operational phase of the Proposed Development, maintenance activities will generate waste, but this will not be in significant quantities and will likely be restricted to waste associated with employees and visiting contractors. It will be managed on site and separated into recyclable waste streams accordingly.</p>

## 5. LANDSCAPE AND VISUAL AMENITY

### 5.1 Introduction

5.1.1 This chapter sets out the proposed approach to assessing the potential effects of the Proposed Development on landscape character and visual amenity through a Landscape and Visual Impact Assessment (LVIA). It provides an overview of the baseline landscape and visual resources and receptors, drawing on desk and field work undertaken to date and identifies the potential significant effects of the Proposed Development on landscape designations, landscape character and visual amenity. The chapter concludes by setting out some elements of the assessment of effects that are proposed to be scoped out of further consideration from the LVIA.

#### Feedback from Consultation

5.1.2 In response to the Consultation Document issued in May 2023, 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. Angus Council provided comments relating to cumulative landscape and visual impacts with other similar developments in the area, particularly on residential receptors. Potential effects on residential receptors and cumulative landscape and visual effects are considered in **Section 5.7: Potential Significant Effects** of this chapter.

5.1.3 This chapter has been prepared by LUC.

### 5.2 Study Area

5.2.1 Informed by the dimensions of the Proposed Development, the LVIA study area comprises a 3 km offset from the Site in all directions. The study area is presented in **Figure 5.1: Preliminary Viewpoint Locations and Draft Zone of Theoretical Visibility**.

5.2.2 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 Site. The location of the viewpoints which have been selected to inform the LVIA (see **Section 5.6: Mitigation**) has been informed by Zone of Theoretical Visibility (ZTV) mapping (see **Figure 5.1: Preliminary Viewpoint Locations and Draft Zone of Theoretical Visibility**), which indicates the areas from which the Proposed Development would be theoretically visible, and supplemented by field work as the LVIA progresses.

### 5.3 Approach

#### Desk-based Study

5.3.1 The determination of the landscape and visual baseline has been informed through desk-based studies carried out during the site selection stage of the project. This has included assessing suitability of the Site with relation to landscape character and designations, landscape susceptibility, principal visual receptors and physical suitability of the Site. Data sources used to inform the baseline include the review of Ordnance Survey (OS) maps (1:25,000 and 1:50,000 scale), aerial photography and online street photography and review of NatureScot's Scottish Landscape Character Types (map and descriptions).

#### Site Visits

5.3.2 Desk-based studies have been supplemented by site visits to verify the character of the landscape and key visual receptor groups to be considered within the LVIA. Further site visits will be undertaken as part of the LVIA to further establish the existing landscape and visual baseline, and to help understand likely effects which may arise as a result of the Proposed Development.

### 5.4 Baseline Conditions

5.4.1 The study area is located south of the Sidlaw Hills in Angus and extends across a landscape that comprises open agricultural lowlands with scattered properties and existing infrastructure. The landform of the study area generally rises to the north and northwest towards the Sidlaw Hills. Landcover is characterised by open, small to medium scale arable and pastoral fields, with limited features to define field boundaries. Native woodland, individual trees and hedgerows are sparse across the study area and are generally located along minor roads or along field boundaries. The northern part of the study area comprises the southern fringe of the eastern edge of the Sidlaw Hills, which form a characteristic ridgeline and a key backdrop to the lowland landscape to the south of these hills, including the Site. The southern edge of the study area meets the northern edge of

Dundee, approximately 2.8 km to the south of the Site. A number of individual residential properties are scattered throughout the study area including, but not limited to, the dwelling at Balkemback located outside the Site along its northeastern boundary and Balkemback Cottages located approximately 50 m to the north of the Site. Views from these scattered properties tend to extend across open agricultural fields. The settlement of Tealing is located approximately 1.6 km to the east of Site and the settlement of Bridgefoot is located approximately 1.8 km to the southwest of the Site.

- 5.4.2 Two wind turbines are located within the western part of the Site and an overhead line passes through the southern part of the Site in an east to west orientation. A number of other high voltage overhead lines are located within 1 km of the Site to the east, all of which connect to the existing Tealing Substation located approximately 230 m to the southeast of the Site. These developments contribute towards the character of the area having a greater sense of industrial influence. In addition, a number of telecommunications masts are located across the study area, including three at the summit of Craigowl Hill, approximately 2 km to the northwest of the Site and one to the southwest of Ironside Hill approximately 2.5 km to the north of the Site. The A90 dual carriageway is located approximately 2.5 km to the east of the Site.

## 5.5 Sensitive Receptors

### Landscape Character

- 5.5.1 The study area extends across several Landscape Character Types (LCTs), identified as part of NatureScot's 2019 National Landscape Character Assessment<sup>16</sup> and shown in **Figure 5.2: Landscape Character Types**. The Site is located within the Dipslope Farmland LCT and will have physical and perceptual effects on this LCT. The relevant key characteristics of the 'host' Dipslope Farmland LCT are as follows:

- *“Extensive area of lowland farmland running parallel to the coastline, generally sloping from Sidlaws and Forfar Hills in north-west to near sea level in the south-east.*
- *Dominated by productive agricultural land, it has an open, medium-scale character which is predominantly productive arable land use with simple geometric field patterns.*
- *Low woodland cover, except on large estates which have pine shelter belts and hedgerows, and along river corridors. Where located on the slopes it reinforces the change in gradient.*
- *Dispersed settlement pattern, including some suburban development which extends outwith the historic settlement confines.*
- *Infrequent single and small clusters of a range of domestic and medium scale commercial turbines along the elevated slopes, prominent due to their elevation and the lack of significant woodland cover.*
- *Variety of views from within the landscape, but typically, given the broad fall of slope to the east, there is a strong visual relationship with views along the coast and wide panoramas out to open sea. Intervisibility across the Tay firth to the Fife coast is pronounced around Dundee and reduces in clarity with distance and prominence further north.”<sup>17</sup>*

- 5.5.2 The LVIA will also consider perceptual effects on the Lowland Hill Ranges LCT within the northern part of the study area. The Urban LCT comprising the built-up area of Dundee will have very limited theoretical visibility, as illustrated by the ZTV on **Figure 5.1: Preliminary Viewpoint Locations and Draft Zone of Theoretical Visibility**, and therefore it is not proposed that effects on this LCT will be assessed within the LVIA.

### Landscape Designations

- 5.5.3 There are no nationally, regionally or locally designated landscapes or Wild Land Areas within the study area.
- 5.5.4 At the time of writing, Angus Council had completed public consultations in relation to a number of proposed Local Landscape Areas (LLAs)<sup>18</sup>. The proposed Sidlaw LLA is located within the northwestern part of the study area, approximately 1.3 km from the Site. Since these LLAs had yet to be formally adopted at the time of writing, they have not been considered further in this

<sup>16</sup> Scottish Natural Heritage (now NatureScot) (2019) SNH National Landscape Character Assessment

<sup>17</sup> [Scottish Natural Heritage \(now NatureScot\) \(2019\) SNH National Landscape Character Assessment – Landscape Character Type 387: Dipslope Farmland](#)

<sup>18</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.

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**.

#### Visual Receptors

5.5.5 There are a number of potentially sensitive visual receptors in the LVIA study area listed below:

- People living in and moving around the study area, including those at individual houses within the study area and those in the settlements of Tealing and Bridgefoot;
- People engaged in outdoor recreation such as those using core paths and those at hill summits and promoted viewpoints including at Balkello Hill in the north-western part of the study area, as well as those walking or cycling in rural areas more generally; and
- People travelling along the road network, including minor roads and the A90.

## 5.6 Mitigation

5.6.1 In-line with the hierarchy of mitigation set out in **Section 3.5: Mitigation**, the following section describes the Embedded and Applied Mitigation which is considered relevant to the Proposed Development in the context of this technical 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 5.7: Potential Significant Effects**.

#### Embedded Mitigation

5.6.2 As described in **Section 3.5: Mitigation**, the design evolution for the Proposed Development has included changes which result in a reduced likelihood of negative, 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 substation platform level has been designed to minimise the visibility of the substation while balancing the requirement for cut and fill associated with civil engineering earthworks.

- A detailed process of landscape and civil engineering design has been undertaken to integrate the proposed substation into the local landscape as far as possible. This includes a preliminary landscape design incorporating a series of earth bunds around the platform to help screen it from views experienced by visual receptors in the surrounding landscape.

5.6.3 The landscape design incorporates varied ridges and crests and sinuous type treatments to the bunds to provide a naturalistic appearance to the earthworks once they have been established and vegetated. A range of planting types has been proposed including areas of woodland and shelterbelt tree planting to provide further screening of the development in the longer term with areas of shrub, scrub and open grassland and wildflower areas to provide diversity of treatments in areas where OHL connections prevent the establishment of trees.

#### Applied Mitigation

5.6.4 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 SSEN 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 3.5: Mitigation** and **Appendix D: List of Applied Mitigation Documents**. The Applied Mitigation considered relevant to this technical assessment, draws on but is not limited GEMP TG-NET-ENV-511 and includes 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.

### Summary and Next Steps

- 5.6.5 The Applicant is committed to delivering both Embedded and Applied Mitigation as set out in **Section 3.5: Mitigation** and as described above in relation to this technical assessment. The mitigation described above has been applied when considering the potential for the Proposed Development to result in likely significant effects.
- 5.6.6 The impact assessment will, therefore, assess the potential for likely significant residual effects to arise and identify any further mitigation, in addition to the Embedded and Applied Mitigation, necessary to reduce their significance (referred to as 'Additional Mitigation') as far as practicable.
- 5.6.7 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.

## **5.7 Potential Significant Effects**

5.7.1 Landscape and visual assessments are distinct, but interconnected, processes and the assessment will describe potential landscape and visual effects separately. The LVIA will consider potential effects, after considering the proposed landscaping measures, on the following:

- 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).

5.7.2 Sources of effects during the construction and operation of the Proposed Development include:

- Introduction of construction activity and vehicular/personnel movements on local roads;
- Construction and operation of compounds;
- Construction lighting, particularly during hours of darkness in winter months;
- Construction of temporary and permanent access tracks;
- Construction of the Air Insulated Switchgear (AIS) substation components; and
- The permanent introduction of a substation and associated security fencing and lighting. It is noted that operational lighting will not be permanent, but only needed for planned maintenance during winter months in hours of darkness.

### Landscape Character

- 5.7.3 The construction and operation of the Proposed Development would introduce noticeable and intrusive man-made elements into the landscape, including gantries, transformers, electrical connections and infrastructure, a control building, access roads, security fencing, emergency lighting, and sustainable drainage systems (SuDS), all of which affect landscape character both physically and perceptually.
- 5.7.4 During construction, effects on landscape character are likely to arise from the introduction of construction activities (including vehicle movement), use of lighting in the winter months, presence of construction equipment and the physical loss or fragmentation of distinctive landscape elements. Changes in land use and land cover are considered most likely to result in significant effects, as this will result in permanent physical changes to the landscape (e.g. from an agricultural field to a substation). Other construction effects will be temporary and will cease at the end of construction works. Reinstatement of land cover may take longer but over time will reduce the construction stage effects. Given rural landscapes tend to be darker during the evening or at night compared with urban areas, there is potential for significant effects on landscape character as a result of the use of lighting during the construction period (approximately 3-4 years) particularly in the winter months. Due to the temporary nature of construction, effects associated with construction lighting are anticipated to be short to mid-term (around 3-4 years). Lighting effects will therefore be considered within the assessment of landscape effects in the LVIA.
- 5.7.5 During operation, effects would arise from the introduction of above ground infrastructure elements in the landscape including the AIS, fencing, lighting for planned maintenance visits during hours of darkness in winter and any permanent access tracks. There is potential for these effects to result in significant adverse effects on landscape character across LCTs within the study area. Cumulative effects on landscape character may also arise from the Proposed Development and other proposed

developments, including the new Kintore to Tealing 400 kV overhead line, the proposed tie-ins connecting Tealing Substation with existing OHLs and possible Battery Energy Storage projects which have been discussed in the area.

#### Visual Amenity

- 5.7.6 There are likely to be significant effects during both construction and operation on views experienced by some of the closer residents within the ZTV, with more open views towards the site. Significant effects may occur on views from individual residential properties, residential communities and settlements within the study area. Potential effects will continue to be considered as the design of the Proposed Development evolves.
- 5.7.7 There are likely to be significant effects on the visual amenity of people visiting and/or taking part in recreational activities within the ZTV including use of core paths and recreational routes, and people at hill summits and promoted viewpoints, during both construction and operation.
- 5.7.8 There are likely to be significant effects on the visual amenity of people travelling along some parts of the road network within the ZTV, given the proximity of minor roads to the substation. There is potential for significant adverse effects during both construction and operation.
- 5.7.9 There is potential for significant effects on the visual amenity of sensitive receptors in proximity to the Site as a result of the use of lighting during the construction period (approximately 3-4 years) particularly in the winter months. Due to the temporary nature of construction, effects associated with construction lighting are anticipated to be short to mid-term. Lighting effects will be considered within the assessment of visual effects in the LVIA.
- 5.7.10 The potential for likely significant visual effects of the Proposed Development on residents within their own homes will be reduced through proposals for mitigation planting, where practicable. A residential visual amenity assessment (RVAA) will consider properties within 500 m of the Proposed Development to determine the level of effect of the Proposed Development on residential visual amenity from each property.
- 5.7.11 Cumulative visual effects associated with the Proposed Development when seen in combined, successive or sequential views with other proposed developments may also arise.

### 5.8 Assessment Scope and Methodology

- 5.8.1 The landscape and visual receptors that are proposed to be scoped into the LVIA are set out in **Table 5.1: Proposed Scope of LVIA**.

**Table 5.1: Proposed Scope of LVIA**

Receptor	Phase	Scoped In/Out	Justification
Landscape Character	Construction and Operation	Scoped In	Physical effects on the LCT (Dipslope Farmland) which intersects with the Proposed Development and perceptual effects upon the Lowland Hill Ranges LCT in the north of the study area from which potential visibility is indicated by ZTV maps.
Representative Viewpoints	Construction and Operation	Scoped In	<p>Effects on visual receptors within the study area, i.e. 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; and</li> <li>• People travelling on the local road network, including major and minor roads.</li> </ul> <p>A list of indicative preliminary viewpoints can be found in <b>Table 5.2: Preliminary LVIA Viewpoints</b>. Further consultation would be sought to agree final viewpoint locations and visualisation types.</p>

Receptor	Phase	Scoped In/Out	Justification
Visual Receptors at Settlements/Communities/ Residential Properties	Construction and Operation	Scoped In	ZTV analysis and field work is used to determine which settlements and residential properties within the study area are to be included in the assessment. Settlements with no theoretical visibility (e.g. Bridgefoot and Strathmartine, Newbigging, and Dundee) have been scoped out. Settlements with theoretical visibility include Tealing, Kirkton of Tealing and Inveraldie which will be considered within the LVIA.
Residents within 500 m of the Proposed Development	Operation	Scoped In	Properties within approximately 500 m of the Proposed Development will be considered for inclusion within the RVAA. ZTV analysis and field work would help to determine which properties need to be examined in the RVAA.
Recreational Receptors, including on core paths and hill summits	Construction and Operation	Scoped In	ZTV analysis and field work is used to determine which recreational routes/locations within the study area are to be included in the assessment. Balkello Hill will be included as a viewpoint in the LVIA, representing views of hill walkers in the north of the study area. The following recreational routes (core paths) will also be considered within the LVIA assessment: <ul style="list-style-type: none"> <li>• Kirkton of Tealing to Balnuth;</li> <li>• Kirkton of Auchterhouse to Balluderon; and</li> <li>• Prieston to Glen Ogilvie.</li> </ul> Other core paths in the study area have limited theoretical visibility and given the intervening distance and presence of vegetation along the route are unlikely to experience significant effects. It is therefore proposed to scope these out.
Receptors Travelling on Roads	Construction and Operation	Scoped In	Desk top study and ZTV analysis and field work would determine which roads within the study area are to be included in the assessment.
Landscape Character and Visual Amenity During Hours of Darkness	Construction	Scoped In	Substation will be lit for a period of 3-4 years during construction hours that take place during the darker winter months. There is potential for short to mid-term effects on landscape character and visual amenity during the construction period.
Landscape Character and Visual Amenity at Night	Operation	Scoped Out	Substation will not be permanently lit and the use of lights will be limited to occasional maintenance at night. No likely significant effects on landscape character or views at night.

#### Assessment Methodology

5.8.2 The LVIA, Cumulative LVIA and presentation of landscape and visual effects will be carried out using the approach set out in **Section 3.3: Scoping Methodology** and in line with relevant legislation and standards, as well as the following guidelines:

- 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>19</sup>;

<sup>19</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) Residential Visual Amenity Assessment (RVAA) Technical Guidance Note 02/19;
- Landscape Institute (2019) Advice Note 01/11 Photography and photomontage in landscape and visual impact assessment;
- 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>20</sup>;
- SSEN (2022) Substation Site Selection Procedures for Voltages at or above 132kV; and
- SSEN (2022) Substation Site Selection Procedures for Voltages at or above 132kV, Appendix A: Holford Rules: Supplementary Notes on the Siting of Substations.

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

- Ordnance Survey (OS) Maps;
- Aerial photography, Google Earth and Google Maps Street View;
- Scottish Natural Heritage (2012) Landscapes of Scotland – descriptions; and
- NatureScot (2019) Scottish Landscape Character Types, Map and Descriptions.

#### Field Surveys

5.8.4 Surveys have been undertaken during winter months and are being undertaken during summer months to fully understand the maximum level of visibility of the Proposed Development as part of the landscape and visual baseline. Visual Site surveys and verified photography to inform the creation of wirelines and photomontages, are being undertaken at the indicative viewpoints listed in **Table 5.2: Preliminary LVIA Viewpoints** and set out on **Figure 5.1: Preliminary Viewpoint Locations and Draft Zone of Theoretical Visibility**. Verified photography is being undertaken in accordance with guidance from NatureScot<sup>21</sup> and the Landscape Institute<sup>22</sup>. Photomontages are being prepared in accordance with the Landscape Institute’s TGN 06/19 Visual Representation of Development Proposals.

#### Viewpoints and Visualisations

5.8.5 The identification of visual receptors has been informed by ZTV mapping and ground truthing. Visual receptors outside the ZTV have been discounted. Additional viewpoints may be required to inform the assessment and would be discussed and agreed with Angus Council and NatureScot.

5.8.6 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, as listed in **Table 5.2: Preliminary LVIA Viewpoints** and shown on **Figure 5.1: Preliminary Viewpoint Locations and Draft Zone of Theoretical Visibility**. These viewpoints form a preliminary list of proposed representative locations to be assessed in the LVIA and built upon following ZTV analysis and further engagement with consultees.

**Table 5.2: Preliminary LVIA Viewpoints**

VP	Viewpoint Name	Grid Reference (Easting, Northing)	Reason for Selection
1	Cairns, Balkello Hill	336176, 739447	Represents views to the southeast experienced by recreational receptors at the promoted viewpoint at the summit of Balkello Hill where expansive panoramic views are available.
2	South Balluderon	337580, 737901	Represents views to the east experienced by residential receptors and road users to the west of the Site around South Balluderon.
3	Balkemback Cottages	338368, 738213	Represents views to the south experienced by residential receptors and road users to the north of the Site around Balkemback.
4	Myreton of Claverhouse	339412, 736749	Represents views to the north and northwest experienced by residential receptors and road users around to the southwest of Tealing.

<sup>20</sup> Although the guidance related to the production of visualisations of wind farm development, elements of the methodology and approach are applicable for other types of development.

<sup>21</sup> Scottish Natural Heritage (now NatureScot) (2017) Visual Representations of Wind Farms (Version 2.2)

<sup>22</sup> Landscape Institute (2019) Advice Note 01/11: Photography and photomontage in landscape and visual impact assessment



VP	Viewpoint Name	Grid Reference (Easting, Northing)	Reason for Selection
5	North of Wynton	337567, 737362	Represents views to the east experienced by residential receptors and road users around Wynton to the west.
6	Minor Road near Kirkton of Tealing	340166, 738185	Represents views to the southwest experienced by residential receptors and road users near Tealing.

#### Judging Levels of Effect and Significance

- 5.8.7 Judging the significance of landscape and visual effects requires consideration of the sensitivity 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.
- 5.8.8 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).
- 5.8.9 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.

#### Night-time Effects

- 5.8.10 There is potential for effects on landscape character and visual amenity as a result of lighting during the construction period of approximately 3-4 years. Due to the temporary nature of the construction period, these effects are likely to be short to mid-term; however, they will be considered within the assessments of landscape and visual receptors in the LVIA.

#### Residential Visual Amenity Assessment

- 5.8.11 Properties and group of properties within approximately 500 m of the Proposed Development that are likely to have visibility of the Proposed Development, will be included within the RVAA, in accordance with the Landscape Institute’s Technical Guidance Note<sup>23</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*”. As such, properties for inclusion in the RVAA will be considered on a case-by-case basis, with the 500 m study area applied as a guide. The 500 m study area for the RVAA has been informed by the scale and nature of the Proposed Development, ZTV analysis, and fieldwork undertaken in the area, and it considers settlement pattern around the Proposed Development. In addition to ZTV analysis and fieldwork, each property and group of properties included in the RVAA will be informed by aerial photography and wireframes to determine the scale of visual effects. Aspects such as combined and successive views, and encirclement will be considered.
- 5.8.12 The RVAA will aim to determine whether visual effects on the residential property are considered to breach the ‘residential visual amenity threshold’.
- 5.8.13 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.

<sup>23</sup> [Landscape Institute \(2019\) Technical Guidance Note 2/19: Residential Visual Amenity Assessment \(RVAA\)](#)

- Step 4: Formation of the RVAA judgement (the Residential Visual Amenity Threshold), in line with RVAA Technical Guidance Note 02/19.

#### Cumulative Assessment

- 5.8.14 Operational developments, such as existing substations, wind farms and other vertical infrastructure (e.g. overhead lines and telecommunications masts), form part of the existing baseline environment. The effects of the Proposed Development in addition to these features will be considered within the primary LVIA.
- 5.8.15 However, there is the potential for future cumulative effects to arise throughout the study area from the addition of the Proposed Development alongside other developments which are either under construction, consented or the subject of a valid application for consent (proposed). The cumulative assessment will consider the potential for the Proposed Development to have different effects in relation to other consented and proposed projects that together form a future baseline. This future baseline 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.
- 5.8.16 **Chapter 12: Cumulative Effects** sets out consented and possible developments proposed to be considered in the Cumulative LVIA, listed below, which will be confirmed with Angus Council and NatureScot:
- The proposed Kintore to Tealing 400 kV overhead line (OHL) which is subject to a separate section 37 consent application;
  - The proposed tie-ins to redirect two 275 kV OHLs currently connecting Tealing Substation into the proposed Emmock substation; which are subject to separate section 37 consent applications.
  - The proposed tie-back connection between Emmock and Tealing substations (short lengths of twin 275 kV OHLs), also subject to a separate section 37 application; and
  - The proposed Battery Energy Storage System (BESS) at Balkemback Farm.

### 5.9 Issues Scoped Out

- 5.9.1 Residential properties located at a distance greater than 500 m from the Proposed Development will not be assessed as part of the RVAA.
- 5.9.2 Significant effects on landscape character and visual amenity at night are not anticipated during operation. During normal operation the Proposed Development will not be permanently lit and the use of lighting will be limited to occasional maintenance activities that are carried out at night. As such, any effects on landscape character and views at night during operation are not predicted to be significant. It is therefore proposed that the assessment of night-time effects in relation to landscape character and visual amenity during operation will be scoped out of the LVIA.

### 5.10 Summary

- 5.10.1 The LVIA will describe how the landscape design will avoid or mitigate much of the possible landscape and visual impact. It will go on to identify and evaluate the predicted residual effects of the Proposed Development on landscape and visual receptors within 3 km of the Proposed Development, taking the landscape design into account. This will be undertaken via desk study and through field surveys and the use of verified imagery.
- 5.10.2 The effects of the Proposed Development on landscape character and on views and visual amenity would be assessed and mitigation measures, where appropriate, would be adopted through the siting and design of the substation to prevent, reduce, or offset any likely significant adverse effects identified. These will include the provision of landscape earthworks and planting. Cumulative effects from the Proposed Development in combination with other relevant consented and proposed developments, including the associated proposed Kintore to Tealing 400 kV overhead line, would also be considered.

## 6. CULTURAL HERITAGE AND ARCHAEOLOGY

### 6.1 Introduction

6.1.1 This chapter sets out the proposed approach to assessing the potential effects of the Proposed Development on cultural heritage. It 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.

6.1.2 This chapter has been prepared by CFA Archaeology Ltd.

#### *Feedback from Consultation*

6.1.3 In response to the Consultation Document in May 2023, Historic Environment Scotland (HES) advised that the Proposed Development would be unlikely to raise issues of national interest, however it is likely that the Proposed Development would have some adverse impacts to the setting of designated assets. HES advised that a full assessment should be undertaken to confirm this once potential mitigation options are known. Production of photomontages were suggested to demonstrate the potential impact on the setting of key Scheduled Monuments.

### 6.2 Study Area

6.2.1 The following study areas have been used for this scoping assessment and will be adopted for the cultural heritage assessment presented in the EIA Report:

- Inner Study Area: The boundary of the Site (**Figure 6.1: Cultural Heritage Study Area**) will form the Inner Study Area to identify any heritage assets, both those previously recorded in the Historic Environment Record (HER) and on designation lists, and those identified through desk-based assessment, that could be directly affected by the Proposed Development.
- Outer Study Area: A wider study area, extending to 3 km from the Site boundary (**Figure 6.1: Cultural Heritage Study Area**), aligned with the LVIA study area and agreed through consultation with HES and Aberdeenshire Council Archaeology Service (ACAS), has been used, in combination with the Proposed Development Zone of Theoretical Visibility (ZTV) model, to identify heritage assets with statutory or non-statutory designations that could have their settings affected by the Proposed Development. Consideration will also be given to identifying designated heritage assets beyond 3 km where long-distance views and intervisibility are considered to be an important aspect of their setting.

### 6.3 Approach

6.3.1 The cultural heritage baseline has been identified through a desk-based study carried out during the site selection stage, drawing on data from the Angus HER, and designation lists held by HES (Spatial Data Warehouse). The data from HES was obtained in November 2023 and data from the HER was obtained in September 2023, these datasets will be checked for updates during the preparation of the EIAR.

6.3.2 That data was augmented by targeted site visits to designated heritage assets where their settings could potentially be affected by the Proposed Development. The purpose of the site visits was to assess the character and sensitivity of the settings of the heritage assets identified.

### 6.4 Baseline Conditions

#### *Designated Assets*

6.4.1 There are no designated assets (world heritage sites, scheduled monuments, listed buildings, inventory gardens and designed landscapes, inventory battlefields or conservation areas) within the Inner Study Area.

6.4.2 Within the Outer Study Area there are:

- Nine scheduled monuments of national importance. The closest of these scheduled monuments to the Proposed Development is 'Balkemback Cottages, stone circle (SM 2868)', located 0.4 km to the north.
- 50 listed buildings (two category A listed, of national importance; 27 category B listed, of regional importance; and 21 category C listed, of local importance). The closest listed building to the Proposed Development is category C listed Balkemback Farmhouse (LB 17449), located 0.1 km to the north of the Site.

- 6.4.3 The majority of the listed buildings are either small rural residential properties (i.e. farmhouses, cottages, etc), bridges, and agricultural features which have generally localised settings, where long distance views, or prominent visibility, are not important aspects of their settings, or are buildings on the northern urban edge of Dundee including a hospital, churches, factories, railway stations and town houses whose setting is primarily defined by the townscape of Dundee.
- 6.4.4 There are no world heritage sites, inventory garden and designed landscapes, inventory historic battlefields, or conservation areas within the Outer Study Area.

#### Undesignated Assets

- 6.4.5 Within or partly within the Inner Study Area are two non-designated heritage assets recorded in the HER. Of these, one is a historical record of stone coffins (NO33NE17), probably short cist burials containing ashes and urns, recorded in the Old Statistical Records (1792) as having been found in this location in the late 18<sup>th</sup> century. The second heritage asset is a sheepfold (NO33NE0051), first shown on the Ordnance Survey Map of 1923 and which remains in use.
- 6.4.6 Within the Outer Study Area the HER records five assets it identifies as being of regional significance, including four cropmarks of possible prehistoric enclosures (NO33NE0022, NO33NE0023, NO33NE0025 and NO43NW0028) and one recorded site of a bronze age hoard (NO33SW0004). The closest asset of regional significance to the Proposed Development is the Wynton Wood ring ditch cropmark (NO33NE0023) located 400 m to the west of the Site.

### 6.5 Sensitive Receptors

- 6.5.1 Of the assets recorded within the Inner Study Area, the most sensitive receptor to construction (direct) impacts is Balkemback Cottages stone coffins (NO33NE17). Although this is recorded as 'site of' in the HER, it is indicative of the presence of prehistoric burials in the area. There are other recorded sites in the wider surroundings that include prehistoric settlement and other remains (see **Section 6.4: Baseline Conditions** above). These records hint at a high archaeological potential and it is not known if the cists have been removed or their location accurately recorded. It is possible that other buried archaeological remains of similar Bronze Age date may be present within the Site.
- 6.5.2 Of the designated heritage assets within the Outer Study Area, the three closest are in this case the most likely to be sensitive to setting impacts, these are:
- Balkemback Cottages, stone circle 500 m WNW of (SM 2868) scheduled monument, 400 m to the northwest of the Site;
  - Category A listed South Balluderon Farm, Steading (LB 17458) 640 m to the west of the Site; and
  - Category C listed Balkemback Farm, Farmhouse (LB 17449) 100 m to the northeast of the Site.
- 6.5.3 For those heritage assets outside the 3 km study area, the designated asset considered to be especially sensitive to changes on its setting from the development is Craig Hill, Fort and Broch (SM 3038). This monument comprises the remains of a broch and fort that occupies Craig Hill, around 3.9 km to the southeast of the Site boundary and commands extensive views over the surrounding area.
- 6.5.4 The potential for designated heritage assets within the Outer Study Area to have their setting significantly adversely affected will be considered further during the EIA design stage and reported in the EIA Report.

### 6.6 Mitigation

- 6.6.1 In-line with the hierarchy of mitigation set out in **Section 3.5: Mitigation**, the following section describes the Embedded and Applied Mitigation which is considered relevant to the Proposed Development in the context of this technical 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 6.7: Potential Significant Effects**.

#### Embedded Mitigation

- 6.6.2 As described in **Section 3.5: Mitigation**, the design evolution for the Proposed Development has included changes which result in a reduced likelihood of negative, 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 design and location of the substation platform;

- The landscape bunding; and
- The planting treatments also provide screening of the substation development from key cultural heritage designated sites in the vicinity of the proposals.

#### Applied Mitigation

6.6.3 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 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 3.5: Mitigation** and **Appendix D: List of Applied Mitigation Documents**. The Applied Mitigation considered relevant to this technical assessment will be captured in the CEMP and includes but is not limited to:

- Impact on previously unidentified archaeological remains will be mitigated through a programme of archaeological works to be developed in consultation with ACAS and detailed in a Written Scheme of Investigation (WSI).

#### Summary and Next Steps

- 6.6.4 The Applicant is committed to delivering both Embedded and Applied Mitigation in relation to this technical assessment. The mitigation described above has been applied when considering the potential for the Proposed Development to result in likely significant effects.
- 6.6.5 The impact assessment will, therefore, assess the potential for likely significant residual effects to arise and identify any further mitigation, in addition to the Embedded and Applied Mitigation, necessary to reduce their significance (referred to as 'Additional Mitigation') as far as practicable.
- 6.6.6 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.

### **6.7 Potential Significant Effects**

6.7.1 The potential effects on cultural heritage, associated with the construction and operation of the Proposed Development are:

- Direct physical effects: Where the physical fabric of the asset is removed or damaged as a direct result of construction work associated with the Proposed Development.
- Indirect physical effects: Such as may occur as a result of vibration from piling operations or from changes in watercourse currents resulting in increased/decreased erosion.
- Setting effects: Change within the setting of a heritage asset that affects its cultural significance or the way in which it is understood, appreciated and experienced.
- Cumulative effects: Arising 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.

### **6.8 Assessment Scope and Methodology**

#### Desk Based Assessment

6.8.1 Further desk-based assessment is being carried out covering the Study Areas. The following information sources are being consulted:

- HES online GIS Spatial Data Warehouse – for up-to-date data on the locations and extents of scheduled monuments, listed buildings, inventory gardens and designed landscapes, inventory battlefields and conservation areas.
- Angus Council's HER – for up to date on the locations and extents of designated and non-designated heritage assets previously recorded within the Study Areas.
- The National Record of the Historic Environment (NHRE) database (Canmore) – for any information additional to that contained in the HER.
- Map Library of the National Library of Scotland: for Ordnance Survey maps and other historical map resources that may provide information of historic settlement and land-use.

- Aerial photography and satellite imagery (Google Earth, Bing maps, ESRI World Imagery) – for the identification of sites and features potentially of historic environment value not recorded elsewhere or shown on historic maps.
- Historic Land-Use Assessment Data for Scotland (HLAMap) – for information on the historic land use character of the Inner Study Area.

#### Field Surveys

- 6.8.2 The Site covers an area of improved arable fields, it is considered that a detailed archaeological walk-over field survey is unlikely to be informative as no upstanding archaeology will be visible within the ploughed fields. Targeted surveys are, however, being undertaken to record the baseline character and condition of sites or features identified during the desk-based assessment to inform mitigation proposals.
- 6.8.3 Site visits are being undertaken to designated cultural heritage receptors within the Outer Study Area where necessary and in as far as access is possible, to assess their baseline settings and identify potential impacts from the Proposed Development. Site visits are including any assets specifically identified by consultees as requiring assessment and those identified through analysis of the Zone of Theoretical Visibility, where it is considered, on the basis of professional judgement, that the effect on their settings could be significant.
- 6.8.4 It was agreed through consultation in March 2024 with Aberdeenshire Council Archaeology Service (ACAS) that no pre-submission trial trench investigation is required and that this work can be undertaken as part of post-determination mitigation.

#### Assessment Methodology

- 6.8.5 The effects of the Proposed Development on heritage assets will be assessed using the approach set out in **Section 3.3: Scoping Methodology** and on the basis of their type (direct construction effects, impacts on setting, and cumulative impacts) and nature (adverse or beneficial). The assessment will consider the value/sensitivity of the heritage asset and its setting and the magnitude of the predicted impact.

#### Criteria for Assigning Sensitivity of Heritage Assets

- 6.8.6 Cultural heritage assets are given weight 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<sup>24</sup>.

#### Cultural Heritage Viewpoints

- 6.8.7 A preliminary list of viewpoints (**Table 6.1: Preliminary Cultural Heritage Viewpoints** and **Figure 6.2: Preliminary Cultural Heritage Viewpoint Locations and Draft Zone of Theoretical Visibility**) for the cultural heritage assessment is provided below. The viewpoint list will be confirmed following production of a ZTV for the Proposed Development and through further engagement with consultees. The types of visualisations (i.e. photomontage, wireline) will be agreed through consultation with consultees. Cross reference will also be made throughout the EIA Report to Landscape and Visual Assessment (LVIA) viewpoints where these will aid the assessment.

**Table 6.1: Preliminary Cultural Heritage Viewpoints**

VP	Asset Name	Asset No.	Asset Status	Approx. Grid Ref
CH1	Balkemback Cottages, Stone Circle	SM 2868	Scheduled Monument	338181, 738444
CH2	Martin's Stone, Cross Slab	SM 159	Scheduled Monument	337488, 737576
CH3	Craig Hill, Fort and Broch	SM 3038	Scheduled Monument	343192, 735847

## 6.9 Issues Scoped Out

- 6.9.1 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 of the EIA:

<sup>24</sup> Historic Environment Scotland (2019, updated 2020) Designation Policy and Selection Guidance

- Direct construction effects on heritage assets outwith the Inner Study Area. There will be no construction works associated with the Proposed Development beyond the Site.
- 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, for example, hydrological changes or from vibration.
- Temporary setting effects on cultural heritage assets resulting from construction activities. 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. These all have localised townscape settings and relationship with other historic buildings around them and the Proposed Development would not have significant effect on the settings of such designations.
- Assessment of direct operational effects from maintenance or replacement works. As a consequence of the 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 proposed access and infrastructure to facilitate such works.

## 6.10 Summary

- 6.10.1 This chapter provides an overview of the Archaeology and Cultural Heritage 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.
- 6.10.2 Preliminary investigation records that there are two non-designated heritage assets recorded by the Angus Council's HER within the Proposed Development Site and that there are nine scheduled monuments and 50 listed buildings within 3 km of the Proposed Development Site.
- 6.10.3 An initial review of the cultural heritage and archaeology within the Proposed Development Site suggests that the heritage assets most sensitive to direct impacts from construction of the Proposed Development are buried archaeological remains, principally prehistoric remains.
- 6.10.4 In the wider landscape those designated heritage assets most likely to be sensitive to change from the introduction of the Proposed Development are those designated assets that lie closest to the Proposed Development Site or Scheduled Monuments with views across the surrounding landscape that contribute to their cultural significance.
- 6.10.5 The Cultural Heritage Impact Assessment will cover impacts occurring during the construction phase (direct effects) and those persisting through the operation phase (setting effects and cumulative effects). Direct effects or effects on setting from the Proposed Development will be assessed, supported by the results of a detailed desk-based assessment and targeted field visits to verify the findings of the desk-based assessment and to inform mitigation proposals.

## 7. ECOLOGY

### 7.1 Introduction

7.1.1 This chapter sets out the proposed approach to assessing the potential effects of the Proposed Development on ecology and should be read in conjunction with **Chapter 8: Ornithology**. The EIAR will present the potential effects of the Proposed Development on ecological features (non-avian) within the Site, and suitable buffers as described 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 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 in addition to desk based baseline; and outlines the proposed approach to the Ecological Impact Assessment (EIA; as part of the wider EIA).

#### Feedback from Consultation

7.1.2 NatureScot was consulted regarding the proposed methodology of baseline data collection during a meeting on 21 March 2023. NatureScot subsequently provided a consultation response (30 May 2023); they signposted their standing advice and guidance and did not raise any sites or features of concern relating to ecology (see **Chapter 8: Ornithology** for details of their consultation response regarding sites designated for ornithological features).

7.1.3 SEPA provided a consultation response (16 June 2023) encouraging consideration of opportunities to realign the straightened Fithie Burn, thereby enhancing biodiversity as per NPF4 Policy 3. They provided general scoping guidance regarding protection of the water environment. Riparian habitats will be considered in 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; this is as per NPF4 Policy 3 which requires EIA developments to demonstrate “*that the proposal will conserve, restore and enhance biodiversity, including nature networks so they are in a demonstrably better state than without intervention*”.

7.1.4 In addition, responses were received from Angus Council (05 July 2023). No issues specific to ecology were raised, although Angus Council noted the potential for the Proposed Development to deliver biodiversity enhancement.

7.1.5 Due to the nature and location of the Proposed Development, in relation to Statutory Nature Conservation Designations, a Habitats Regulations Appraisal (HRA) is not considered necessary.

7.1.6 This chapter has been prepared by LUC.

### 7.2 Study Area

7.2.1 A desk study has been undertaken to identify potentially sensitive ecological features within the relevant Desk Study Area. The Desk Study Area comprises the Site and appropriate buffers from the Site boundary as shown in **Figure 7.1: Designated Sites within 10 km and 5 km of the Proposed Development** and **Table 7.1: Desk Study Areas**. Data returned by the desk study is used to inform field survey methods and the scope of the assessment.

**Table 7.1: Desk Study Areas**

Ecological Features	Designation Type	Buffer from the Site
Statutory Designated Sites	<ul style="list-style-type: none"> <li>European Sites (Special Areas of Conservation, SAC); and</li> <li>Ramsar Sites.</li> </ul>	10 km
	<ul style="list-style-type: none"> <li>National Nature Reserves (NNR);</li> <li>Sites of Special Scientific Interest (SSSI); and</li> <li>Local Nature Reserves (LNR).</li> </ul>	5 km
Non-statutory Designated Sites	<ul style="list-style-type: none"> <li>Local Nature Conservation Sites (LNCS);</li> <li>RSPB and Scottish Wildlife Trust Reserves; and</li> <li>Ancient/Long-established Woodland<sup>25</sup>.</li> </ul>	2 km

<sup>25</sup> NatureScot (2021) [A guide to understanding the Scottish Ancient Woodland Inventory \(AWI\)](#)



Ecological Features	Designation Type	Buffer from the Site
Existing Records of Protected <sup>26</sup> and Notable <sup>27</sup> Species	<ul style="list-style-type: none"> <li>All native protected and notable species records from the preceding 15 years.</li> </ul>	5 km for Protected and Notable Species 10 km for Bat Species

### 7.3 Approach

#### Desk Study

- 7.3.1 A desk study has been undertaken to identify ecological receptors within the proposed Desk Study Areas (see **Table 7.1: Desk Study Areas**). Further analysis that will be presented within the EIAR will consider the potential for an impact pathway to exist between the Proposed Development and designated sites and protected species.
- 7.3.2 A desk-top search for statutory designated nature conservation sites was conducted within 10 km and 5 km of the Site, including sites of international<sup>28</sup>, national<sup>29</sup> and local<sup>30</sup> importance. A search for non-statutory designated sites<sup>31</sup> within 2 km of the Site was also conducted. In addition, a search for publicly available biological records from the past 15 years was undertaken within 5 km of the Site (and 10 km for bat species). The following sources were consulted:
- NatureScot SiteLink<sup>32</sup> website for details of statutory designated sites;
  - Angus Council (2023)<sup>33</sup> for details of LNCS within Angus;
  - Dundee City Council (2019)<sup>34</sup> for details of LNCS (known as Locally Important Nature Conservation Sites or LINCS) in Dundee City; and
- 7.3.3 National Biodiversity Network (NBN) Gateway<sup>35</sup> for records of protected<sup>36</sup> and notable<sup>37</sup> species.
- 7.3.4 The desk study identified habitats of conservation concern<sup>38</sup> and protected and notable species which may be relevant to the Proposed Development. The following sources were consulted:
- Scottish Biodiversity List (SBL)<sup>39</sup>; and
  - Tayside Local Biodiversity Action Plan (2016-2026)<sup>40</sup>.

#### Field Surveys – Habitats and Vegetation

- 7.3.5 Field surveys are in progress for habitats and vegetation and are being undertaken by experienced ecologists during the 2024 survey seasons within the Survey Area which is defined as the Site plus a buffer to at least 250 m. Drawing on SSEN Transmission’s best practice approach, data are being collected using the emerging UKHabs method<sup>41</sup> during the appropriate survey season.

<sup>26</sup> ‘Protected Species’ includes European Protected Species (EPS; i.e. those listed on Annex II and Annex IV of the Habitats Directive), species listed on Schedule 5 and 6 of the Wildlife and Countryside Act 1981 (as amended; WCA), and badger which is protected by the Protection of Badgers Act 1992.

<sup>27</sup> ‘Notable Species’ are those listed on the Scottish Biodiversity List (SBL) which are not subject to legal protection.

<sup>28</sup> i.e. Special Areas of Conservation (SAC).

<sup>29</sup> i.e. Sites of Special Scientific Interest (SSSI) and National Nature Reserves (NNR).

<sup>30</sup> i.e. Local Nature Reserves (LNR).

<sup>31</sup> i.e. Local Nature Conservation Sites (LNCS), non-governmental organisation (NGO) nature reserves, and Ancient Woodland Inventory (AWI).

<sup>32</sup> [NatureScot SiteLink website](#)

<sup>33</sup> [Angus Council \(2023\) Angus Local Nature Conservation Sites – Local Biodiversity Sites Initial Phase Report](#)

<sup>34</sup> [Dundee City Council \(2019\) Dundee Local Development Plan 2019](#)

<sup>35</sup> [NBN atlas website](#)

<sup>36</sup> ‘Protected Species’ includes European Protected Species (EPS; i.e. those listed on Annex II and Annex IV of the Habitats Directive), species listed on Schedule 5 and 6 of the Wildlife and Countryside Act 1981 (as amended; WCA), and badger which is protected by the Protection of Badgers Act 1992.

<sup>37</sup> ‘Notable species’ are species not afforded legal protection but which are listed on the SBL and/or relevant LBAPs.

<sup>38</sup> Habitats of conservation concern include habitats considered conservation priorities in the Habitats Directives (i.e. 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>39</sup> [NatureScot \(2020\) Scottish Biodiversity List](#)

<sup>40</sup> [Tayside Biodiversity website](#)

<sup>41</sup> [UKHab website](#)

7.3.6 The UKHabs method will ensure all habitats of conservation concern<sup>42</sup> 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 Ground Water Dependent Terrestrial Ecosystems (GWDTE). An assessment will be made in the field of the condition of habitats as per SSEN Transmission's BNG guidance<sup>43</sup>. Notes will be made of invasive non-native plant species (INNS) where encountered and used to inform relevant management plans for implementation during construction and operation as appropriate. The EIA will address future survey needs prior to construction activity, and the need for Habitat Protection Plans as part of the construction phase of the Proposed Development.

Field Surveys – Protected Species

- 7.3.7 In parallel with habitat and vegetation surveys, all habitat features within the Survey Area are being considered with regard to their suitability to support protected species, including the following:
- Otter *Lutra lutra*;
  - Bats;
  - Beaver *Castor fiber*;
  - Red squirrel *Sciurus vulgaris*;
  - Pine marten *Martes martes*;
  - Water vole *Arvicola amphibius*;
  - Mountain hare *Lepus timidus*; and
  - Badger *Meles meles*.
- 7.3.8 Habitat suitability will be determined according to published criteria for each species<sup>44</sup>. Where suitable habitat is identified within the Survey Area, searches will be made for:
- Resting sites;
  - Foraging and commuting routes/evidence; and
  - Diagnostic evidence such as feeding remains, prints, scat etc.
- 7.3.9 Sufficient evidence will be collected to allow an analysis of broad territorial uses and population structures although, following field surveys undertaken in 2023, detailed surveys of populations are not proposed as there is no evidence to suggest that these species are present in notable numbers. Should field evidence collected during 2024 highlight particularly sensitive ecological features, further consultation with NatureScot will identify any detailed species-specific survey requirements. The EIA will address future survey needs prior to construction activity, and the need for Species Protection Plans as part of the construction phase of the Proposed Development.
- 7.3.10 In addition, sightings of and habitat potential for other notable species will be noted, for example brown hare *Lepus europaeus*, hedgehog *Erinaceus europaeus*, reptiles and amphibians.
- 7.3.11 Fish and aquatic invertebrate surveys are not proposed. The best practice design process for large-scale infrastructure projects proactively seeks to minimise impacts on watercourses through the application of good practice construction measures. Construction associated with watercourses within the Site is limited to a proposed outfall on the Fithie Burn and a proposed watercourse crossing for the access track in the east of the Site. In addition, the watercourses comprise field drains and the Fithie Burn, the latter of which is canalised, affected by adjacent agriculture and offers limited habitat suitability for aquatic features. These good practice construction measures are therefore considered sufficient to protect aquatic features. These measures will be established in the EIA along with construction-phase monitoring requirements.

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<sup>42</sup> Habitats of conservation concern include habitats considered conservation priorities in the Habitats Directives (i.e. 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>43</sup> SSEN Transmission (2020) TG-NET-ENV-526 Biodiversity Net Gain Toolkit User Guide (Rev 3.0)

<sup>44</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 \(Version 3\)](#)

## 7.4 Baseline Conditions

### Desk Study

- 7.4.1 **Table 7.2: Key Habitats and Species of Angus** lists the key habitats (standardised using SBL terminology) and species identified within the desk study which are considered likely to be particularly relevant to the Site.

**Table 7.2: Key Habitats and Species of Angus**

Terrestrial Habitats	Species (non-avian)
Purple Moor Grass and Rush Pasture	Otter
Upland Heathland	Bats
Upland Flushes, Fens and Swamps	Beaver
Lowland Dry Acid Grassland	Red squirrel
Lowland Mixed Deciduous Woodland	Pine marten
Wet Woodland	Water vole
	Mountain hare
	Badger
	Brown hare <i>Lepus europaeus</i>
	Hedgehog <i>Erinaceus europaeus</i>
	Amphibians (including Common toad <i>Bufo bufo</i> )
	Reptiles
	Fish (including Atlantic salmon <i>Salmo salar</i> and Brown trout <i>Salmo trutta</i> )

- 7.4.2 Special Protection Areas (SPAs), which are statutory designated sites of international importance for birds, Ramsar sites, which are wetlands of international importance, and Sites of Special Scientific Interest (SSSIs) designated solely for ornithological features are considered in **Chapter 8: Ornithology**.
- 7.4.3 Two statutory designated sites of international importance were identified within 10 km of the Site, and one statutory designated site of national importance was identified within 5 km of the Site. No statutory designated sites of local importance were identified within 5 km of the Site. Details of these sites, and their qualifying features, are provided in **Table 7.3: Statutory Designated Sites of International Importance within 10 km of the Proposed Development** and **Table 7.4: Statutory Designated Sites of National Importance within 5 km of the Proposed Development** and shown on **Figure 7.1: Designated Sites within 10 km and 5 km of the Proposed Development**. Sites designated solely for ornithological or geological features are not included.

**Table 7.3: Statutory Designated Sites of International Importance within 10 km of the Proposed Development**

Site Name	Designation	Qualifying Features	Distance and Direction from Site <sup>45</sup>
Firth of Tay and Eden Estuary	SAC	Estuaries Intertidal mudflats and sandflats Harbour seal <i>Phoca vitulina</i> Subtidal sandbanks	Approximately 7.1 km south
River Tay	SAC	Otter Atlantic salmon River lamprey <i>Lampetra fluviatilis</i> Brook lamprey <i>Lampetra planeri</i> Sea lamprey <i>Petromyzon marinus</i>	Approximately 8.5 km northeast

<sup>45</sup> Measured from the closest point of the designated site to the Proposed Development.

Site Name	Designation	Qualifying Features	Distance and Direction from Site <sup>45</sup>
		Clear-water lakes or lochs with aquatic vegetation and poor to moderate nutrient levels	

**Table 7.4: Statutory Designated Sites of National Importance within 5 km of the Proposed Development**

Site Name	Designation	Qualifying Features	Distance and Direction from Site
Auchterhouse Hill	SSSI	Subalpine dry heath	Approximately 2.8 km northwest
Whitehouse Den	SSSI	Acanthodian fish fossils	Approximately 3.6 km northeast

- 7.4.4 No non-statutory designated sites of local importance were identified within 2 km of the Site. However, it is noted that the Dighty Burn LNCS is located approximately 2.8 km south of the Site and is connected hydrologically to the Site via the Fithie Burn; however, the LNCS is approximately 8 km from the Site via the watercourse and is therefore not considered further.
- 7.4.5 There are no stands of woodland listed on the Ancient Woodland Inventory (AWI)<sup>46</sup> within the Site. In total there are four areas listed on the AWI within 2 km of the Site, all of which are listed as category 2b, long-established of plantation origin (LEPO)<sup>47</sup>. None of these woodlands is of semi-natural origin (i.e. categories 1a and 2a on the AWI) and considered to be Ancient Woodland in accordance with guidance<sup>48,49</sup>. The closest block identified on the AWI is located approximately 100 m southwest of the Site, but aerial imagery indicates that it is no longer wooded and comprises arable farmland. A second block identified on the AWI is present to the southwest of the Site, Wynton Wood, although only a very small area approximately 0.6 km from the Site appears to be wooded on aerial imagery; the rest of the block appears to be arable farmland with a small number of scattered trees on aerial imagery.

#### Habitats

- 7.4.6 The Site is dominated by arable fields, the majority of which were noted during the habitat and protected species walkover surveys in 2023 and 2024 to be in use for cereal crops, with more limited extents of non-cereal crops and temporary grass and clover leys. Fields of modified grassland were also noted, some of which were in use for grazing cattle at the time of surveys. Linear features were recorded separating fields, including fence lines and defunct hedgerows<sup>50</sup>. The Fithie Burn flows along the southern boundary of the Site. This watercourse was noted to be narrow (~0.3 m) with a stony substrate. The bank sides were dominated by mature hawthorn *Crataegus monogyna* and wild cherry *Prunus avium*, with tall swards of cock's-foot *Dactylis glomerata*, false-oat grass *Arrhenatherum elatius*, and creeping thistle *Cirsium arvense*. Field verges were also recorded which consisted of similar species of grass and ruderal plants.
- 7.4.7 No terrestrial habitats of conservation concern or GWDTes were identified.

#### Protected Species

- 7.4.8 The Site has limited suitability for badger as there is limited suitable habitat for sett creation and foraging other than narrow field margins of unmanaged grassland. Woodland parcels outwith the Site, for example associated with Balkembeck Farm which is adjacent to the north, are likely to offer greater opportunities for sett creation. The Site may be used by badger for occasional foraging, particularly in fields used for grazing livestock.
- 7.4.9 Some limited habitat suitability for bats was recorded within the Site. A mature sycamore was recorded on the western boundary of the Site and was noted to have Moderate Bat Roost Potential (BRP) in accordance with Bat Conservation Trust (BCT) guidelines<sup>51</sup>. A semi-mature hawthorn located adjacent to the Fithie Burn on the southern boundary of the site was

<sup>46</sup> NatureScot (2021) A guide to understanding the Scottish Ancient Woodland Inventory (AWI)

<sup>47</sup> LEPO woodlands comprise categories 1b and 2b on the AWI. These woodlands are described by NatureScot (2021) as "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".

<sup>48</sup> Ancient Woodlands comprise categories 1a and 2a on the AWI. These woodlands are described by NatureScot (2021) as "interpreted as semi-natural woodland from maps of 1750 (1b) or 1860 (2b) and continuously wooded to the present day".

<sup>49</sup> SSEN Transmission (2023) BN-NET-ENV-501 Ancient Woodland – Approach to Assessment and Reporting: Internal

<sup>50</sup> A defunct hedgerow is one in which there are gaps such that it is no longer stockproof.

<sup>51</sup> Collins, J. (ed.) on behalf of the Bat Conservation Trust (2016) Bat Surveys for Professional Ecologists – Good Practice Guidelines

noted to have Low BRP. No other features were identified within the Proposed Development that had suitability to support roosting bats. Suitable foraging and commuting habitat are present in the form of defunct hedgerows, the Fithie Burn and field drains. However, these habitats are largely restricted to the edges of the Site. Opportunities for bats exist in the wider landscape, with parcels of woodland (including blocks listed on the AWI) and numerous small watercourses providing roosting, foraging and commuting potential.

- 7.4.10 The Fithie Burn was surveyed and was determined to be unsuitable for water vole due to the narrow and shallow watercourse, with banksides dominated by dense vegetation, and therefore a lack of suitable habitat and potential food plants (such as rushes *Juncus* spp.). This watercourse has some potential to be used occasionally by foraging or commuting otter as the trees provide some cover for commuting and the watercourse may contain limited prey populations. The watercourse was noted to be slow to moderate flowing, narrow (~0.3 m), with the banksides dominated by unmanaged grassland with scrub and trees. Field drains recorded in the east of the Site were of a similar nature, although were generally narrower and stagnant to slow flowing. In addition, although the suitability of the Fithie Burn for beaver is considered to be limited due to the limited terrestrial habitat adjacent, this species is present and spreading within the River Tay catchment.
- 7.4.11 The Site is considered unsuitable for red squirrel and pine marten. Both red squirrel and pine marten require extensive areas of woodland which provide foraging and sheltering opportunities. Although there are isolated blocks of woodland within proximity, no woodland is present within the Site. Furthermore, there is no connectivity between the Site to areas of extensive woodland in the wider landscape.
- 7.4.12 The Site is considered unsuitable for mountain hare (listed on Schedule 5 of the *Wildlife and Countryside Act 1981* as amended) due to the absence of upland habitat, specifically heathland.
- 7.4.13 The majority of the Site is considered unsuitable for amphibians due to the absence of areas of standing water and rarity of damp, unmanaged vegetation. As such, there are limited sheltering and foraging opportunities for amphibians. However, the unmanaged field verges dominated by tall swards of grassland and ruderal species offer some potential foraging and sheltering habitat for common species of amphibian such as common frog *Rana temporaria* and common toad, the latter of which was recorded within the Site as a single individual in a field verge.
- 7.4.14 There is limited suitability for reptiles (e.g. adder *Vipera berus*, slow worm *Anguis fragilis* and common lizard *Zootoca vivipara*) on the Site due to the intensively managed lowland nature of the habitats. However, similarly to amphibians, the unmanaged field verges dominated by tall swards of grassland and ruderal species offer some potential foraging and sheltering habitat for common species of reptiles.
- 7.4.15 In addition to the protected species discussed above, consideration has been given to the potential for notable species to utilise the Site during assessment of habitat suitability. Brown hare is likely to be present and to use the arable fields and grassland margins. Hedgehog may also be present in unmanaged grassland and scrub.

## 7.5 Sensitive Receptors

- 7.5.1 The ecological baseline work has established the important ecological features that could be affected by the construction and operation of the Proposed Development, and which will form the focus of the EclA. Desk study and field survey evidence collected to date indicate that sensitive receptors include designated sites with a potential impact pathway from the Proposed Development, habitats identified on the AWI1, and some limited potential for protected species such as bat, badger and otter to be present.

## 7.6 Mitigation

- 7.6.1 In-line with the hierarchy of mitigation set out in **Section 3.5: Mitigation**, the following section describes the Embedded and Applied Mitigation which is considered relevant to the Proposed Development in the context of this technical 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 7.7: Potential Significant Effects**.

### Embedded Mitigation

- 7.6.2 As described in **Section 3.5: Mitigation**, the design evolution for the Proposed Development has included changes which result in a reduced likelihood of negative, 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:

- Landform of the screening bunds around the substation platform has been varied to provide opportunities for different ecological niches as part of the habitat creation proposals that will help to deliver enhancement through BNG. Habitats will include areas of native deciduous tree planting, areas of scrub, grasslands, and riparian and wetland habitats.
- The substation drainage design follows sustainable drainage systems (SuDS) and the drainage channels, swales and ponds have been designed to allow for wetland habitats to be created which offer the potential for local biodiversity enhancement in the longer term.
- Inclusion of a 50 m buffer between watercourses/waterbodies and key operational infrastructure (substation infrastructure and permanent access tracks) wherever possible.
- Where possible, retention of trees (particularly those with bat roost potential) and riparian habitat along the Fithie Burn that provide commuting and foraging, and potential bat roost opportunities for a range of protected species.
- Minimising as far as reasonably practicable habitat loss and vegetation removal.
- Careful selection of the location of the platform and SuDS pond, minimising habitat loss and vegetation removal as far as is reasonably practicable.

#### Applied Mitigation

7.6.3 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 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 3.5: Mitigation** and **Appendix D: List of Applied Mitigation Documents**. The Applied Mitigation considered relevant to this technical assessment includes, but is not limited to, implementation of a Construction Environmental Management Plan (CEMP) which, in addition to SSEN Transmission's General Environmental Management Plans (GEMP), assumably TG-NET-ENV-513 and TG-NET-ENV-521 as well as relevant Species Protection Plans (SPPs), will capture all mitigation measures required in respect of ecological features. The CEMP will include all mitigation measures identified in the EIAR as well as those required in order to comply with relevant legislation. The implementation and audit of these measures will be overseen by an Environmental/Ecological Clerk of Works (ECOW).

7.6.4 BNG is a key consideration of the Applicant as part of the delivery of the project in line with SSEN Transmission's policy on BNG<sup>52,53</sup>. As such, the ambition is to ensure that activities not only maintain the existing ecological balance but also to enhance the biodiversity in the area in which the project is to be constructed and operated. The Applicant proposes to:

- Ensure natural environment considerations are included in decision making at each stage of the project development;
- Utilise the mitigation hierarchy to avoid impacts by consideration of biodiversity in project design; and

Achieve Biodiversity Net Gain of 10% or more on all new infrastructure projects gaining consent from May 2023 onwards.<sup>f</sup>

#### Summary and Next Steps

7.6.5 The Applicant is committed to delivering both Embedded and Applied Mitigation in relation to this technical assessment. The mitigation described above has been applied when considering the potential for the Proposed Development to result in likely significant effects.

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

7.6.7 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.

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<sup>52</sup> SSEN Transmission (2019) A Network for Net Zero: Our Approach to Implementing Biodiversity Net Gain

<sup>53</sup> SSEN Transmission (2023) [Delivering for Nature and Net Zero on World Biodiversity Day by committing to biodiversity net gain on all our projects](#)

## 7.7 Potential Significant Effects

### Designated Sites

- 7.7.1 There are two internationally important designated sites within 10 km of the Site as stated in **Table 7.3: Statutory Designated Sites of International Importance within 10 km of the Proposed Development**. The Firth of Tay and Eden Estuary SAC is hydrologically connected to the Site via the Fithie Burn which flows into the SAC via the Dighty Water; however, although the SAC is 7.1 km from the Site at its closest point, the hydrological connection is via a watercourse length of approximately 14.5 km and so no likely impact pathway is considered to exist to the qualifying features of the SAC. The River Tay SAC is not hydrologically or functionally connected to the Site, and therefore there is no impact pathway to the SAC. No likely impact pathways have been identified for these two sites.
- 7.7.2 There are two nationally important designated sites within 5 km of the Site as stated in **Table 7.3: Statutory Designated Sites of International Importance within 10 km of the Proposed Development**. The Site does not support similar habitats as those present and designated within Auchterhouse Hill SSSI, nor does it connect hydrologically, and as such Auchterhouse Hill SSSI is considered to have no functional connectivity to the Site. The Site is not geologically important and does not contain fish fossils found at Whitehouse Den SSSI.
- 7.7.3 In addition, there are no non-statutory sites of local importance within 2 km of the Site. The Fithie Burn immediately south of the Site is hydrologically connected to the Dighty Burn LNCS, itself 2.8 km south. However, the Fithie Burn flows for approximately 8.2 km before it becomes part of the Dighty Burn LNCS. With embedded mitigation, including a 50 m buffer from watercourses wherever possible and adherence to the CEMP and SSEN Transmission's GEMP, significant effects on the LNCS are considered unlikely.
- 7.7.4 There are no extents of woodland listed on the AWI within or adjacent to the Site. Four blocks of Long-Established woodlands of Plantation Origin (LEPO) are scattered within 2 km, the closest of which (Wynton Wood) is approximately 0.6 km southwest. With the application of the CEMP and SSEN Transmission's GEMP and, given the distance of the extant blocks of AWI from the Site, no likely impact pathway has been identified between the Site and extant woodland listed on the AWI.
- 7.7.5 No operational effects from the Proposed Development have been identified at this stage with regards to designated sites.

### Habitats

- 7.7.6 The habitats within the Proposed Development are dominated by habitats of limited ecological value, such as intensively managed farmland. No habitats of conservation concern have been identified within or adjacent to the Site that could be directly or indirectly impacted.
- 7.7.7 No operational impacts associated with the Proposed Development have been identified at this stage with regards to habitats.

### Protected and Notable Species

- 7.7.8 Although habitat suitability within the Site is limited, protected species, including otter, beaver, bats and badger, may occasionally utilise the habitats such as those along the Fithie Burn. As such, these species have potential to be adversely affected by vegetation clearance resulting in habitat loss and fragmentation. Notable species, such as amphibians, reptiles, brown hare and hedgehog, may be similarly affected. The works may affect the ability of these species to rest, breed, forage and commute.
- 7.7.9 Otter and beaver may use the watercourses in and around the Site. The Proposed Development design will locate infrastructure further than 50 m from watercourses where possible. General mitigation measures, consistent with the requirements of SSEN Transmission's GEMP and SPPs, to protect watercourses will be included within the CEMP on the assumption of the presence of important ecological features (including fish). With the implementation of the measures in the CEMP, it is considered unlikely that significant effects would occur to the ecological features from the Proposed Development.
- 7.7.10 Badger is present within the wider landscape and may occasionally utilise habitats in the Site such as rough grassland along the Fithie Burn and farmland (particularly grazed pasture). No badger setts have been identified at this stage that could be impacted by the Proposed Development.
- 7.7.11 Pine marten, red squirrel, water vole and mountain hare are unlikely to be present within the Site due to the absence of suitable habitat or connectivity to suitable habitat.

- 7.7.12 Common species of amphibians and reptiles are unlikely to be present in large numbers within the Site due to the relatively limited availability of suitable habitat. Amphibians and reptiles may be adversely affected by vegetation clearance required to facilitate the works, such as removal of rough grassland field boundaries and associated stone walls. It is considered reasonable to expect that general mitigation measures and best practice construction methods will avoid impacts on these species groups. This will include adherence to SEN Transmission's GEMP and SPPs.
- 7.7.13 Brown hare and hedgehog are likely to be present within the Site and surrounding habitats, although no confirmatory signs have been recorded. These species could be impacted by vegetation clearance and habitat loss and fragmentation. 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 as such suitable habitat within the Site is restricted to unmanaged field boundaries and along the Fithie Burn.
- 7.7.14 Those species of protected and notable species identified within this Scoping Report could be affected by inappropriate lighting, noise, dust and visual disturbance caused by construction activities. It is considered reasonable to expect that these potential effects would be managed through standard best practice construction methods and through following relevant guidance to mitigate impacts.
- 7.7.15 Lighting within the Site will be designed in accordance with best practice. Once operational, this embedded mitigation will ensure that lightspill is limited onto adjacent habitats that may be used by foraging and commuting wildlife. As such, the operation of the Proposed Development is not considered to limit movement of protected and notable species, including bats.

## 7.8 Assessment Scope and Methodology

### Proposed Scope of Assessment

- 7.8.1 On the basis of the information presented above, the assessment will consider the potential for significant effects associated with:
- Loss or fragmentation of habitats used by protected species, specifically:
    - Otter;
    - Beaver;
    - Bats; and
    - Badger.

### Assessment Methodology

- 7.8.2 The EclA will be completed in accordance with the Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines for Ecological Impact Assessment<sup>54</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).
- 7.8.3 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.
- 7.8.4 Details of the Proposed Development will then be used to assess the pathways leading to effect(s), and the level of effect each receptor is predicted to receive with reference to the following parameters: beneficial or adverse; extent; magnitude; duration; frequency; and reversibility.
- 7.8.5 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 conversion from EclA significance to EIA significance is then undertaken. The conversion relates the geographically based significance of ecological effects (identified through the EclA process) to the

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<sup>54</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 \(Version 1.2\)](#)



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.

- 7.8.6 Where appropriate, mitigation measures will be presented within the EIAR to mitigate any adverse impacts; measures to enhance the local ecology will also be incorporated.

#### Biodiversity Net Gain

- 7.8.7 BNG is a process whereby development leaves biodiversity in a measurably better state than before development commenced. 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 inform an Outline Biodiversity Enhancement Plan (BEP). The approach will follow UK best practice and the Applicant's BNG guidance.

#### Cumulative Effects

- 7.8.8 The cumulative effects of the Proposed Development with other developments, either built or proposed, within a suitable buffer for important ecological features identified as sensitive receptors, will be assessed. This will include impacts that are additional or in-combination with the Proposed Development.

### **7.9 Issues Scoped Out**

- 7.9.1 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:
- Construction and operational effects on designated sites due to no likely impact pathways having been identified as a result of a lack of either ecological or hydrological connectivity to the Proposed Development.
  - Construction and operational effects on habitats of conservation concern.
  - Effects on protected and notable species as a result of habitat loss or fragmentation, specifically pine marten, red squirrel, water vole, mountain hare, brown hare and hedgehog. The Applicant will seek to protect and enhance semi-natural habitats through embedded mitigation, and applied mitigation will be adhered to in the form of 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 protected and notable species as a result of construction activities via lighting, noise, pollution or visual disturbance. Construction activities will adhere to a CEMP, and SSEN Transmission's GEMP and SPPs, as overseen by an ECoW. In addition, the Applicant will seek to protect the aquatic environment and sensitive riparian habitats through embedded mitigation, and best practice 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.
  - Consideration of invertebrate species is considered unnecessary due to the limited ecological value of habitats within the Site.

### **7.10 Summary**

- 7.10.1 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 enabling the proposed scope for the EIA to be refined.
- 7.10.2 Desk study information has identified two statutory designated sites of international importance within 10 km of the Site, one statutory designated site of national importance within 5 km and four non-statutory designated sites (LEPO woodland on the AWI) within 2 km. The designated sites were determined to have no ecological or hydrological connectivity to the Proposed Development and have been scoped out of the EIA.

- 7.10.3 Baseline habitat and protected species walkover surveys have been undertaken within the Site, which concluded that the Proposed Development would largely affect arable land, fields of modified grassland and defunct hawthorn hedgerows within the Site.
- 7.10.4 Habitats with some limited suitability for otter, beaver, bats and badger are present within the Site, all of which are protected species and will therefore be further considered in the EIAR. In addition, some limited habitat is present with potential to support species such as fish, amphibians and reptiles, although the potential for these species is restricted given the lowland, intensively managed agricultural habitats that dominate.
- 7.10.5 The EIAR will consider the potential for impacts on protected and notable species, and will identify relevant mitigation measures to safeguard species, including where pre-construction surveys are required to ensure mitigation is appropriate prior to construction. This information will be captured and administered through mitigation approach and in the measures SSEN Transmission will specify to Contractors.

## 8. ORNITHOLOGY

### 8.1 Introduction

8.1.1 This chapter sets out a preliminary assessment of effects and the proposed approach to assessing the likely significant effects on ornithology arising from the Proposed Development. This chapter should be read in conjunction with **Chapter 7: Ecology**. This chapter identifies where there is potential for significant effects on the ornithological receptors; identifies where and what type of mitigation measures should be employed; and assesses the likely significance of residual effects following the implementation of these mitigation measures.

#### *Feedback from Consultation*

8.1.2 Consultation was held with NatureScot to inform the ornithology survey methodology in relation to the proposed OHL of the Overall Project as well as to determine the approach to assessment, the scope of which also included the Proposed Development. 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.

8.1.3 NatureScot were asked to comment on a pre-application proposal document. A response dated 30 April 2024, focussing on the potential for adverse effects on statutory protected nature conservation sites, was as follows:

*“Based on the distance from the Firth of Tay and Eden Estuary Special Protection Area (SPA) and lack of evidence of geese wintering in the immediate area of the sub-station we advise that there would be no likely significant effect on the SPA. This conclusion also applies to the Loch of Kinnordy and Loch of Lintrathen SPAs.*

*As herring gulls will feed on arable land there is a theoretical connectivity between the proposal site and the Outer Firth of Forth and St. Andrews Bay Complex SPA. However, 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. As such, we advise that this proposal will not have an adverse impact on site integrity for the SPA.”*

8.1.4 As such, the SPAs will be screened out of the assessment given the lack of likely significant effect predicted.

8.1.5 This chapter has been prepared by LUC.

### 8.2 Study Area

8.2.1 The study areas for ornithology, see **Figure 8.1: Ornithological Designated Sites** are defined with reference to the infrastructure of the Proposed Development and the dimensions of the Site, together with the following ‘search areas’, in line with best practice guidance and informed by professional judgement and experience of work on similar projects:

- Statutory Designated Sites<sup>55</sup> – within 20 km of the Site for ornithological qualifying features of SPAs.
- Non-Statutory Designated Sites<sup>56</sup> – within 5 km of the Site.
- Schedule 1 birds<sup>57</sup> – likely to be present within 2 km of the Site, as determined by species present.
- Habitats within at least 250 m of the Site (to breeding and foraging birds including Birds of Conservation Concern (BoCC) and the Scottish Biodiversity List species).

### 8.3 Approach

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<sup>55</sup> Including European Sites, Site of Special Scientific Interest (SSSIs) and National/Local Nature Reserves. Note that Special Protection Areas (SPAs) qualify for their ornithological assemblages.

<sup>56</sup> Including Local Nature Conservation Sites.

<sup>57</sup> The Wildlife and Countryside Act (WCA) 1981 provides enhanced statutory protection to rare breeding birds listed under Schedule 1. Significant changes have been made to the protection of wild birds in Scotland by the Nature Conservation (Scotland) Act 2004. In addition, all wild birds are protected by law under WCA.

8.3.1 Baseline ornithological conditions to inform the design and assessment of the Proposed Development will be established through desk-based and field studies.

*Desk Study*

8.3.2 The NatureScot SiteLink website<sup>58</sup> was used to identify designated nature conservation sites that may have ornithological connectivity to the Site.

*Species Records from Data Requests*

8.3.3 A search for publicly available ornithological records within 2 km of the Proposed Development, including National Biodiversity Network (NBN)<sup>59</sup> and British Trust for Ornithology (BTO) record sources was undertaken.

8.3.4 In addition, data were obtained from the RSPB for bird records within 2 km of the Proposed Development. The RSPB data request included Schedule 1 bird species together with breeding waders and forest grouse. Data on Schedule 1 raptors have also been requested from local Raptor Study Groups.

*Bird Habitat Appraisal*

8.3.5 A recent BTO publication<sup>60</sup>, together with the associated publicly available dataset, showing the 'sensitivity' of 1 km squares with regard to wader habitat (based on previous breeding bird survey work) was used to determine potential breeding wader receptors to 2 km of the Proposed Development.

*Field Surveys*

*Wintering Birds*

8.3.6 Surveys to explore the foraging distribution of wintering goose species have been undertaken within the overlap area of the relevant SPAs (**Table 8.1: Statutory Designated Sites Associated with the Proposed Development**) and the Proposed Development (as well as the Kintore to Tealing OHL). This involved systematic searches using the road network of the potential foraging area, to count and map feeding birds, describe the food sources being used. A total of six visits were carried out in February and March 2023, inclusive.

8.3.7 In addition, Vantage Point watches and further wintering bird surveys for the proposed associated OHL have been carried out (September 2023 to early April 2024, inclusive) which coincide with the Proposed Development and relevant survey data will be used to further inform on SPA qualifying species' use of the Site. A total of 18 hours watches were carried out to record flight activity (and foraging) in the substation study area.

*Breeding Birds*

8.3.8 Three survey visits of the Proposed Development and associated buffer (refer to **Section 8.2: Study Area**) were carried out from early May to mid/late June 2023.

8.3.9 The surveys focussed on breeding waders and scarce raptors:

- Breeding bird surveys: Surveys following an adapted Brown and Shepherd survey method<sup>61</sup> were undertaken during the 2023 breeding season in the Study Area (i.e. to 250 m from the Proposed Development).
- Scarce raptor surveys: Surveys were undertaken over the breeding season in 2023 across focal areas of suitable habitat for Schedule 1 raptors within 2 km of the Proposed Development (refer to **Section 8.2: Study Area**).

*Additional Surveys*

8.3.10 Further breeding bird surveys are being carried out in Spring/Summer 2024 focussing on the Proposed Site and up to a 2 km buffer, with 3 survey visits planned to update the 2023 survey records, focussing on breeding birds (especially waders) between

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<sup>58</sup> [NatureScot SiteLink website](#)

<sup>59</sup> [NBN atlas website](#)

<sup>60</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>61</sup> Brown, A. F. and Shepherd, K. B. (1993) A method for censusing upland breeding waders. *Bird Study*, 40, p.189-195.

April and June 2024. Full details of the existing ornithological conditions as determined by ongoing surveys and desk study results will be presented within the EIA Report.

#### 8.4 Baseline Conditions

##### Designated Sites

- 8.4.1 The statutory designated sites that coincide with or where their designated features show connectivity e.g. where core foraging 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**.

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

Site Name	Qualifying Features	Distance from Proposed Substation at its Closest	Connectivity with Proposed Development
Firth of Tay and Eden Estuary Ramsar and SPA	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 totanus</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>	7.5 km south of the Proposed Development	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> </ul>	7.5 km south of the Proposed Development	Potential connectivity with qualifying species due to distance from Proposed Development (gull mean foraging to 10.5 km from their breeding sites <sup>62</sup> ).

<sup>62</sup> Thaxter, C. B. et al. (2019) Avian vulnerability to wind farm collision through the year: Insights from lesser black-backed gulls (*Larus fuscus*) tracked from multiple breeding colonies. *Journal of Applied Ecology*, 56(11), p.2410-2422.

Site Name	Qualifying Features	Distance from Proposed Substation at its Closest	Connectivity with Proposed Development
	<ul style="list-style-type: none"> <li>Eider (non-breeding);</li> <li>Gannet (<i>Morus bassanus</i>; breeding);</li> <li>Goldeneye (non-breeding);</li> <li>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 Kinnordy SPA, Ramsar and SSSI	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>	15.8 km northwest of the Proposed Development	Potential connectivity with greylag and pink-footed geese as within core foraging range (20 km).
Loch of Lintrathen SPA, Ramsar and SSSI	SPA/Ramsar/SSSI: <ul style="list-style-type: none"> <li>Greylag goose (non-breeding).</li> </ul>	19.5 km northwest of the Proposed Development	Potential connectivity with greylag geese as within core foraging range (20 km).

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

#### Desk Records

8.4.3 No records of Schedule 1 species or breeding waders were present within the RSPB desk record data set for the study area.

8.4.4 NBN data search recorded a range of species associated with open pasture and farmland habitats. Notably, records of curlew, lapwing and oystercatcher were present with the latter two species recorded during the breeding season.

8.4.5 The Site coincides with BTO wader sensitivity ratings of 2(of 5) for curlew, 3 for lapwing and 4 for oystercatcher; essentially meaning that the habitats within the Study Area have the possibility to support nesting of these species.

#### Initial Field Survey Findings

8.4.6 The following target species were recorded during the breeding bird surveys carried out in 2023 and 2024 (latter to be completed June 2024):

- Oystercatcher (possibly two pairs across pasture/arable land within the Proposed Development boundary with an additional pair in the Study Area in 2023; no presence recorded in 2024 likely due to different crop rotation);

- Snipe (present on initial visit only – likely not breeding); and
  - Herring gull ((SPA species) recorded during surveys as occasional fly overs, a foraging group of c. 200 mixed gull species, including 80 herring gull recorded c. 200 m out with study area on 19 April 2024).
- 8.4.7 The presence of breeding oystercatcher within the Study Area is expected given the species’ preference for open, low-lying land where farming practice allows for exploitation of both spring and winter crop fields as well as pastureland. The BTO wader sensitivity rating (4 of 5) in the Study Area also demonstrates optimal habitat is present for the species. Oystercatcher is an Amber-listed species on the Birds of Conservation Concern (BoCC)<sup>63</sup>. No breeding pairs were recorded in 2024 in April 2024, likely due to field/agricultural change.
- 8.4.8 Common snipe, although recorded as present in a site visit in early May 2023, is unlikely to be breeding, rather a passing/migrant bird recorded on passage; the species prefers wetter/flooded marsh and bog. Not recorded April 2024.
- 8.4.9 No lapwing or curlew were recorded as present during the breeding surveys in 2023 and 2024, likely a reflection on the lower BTO wader sensitivity rating of the habitat present and that both species are in range contraction (both are Red-listed BoCC birds).
- 8.4.10 No target raptor species were recorded within the Study Area; common buzzard (*Buteo buteo*) was seen, however in the Study Area. The open farmland with a lack of both suitable tree cover and mature trees in the vicinity of the Proposed Development area suggests that there is little opportunity for nesting Schedule 1 raptor species that would be present in the local area (e.g. red kite and osprey).
- 8.4.11 A range of species associated with the farmland habitats present (low-lying pasture and arable land with burn-side vegetation) including BoCC red-list species such as skylark (*Alauda arvensis*), house sparrow (*Passer domesticus*), tree sparrow (*Passer montanus*), linnet (*Linnaria cannabina*) and yellowhammer (*Emberiza citrinella*) were recorded during the breeding bird surveys in 2023. In addition, amber-listed species reed bunting (*Emberiza schoeniclus*), dunnock (*Prunella vulgaris*) and wren (*Troglodytes troglodytes*) were also noted.
- 8.4.12 As noted above, herring gull (Outer Firth of Forth and St. Andrews Bay SPA qualifying species) was recorded as using the air space only, of the Study area during the breeding bird surveys (i.e. to 250 m of the Proposed Development).
- 8.4.13 The wintering bird surveys recorded pink-footed geese and greylag geese foraging within the survey area. The maximum counts for both (950 and 22 birds, respectively) were recorded on 20 February 2023, with the pink-footed geese recorded within the Site and the greylag geese within 1 km of the Site. For reference, the number of pink-footed geese by SPA are as follows:
- Loch of Kinnordy (3,960); and
  - Firth of Tay and Eden Estuary SPA (2,800).
- 8.4.14 And for greylag geese as follows:
- Loch of Kinnordy (910);
  - Loch of Lintrathen (2,100); and
  - Firth of Tay and Eden Estuary SPA (1,200).
- 8.4.15 As such, foraging/loafing use of the Site by these species may represent a resource for both pink-footed geese (over 30% of the Firth of Tay and Eden Estuary SPA population) and greylag geese (over 1% of the SPA populations present). Reference to Mitchell (2012) shows that traditional foraging sites for the qualifying species of these SPAs are present within 5 km of the Proposed Development, although foraging of both goose species at these SPAs is predominantly at greater distance (the Mitchell data are based on findings over 10 years prior to the present survey work, however). The proximity of the Firth of Tay and Eden Estuary SPA to the Proposed Development points to predominant use by birds from this SPA, however, rather than the Loch of Kinnordy SPA or the Loch of Lintrathen SPA.
- 8.4.16 Wintering geese were also recorded during the flight activity surveys 2023/2024. Survey was carried out from a single vantage point adjacent to the Emmock sub-station site with a total of 18 hours watch. Pink-footed geese were recorded on three

<sup>63</sup> Stanbury, A. et al. (2021) The status of our bird populations: the fifth Birds of Conservation concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain. *British Birds*, 114(12), p.723-747.

surveys dates in September 2023 and February and March 2024, with a maximum count of 235 birds recorded over the site. No birds were observed foraging within the sub-station study area, however.

8.4.17 Herring gull was recorded in low numbers (maximum count seven birds within the Study Area) during the winter surveys. The qualifying features of the Outer Firth of Forth and St. Andrews Bay SPA, include herring gull and other gull species which forage inland from coastal breeding sites, however larger gull species, such as herring gull, forage on average to 10.5 km from their breeding sites with most birds associated with the Outer Firth of Forth and St. Andrews Bay SPA likely nesting on cliffs in Berwickshire<sup>64</sup>.

8.4.18 Full details of the existing ornithological conditions will be presented within the EIA Report.

## 8.5 Sensitive Receptors

8.5.1 Based on the initial desk and field-based work undertaken, the ornithological receptors that will be considered for assessment comprise:

- Bird 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).

8.5.2 The SPAs identified in **Table 8.1: Statutory Designated Sites Associated with the Proposed Development** have been screened out of the process given that no likely significant effects have been predicted (NatureScot response, April 2024).

## 8.6 Mitigation

8.6.1 In-line with the hierarchy of mitigation set out in **Section 3.5: Mitigation**, the following section describes the Embedded and Applied Mitigation which is considered relevant to the Proposed Development in the context of this technical 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 8.7: Potential Significant Effects**.

### Embedded Mitigation

8.6.2 As described in **Section 3.5: Mitigation**, the design evolution for the Proposed Development has included changes which result in a reduced likelihood of negative, 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 screening bunds around the substation platform will incorporate new habitat creation with a diversity of habitat types which will offer some potential for foraging and nesting habitat for a range of bird species, particularly in the longer term as habitats such as native tree and scrubs develops; and
- The SUDS ponds have the potential to provide enhanced habitat for nesting and foraging birds; e.g. BOCC Amber-list species reed bunting and sedge warbler are known to take advantage of these features.

### Applied Mitigation

8.6.3 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 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 3.5: Mitigation** and **Appendix D: 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-521 and a CEMP including, but not limited to:

8.6.4 A Breeding Bird Protection Plan (BPP) will be employed and include careful timing of construction activities near to sensitive locations to avoid effects on breeding birds, in particular for Schedule 1 species, if present, as well as foraging SPA species. Appropriate species-specific working buffers may be employed to assure that minimal disturbance is achieved. Where significant effects are identified, or where the assessment identifies the requirement, additional mitigation measures may be

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<sup>64</sup> Forrester, R. W. and Andrews, I. J. (2007) *The Birds of Scotland*



proposed to offset those identified effects. Provision of nest boxes for species likely present and those recorded during survey with reference to NatureScot guidance<sup>65</sup> in alignment with NPF4. Specifically, tree sparrow, house martin and swallows should be provisioned for.

- Appropriate planting of trees, bushes and other plants to provide shelter and food for bird species, together with suitable habitat management methods.

#### Summary and Next Steps

- 8.6.5 The Applicant is committed to delivering both Embedded and Applied Mitigation in relation to this technical assessment. The mitigation described above has been applied when considering the potential for the Proposed Development to result in likely significant effects.
- 8.6.6 The impact assessment will, therefore, assess the potential for likely significant residual effects to arise and identify any further mitigation, in addition to the Embedded and Applied Mitigation, necessary to reduce their significance (referred to as 'Additional Mitigation') as far as practicable.
- 8.6.7 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.

### **8.7 Potential Significant Effects**

- 8.7.1 The Proposed Development has the potential to cause significant effects in both the construction and operation phases. These may arise due to:
- Loss of habitat and habitat modification (construction and operational phases) – The loss of habitats due to land take for infrastructure and habitat modification changes due to changes in land management may occur. The Proposed Development occupies a land area of approximately 96 hectares, largely agricultural habitats but with other habitats e.g. hedgerows and associated bird fauna.
  - Disturbance/displacement (Construction phase) – Disturbance of breeding birds, roosting birds (particularly during winter) and displacement of feeding/foraging birds in suitable habitats may occur during construction of the Proposed Development. Disturbance of breeding birds is likely to result from activities associated with people and machines in the vicinity of the Proposed Development and also would not be limited to the confines of the Site but also to disturbance distances associated with the breeding species present.
- 8.7.2 The assessment within the EIAR will consider the potential for significant effects associated with:
- Effects on designated sites (i.e. 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 the above combined with effects from other proposed or existing developments in the same geographic.

### **8.8 Assessment Scope and Methodology**

#### Proposed Scope of Assessment

- Schedule 1/Annex 1 bird species: Habitat loss, disturbance during breeding and roosting; and
- Birds of Conservation Concern (BoCC): Habitat loss and disturbance during breeding.

#### Assessment Methodology

- 8.8.1 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 and feasible to do so.

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<sup>65</sup> NatureScot (2020) [Developing with Nature guidance](#)

- 8.8.2 The assessment will be informed by NatureScot guidance<sup>66</sup> and based on CIEEM guidance<sup>67</sup>. The approach to assessment will take account of existing guidance and published scientific literature in relation to ornithology and infrastructure interactions, alongside professional judgement and experience of similar developments.
- 8.8.3 Effects will be considered during the construction and operational phases and will be assessed on the basis that a clearly defined range of appropriate avoidance buffers and standard good practice measures are implemented.
- 8.8.4 The evaluation of effects will consider how the conservation status of each species may be affected by the predicted magnitude and direction of impacts 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.

The identification and characterisation of effects on important ornithological features will be undertaken using the approach set out in **Section 3.3: Scoping Methodology** and with reference to the CIEEM guidelines which provide guidance on definition of effect magnitude (e.g. proportion of a population affected), extent, duration and reversibility as appropriate. Effect magnitude will be considered alongside the likelihood of its occurrence to inform a 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.

- 8.8.5 Professional judgement will be used to consider effect significance on each ornithological species, 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 (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.
- 8.8.6 The evaluation of residual effects will consider how the conservation status of each species included within the assessment 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.

#### Cumulative Assessment

- 8.8.7 The cumulative assessment will consider ornithological features that have been subject to a detailed assessment, and where a measurable adverse effect is predicted in isolation as a result of habitat loss and/or disturbance/displacement. The cumulative effects will be considered along with other developments, either built, proposed or otherwise anticipated by the Applicant, within the relevant Natural Heritage Zone (NHZ). These developments will include the Kintore to Tealing 400 kV OHL together with other OHL developments, wind farm developments and any developments which may contribute additive adverse impacts to those identified in isolation including the Banks BESS (see **Chapter 12: Cumulative Effects**). The assessment will be based on the consideration of residual effects, i.e. assuming that proposed mitigation and compensation measures (where relevant) are implemented. Further information on the approach to the cumulative assessment is provided in **Chapter 12: Cumulative Effects**.

### 8.9 Issues Scoped Out

- 8.9.1 The following high-level elements have been scoped out of the detailed ornithological impact assessment as they are not predicted to have significant adverse effects:
- **Barrier Effects:** A barrier effect occurs where an actual or perceived barrier which bird species may not cross, or at the very least would need to habituate to crossing is present. The presence of single or double-storey buildings associated with the

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<sup>66</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>67</sup> Chartered Institute of Ecology and Environmental Management (2018, updated 2022) Guidelines for Ecological Impact Assessment in the UK and Ireland – Terrestrial, Freshwater, Coastal and Marine (Version 1.2)

Proposed Development would not be recognised as barriers to flight paths. Therefore, this effect is of negligible significance and will be scoped out of detailed assessment.

- Disturbance (Operational phase): Disturbance of birds during the operational phase of the Proposed Development is considered likely to be insubstantial, and thus considered negligible, relative to the home range and foraging requirements of bird species of nature conservation importance.
- Designated Sites: Designated sites (in **Table 8.1: Statutory Designated Sites Associated with the Proposed Development**) for which no connectivity of designated features is present will be scoped out as – per NatureScot response on 30 April 2024.

## 8.10 Summary

- 8.10.1 This Scoping Report presents the ornithological baseline of the Proposed Development and an initial assessment of the potential impacts of the Proposed Development has been presented. This has enabled the proposed scope for the EIA to be refined.
- 8.10.2 Desk study information identified statutory designated sites within 20 km of the Proposed Development. Where the designated features of these sites have shown connectivity (i.e. where core foraging range of species overlaps with the Proposed Development) they are included in the scope of the ornithological impact assessment; the remaining sites have been scoped out due to their distance from the Proposed Development and where connectivity is not considered to be present.
- 8.10.3 Baseline surveys were carried out in 2023, with further survey in 2024 in order to provide key, targeted information of the ornithology receptors present in the Study Area to inform the EIA and associated mitigation. In addition to connectivity of the designated features to the Proposed Development, 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 Scottish Biodiversity List species to be affected by the Proposed Development.
- 8.10.4 The EIAR will identify, if necessary, where protected 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 BPP prior to and during construction and audited by an ECoW.

## 9. HYDROLOGY AND HYDROGEOLOGY

### 9.1 Introduction

- 9.1.1 This chapter presents a preliminary assessment of effects relating to hydrology and hydrogeology in relation to the construction and operation of the Proposed Development. The assessment includes effects on water quality, flood risk and drainage, groundwater abstractions, private water supplies and groundwater dependent terrestrial ecosystems (GWDTE). Evaluation of the existing baseline environment has been made through a combination of desk-based study, field surveys and consultation. The proposed approach to the assessment of effects on hydrology and hydrogeology in the EIAR is presented together with aspects of the assessment that are proposed to be scoped out of the EIA on the basis of the preliminary scoping assessment.
- 9.1.2 This chapter has been prepared by Kaya Consulting.

#### Feedback from Consultation

- 9.1.3 In response to the Consultation Document issued in May 2023, SEPA (16 June 2023) stated that they would welcome further investigation into whether there were opportunities to realign the straightened watercourse, the Fithie Burn, immediately to the south of the Proposed Development to contribute towards biodiversity enhancement. Within the same consultation response SEPA also provided general scoping guidance for large infrastructure projects.
- 9.1.4 NatureScot (30 May 2023) noted that the Proposed Development is approximately 8 km from the Firth of Tay and Eden Estuary Special Protection Area (SPA) and Ramsar site. They also noted the nearby The Outer Firth of Forth and St Andrews Bay Complex SPA. Scottish Water (30 May 2023) noted that there are no drinking water catchments or water abstraction sources, which are designated as Drinking Water Protected Areas under the Water Framework Directive, in the areas that may be affected by the Proposed Development. Angus Council (5 July 2023) noted the need to address biodiversity enhancement, and subsequently (12 March 2024) effects on the water environment and flood risk. This is covered further in **Chapter 7: Ecology**.

### 9.2 Study Area

- 9.2.2 The study area for hydrology and hydrogeology comprises the Proposed Development and watercourses and catchments upstream and downstream of the Proposed Development, see **Figure 9.1: Hydrology and Private Water Supply**. The search area for private water supplies and groundwater abstractions comprises a 1 km buffer from the Proposed Development. Existing conditions of the study area are described in **Section 9.4: Baseline Conditions**.

### 9.3 Approach

#### Desk-based Study

- 9.3.1 A desk-based review of Ordnance Survey maps (1:10,000 and 1:25,000 scale), British Geological Survey (BGS) Geology maps (1:50,000 to 1:625,000 scale), Soils Maps of Scotland (1:250,000 scale), SEPA Flood Maps (variable scale) and NatureScot Carbon and Peatland 2016 Map (1:250,000 scale) has been undertaken to identify watercourses and ground conditions within the vicinity of the Proposed Development.

#### Field Survey

- 9.3.2 A walkover of the study area has been undertaken by an experienced hydrologist. The walkover was completed to view the surface water network and catchments across the study area to inform the flood risk assessment (FRA) that will accompany the assessment. Cross-section topographic surveys of the Fithie Burn channel and the unnamed tributary to the east of the Site boundary were undertaken to inform the hydraulic modelling study that is being carried out for the FRA.

### 9.4 Baseline Conditions

#### Surface Water Resources

- 9.4.1 The Proposed Development is within the catchment of the Fithie Burn. The main watercourse channel flows in an easterly direction along the southern boundary of the Site. A tributary of the Fithie Burn flows in a southerly direction through the Site and enters the Fithie Burn at the southeastern corner of the Site. The Fithie Burn is a sub-catchment of the larger Dighty Water catchment. The confluence with the Dighty Water is approximately 8.5 km downstream of the Site.

- 9.4.2 SEPA has characterised surface water quality status under the terms of the Water Framework Directive<sup>68</sup>. 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 through High, Good, Moderate, Poor, and Bad status. This provides a holistic assessment of ecological health. The Fithie Burn (ID 6004) was classified as Poor in 2020 and has been designated by SEPA as a “*heavily modified water body on account of physical alterations that cannot be addressed without a significant impact on the drainage of agricultural land and from an increased risk of subsidence or flooding*”.
- 9.4.3 The Dighty Water (ID 6000), of which the Fithie Burn forms a sub-catchment, was classified as Moderate in 2020. The Dighty Water flows into the Firth of Tay and Eden Estuary Special Protection Area (SPA) and Special Area of Conservation (SAC) and the Monifieth Bay Site of Special Scientific Interest (SSSI). The SPA, SAC and SSSI are approximately 12.5 km downstream from the Site.

#### Flood Risk

- 9.4.4 A review of SEPA Future Flood Maps<sup>69</sup> indicates that there is fluvial and surface water (pluvial) flooding within the Site (**Figure 9.1: Hydrology and Private Water Supply**). This is primarily confined to the eastern periphery, associated with a culverted watercourse and to the south associated with Fithie Burn. A detailed assessment of hydrology and flood risk, with 1D-2D hydraulic modelling of both watercourses is being carried out to understand the existing flood risk at and close to the Site. The Proposed Development has been designed to be outwith the predicted 200 year + climate change flood risk area of both watercourses. A Flood Risk Assessment (FRA) will be submitted with the EIAR.
- 9.4.5 The Proposed Development is not at risk of coastal flooding.

#### Hydrogeology and Ground Water Dependent Terrestrial Ecosystems (GWDTE)

- 9.4.6 Reference to the British Geological Survey (BGS) 1:625k hydrogeological mapping<sup>70</sup> indicates that the Proposed Development is underlain by a moderately productive sandstone aquifer.
- 9.4.7 A review of Ordnance Survey 1:10K and 1:25K mapping indicates that there are no wells and groundwater springs located within the Site.
- 9.4.8 Ecology surveys confirmed that no GWDTEs were identified in the ecology study area (see **Chapter 7: Ecology**); effects on GWDTE will be scoped out of the assessment.

#### Water Resources

- 9.4.9 Angus Council has been consulted to obtain information on Private Water Supplies (PWS). Properties that are known by Angus Council to be supplied by a PWS are shown in **Figure 9.1: Hydrology and Private Water Supply**. However, Angus Council notes that their PWS records can be incomplete and need to be verified, and source locations confirmed. SSEN Transmission will undertake a survey of properties in the vicinity of the Site to add to the baseline understanding of PWS.
- 9.4.10 A search area of PWS within 1 km from the Site has been undertaken which has identified that there are none present within the Site. However, there are two properties that are known to be supplied by PWS within 1 km of the Site, as shown in **Figure 9.1: Hydrology and Private Water Supply**. The source of both PWS are groundwater springs, but the source locations are currently unknown.
- 9.4.11 SEPA were consulted and provided information on licensed Controlled Activities Regulations (CAR) abstractions within 1 km of the Site. These are shown in **Figure 9.1: Hydrology and Private Water Supply** there are no abstractions within the Site but there are two licenced abstractions within 1 km.
- 9.4.12 The Proposed Development is located within a Drinking Water Protected Area (DWPA) for groundwater (as is the whole of Scotland).

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<sup>68</sup> [SEPA \(2015\) Water Classification Hub](#)

<sup>69</sup> [SEPA \(undated\) Flood maps](#)

<sup>70</sup> [British Geological Survey \(2020\) Hydrogeology 625K digital hydrogeological map of the UK](#)

9.4.13 A review of Scotland's Environment Map Drinking Water Protected Areas (Surface Water) indicates that the Proposed Development is not within a Surface Water DWPA.

## 9.5 Sensitive Receptors

9.5.1 The sensitive receptors that will be considered within the EIA Report are described below:

- Surface watercourses (water quality and quantity): The Proposed Development is within the catchment of the Fithie Burn, which is considered a sensitive riverine receptor, as it drains towards the Firth of Tay and Eden Estuary SAC and the Monifieth Bay SSSI. There are areas of fluvial and pluvial flood risk associated with the Fithie Burn and tributary within the Site, which will be considered further in the EIAR.
- Groundwater bodies: The Proposed Development is located within a DWPA for Groundwater (as is the whole of Scotland).
- PWS and groundwater abstractions: There are PWS and groundwater abstractions within the Study Area.

## 9.6 Mitigation

9.6.1 In-line with the hierarchy of mitigation set out in **Section 3.5: Mitigation**, the following section describes the Embedded and Applied Mitigation which is considered relevant to the Proposed Development in the context of this technical 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 9.7: Potential Significant Effects**.

### Embedded Mitigation

9.6.2 As described in **Section 3.5: Mitigation**, the design evolution for the Proposed Development has included changes which result in a reduced likelihood of negative, 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 substation drainage design follows sustainable drainage systems (SuDS) and the drainage channels, swales and ponds have been designed such that local hydrological patterns and surface water run-off flow rates would not be materially different from existing 'greenfield' conditions.
- Excluding the site access which crosses a culverted watercourse, a 50 m buffer will be applied from areas of infrastructure and access tracks, where possible, to all water features, including watercourses, waterbodies and springs to minimise as far as reasonably practicable the risk of potential impacts due to changes in runoff, sedimentation, or water quality.
- All components of the Proposed Development will be kept outwith flood risk areas, where possible. A flood risk assessment (FRA) has been undertaken to inform the design of the Proposed Development. The FRA will be submitted with the planning application and the conclusions presented in the EIAR.
- Sustainable Drainage Systems (SuDS) will be used to manage surface water runoff within the Proposed Development to mitigate against the impacts associated with an increase in the impermeable area (such as increased flows and exacerbated flooding downstream). A Drainage Strategy will be prepared to accompany the EIAR, which will provide a sustainable and integrated surface water management scheme for the Proposed Development. The Drainage Strategy will detail how the Proposed Development will maintain or reduce downstream flood risk by managing discharges from the Site to the local water environment in a controlled manner. The Drainage Strategy and SuDS design will be developed in consultation with Angus Council and will follow relevant council guidance. The detention basin will drain to the Fithie Burn via an outfall pipe restricted to the 2-year greenfield runoff rate.
- Existing access tracks will be used as much as possible, such that the need for new tracks and new watercourse crossings will be reduced. The primary access for Site crosses an unnamed culverted watercourse and flood flow path and the crossing will be designed to maintain the existing capacity of the channel and to pass flood flows. The crossing will follow SEPA guidance on watercourse crossing design.

- Where possible, all excavations less than 1 m deep will be located over 100 m away from groundwater abstractions or PWS sources as per SEPA guidance<sup>71</sup>. Excavations greater than 1 m in depth will, where possible, be located at least 250 m away from these receptors.

9.6.3 In addition to the siting of infrastructure components out of flood risk areas and the use of appropriate watercourse buffers 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, 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 e.g. engineering works in inland waters for the proposed access track watercourse crossing. A Construction Site Licence (CSL) will also be required for the works under the CAR Regulations. Activities for which a CAR licence or registration is required will be identified and described in the EIAR.

#### Applied Mitigation

9.6.4 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 SSEN 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. The Applied Mitigation considered relevant to this technical assessment assumably draws on but is not limited GEMP TG-NET-ENV-512, TG-NET-ENV-515 and TG-NET-ENV-511 as well as a CEMP including, but not limited to:

- Good practice pollution prevention and control measures will be implemented during construction via the CEMP. These will be embedded into the project design and will reflect best practice guidance and recognised industry standards (e.g. SEPA guidance, including their Guidance for Pollution Prevention (GPPs), CIRIA SUDS Manual<sup>72</sup> and control of water pollution guidance<sup>73,74</sup> ).
- In addition, SSEN Transmission's General Environmental Management Plan (GEMP), will capture all mitigation measures required in respect of hydrology and water quality, 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 Works (ECOW).

#### Summary and Next Steps

9.6.5 The Applicant is committed to delivering both Embedded and Applied Mitigation in relation to this technical assessment. The mitigation described above has been applied when considering the potential for the Proposed Development to result in likely significant effects.

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

9.6.7 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.

## **9.7 Potential Significant Effects**

9.7.1 With Embedded and Applied Mitigation many potential significant effects on the water environment can be avoided or reduced, including effects on water quality, run-off rates and flood risk to the downstream water environment. However potential significant effects could occur locally at areas where watercourse buffers have not been achieved (i.e. watercourse

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<sup>71</sup> SEPA (2017) Land Use Planning System, SEPA Guidance Note 31 (LUPS-31): Guidance on Assessing the Impacts of Development Proposals on Groundwater Abstractions and Groundwater Dependent Terrestrial Ecosystems

<sup>72</sup> CIRIA (2015) The SUDS Manual (C753)

<sup>73</sup> CIRIA (2001) Control of water pollution from construction sites: Guidance for consultants and contractors (C532)

<sup>74</sup> CIRIA (2006) Control of water pollution from linear construction projects: Site guide (C649)

crossing of the site access track) or at local PWS/groundwater abstractions where buffers cannot be achieved. Potential significant effects of the Proposed Development include:

- Flood risk during construction and operation of the Site access.
- Effects during construction on quality and quantity of PWS abstractions reliant upon groundwater resources that have subsurface flows or hydraulic connectivity impacted adversely by construction. If PWS sources are identified within 250 m of proposed excavations further assessment will be undertaken within the EIA to confirm the effects of the Proposed Development on the abstraction with additional mitigation measures proposed, if required and appropriate to do so.

## 9.8 Assessment Scope and Methodology

### Proposed Scope of Assessment

- 9.8.1 The EIA will include a focussed hydrological and hydrogeological impact assessment concentrating on the key issues relating to flood risk and drainage, and focussing on areas where appropriate buffers to PWS, groundwater abstractions and water features cannot be achieved.

### Assessment Methodology

- 9.8.2 Hydrology walkover surveys have been undertaken 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.
- 9.8.3 A detailed site-specific FRA is currently being undertaken for the Proposed Development. This includes catchment mapping, hydrological analysis and 1D-2D modelling of the Fithie Burn and tributaries to predict the flood risk areas within the Site. A Drainage Strategy is being prepared for the Proposed Development and will accompany the EIA.
- 9.8.4 Further information on PWS (to add to the data provided by Angus Council) is being collected via questionnaires to all properties within 1 km of the Site; this will allow identification of other PWS not known by the Council and will provide information on the type of supply and source locations. Where PWS sources are identified within 250 m of proposed excavations >1 m deep or 100 m from excavations <1 m deep an assessment will be included within the EIA. This would outline the potential risk and demonstrate how this risk can be mitigated in accordance with SEPA Guidance Note 31 (LUPS-GU31)<sup>75</sup>.

## 9.9 Issues Scoped Out

- 9.9.1 The following effects are proposed to be scoped out of the assessment:
- Potential adverse effects on water quality, flood risk, PWS and groundwater abstractions during construction and operation if appropriate buffers from watercourses and sensitive receptors have been achieved. Embedded and Applied mitigation (described above) will mitigate potential effects on the water environment and reduce run-off from the Proposed Development to greenfield rates.
  - Potential effects on GWDTE, as no GWDTE were identified in the ecology study area.

## 9.10 Summary

- 9.10.1 This Scoping Report presents the hydrology, hydrogeology baseline of the Proposed Development and an initial assessment of the potential impacts of the Proposed Development has been presented. This has enabled the proposed scope for the EIA to be refined.
- 9.10.2 A hydrological and hydrogeological impact assessment will be provided within the EIA. The following technical reports will be appended to the EIA and their conclusions will inform the design (embedded mitigation), applied and additional mitigation that will be proposed.
- Flood Risk Assessment (FRA);

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<sup>75</sup> SEPA (2017) Land Use Planning System, SEPA Guidance Note 31 (LUPS-31): Guidance on Assessing the Impacts of Development Proposals on Groundwater Abstractions and Groundwater Dependent Terrestrial Ecosystems



- Outline Drainage Strategy;
- Watercourse Crossing Assessment; and
- PWS Assessment (if required).

## 10. TRAFFIC AND TRANSPORT

### 10.1 Introduction

10.1.1 This chapter sets out the proposed approach to the assessment of the potential effects on traffic and transport in relation to the construction phase of the Proposed Development. Traffic associated with the operation of the Proposed Development is considered likely to be negligible and is therefore not proposed to be included within the EIA process.

10.1.2 This chapter has been prepared by Pell Frischmann.

#### Feedback from Consultation

10.1.3 In response to the Consultation Document issued in May 2023, Transport Scotland advised that any potential impact of construction related traffic on the trunk road network would need to be assessed in accordance with the Institute of Environmental Management and Assessment (IEMA) Guidelines for the Environmental Assessment of Road Traffic. Transport Scotland advised that assessment of the proposed delivery route(s) should include the suitability of using the trunk road junction(s) as well as local roads, and further advised that any use of Abnormal Indivisible Loads for the delivery of substation components will require to be assessed through an Abnormal Loads Assessment, as well as a swept path analysis. Transport Scotland also advised that any proposed changes to the trunk road network requires to be discussed and approved by the Area Manager.

### 10.2 Study Area

10.2.1 The study area includes trunk roads and local roads that are likely to experience increased traffic flows associated with the construction of the Proposed Development (see **Figure 10.1: Transport Network**). 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 The Proposed Development would be accessed from the Emmock Road, approximately 400 m to the south of its junction with the C6 Tealing Road. The extents of the study area will include:

- The dualled A90 trunk road between the Tealing Junction and Riverside Avenue;
- The A92 between the junction of the A90/A92 and the Scott Fyffe Roundabout;
- Emmock Road, between the A90 junction and the Proposed Site Access junction;
- C6 Tealing Road from the A90 through to its junction with Emmock Road; and
- Moathill Road from its junction with the A90 through to the Seagreen access junction.

### 10.3 Approach

10.3.1 The following policy and guidance documents have been used to inform the Traffic and Transport chapter:

- Transport Scotland (2012) Transport Assessment Guidance<sup>76</sup>; and
- Institute of Environmental Management & Assessment (IEMA) (2023) Environmental Assessment of Traffic and Movement<sup>77</sup>.

10.3.2 A 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.

10.3.3 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.

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<sup>76</sup> Transport Scotland (2012) Transport Assessment Guidance

<sup>77</sup> Institute of Environmental Management and Assessment (IEMA) (2023) Environmental Assessment of Traffic and Movement

- 10.3.4 An appropriate access junction will be provided to cater for general construction traffic, abnormal loads deliveries and ongoing operational access to the Proposed Development. The junction will be described in the transport submissions and an indicative layout plan of the junction will be provided.
- 10.3.5 Abnormal Indivisible Loads (AIL) associated with the Proposed Development will be examined in a Route Survey Report (RSR) that will be appended to the EIAR. Swept path assessments and traffic management requirements necessary for the safe and efficient delivery of the loads will be detailed in the RSR.

#### 10.4 Baseline Conditions

10.4.1 Traffic survey data for use in the assessment would be obtained from Transport Scotland's traffic database for the following links:

- A90 north of Emmock Road (Site Ref JTC00064);
- A92 Kingsway East, east of the A90/A92 Junction (Site Ref JTC00554); and
- A90 Kingsway, near Strathmartine Road (Site Ref JTC00557).

10.4.2 Further traffic data for the local road network will be required and would be collected via Automatic Traffic Count (ATC) surveys.

10.4.3 The ATC surveys have been 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.

10.4.4 ATC survey data would be collected for the following road links to further establish the baseline conditions:

- Emmock Road at the location of the proposed site access junction;
- Emmock Road near where it crosses the A90;
- C6 Tealing Road; and
- Moathill Road.

10.4.5 Further baseline information will be obtained from the following sources:

- Core Path mapping from Angus Council<sup>78</sup>;
- National Cycle Route mapping from Sustrans<sup>79</sup>; and
- Accident data from the online resource, [www.crashmap.co.uk](http://www.crashmap.co.uk).

10.4.6 A site visit will also be undertaken to review the route and obtain further baseline data and characteristics.

#### 10.5 Sensitive Receptors

10.5.1 Sensitive receptors include the following:

- Users of the local roads; and
- Land uses and environmental resources fronting these roads, including the relevant occupiers and users.

The main transport impacts will be associated with the movement of general construction and HGV traffic travelling to and from the Proposed Development during the construction phase of the Proposed Development (see **Figure 10.2: Haul Routes**).

#### 10.6 Mitigation

10.6.1 In-line with the hierarchy of mitigation set out in **Section 3.5: Mitigation**, the following section describes the Embedded and Applied Mitigation which is considered relevant to the Proposed Development in the context of this technical 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 10.7: Potential Significant Effects**.

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<sup>78</sup> Angus Council (2024) Core Paths map

<sup>79</sup> Sustrans (2024) National Cycle Route map

### Embedded Mitigation

10.6.2 As described in **Section 3.5: Mitigation**, the design evolution for the Proposed Development has included changes which result in a reduced likelihood of negative, 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 design process has sought to reduce the volume of material needed to be imported to Site, thus reducing the number of vehicle movements.

### Applied Mitigation

10.6.3 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 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. The Applied Mitigation considered relevant to this technical assessment, draws on but is not limited GEMP TG-NET-ENV-516 and TG-NET-ENV-520 as well as a CEMP. These include, but are not limited to:

- Waste management priorities and practical actions that can be undertaken on site should follow the principles of the waste hierarchy (thus reducing vehicle movements). All movement of waste should be undertaken in line with the relevant waste regulations.
- Any waste being transported off site should be done so by a registered waste carrier.
- Vehicles to comply with dust management requirements.

### Summary and Next Steps

10.6.4 The Applicant is committed to delivering both Embedded and Applied Mitigation in relation to this technical assessment. The mitigation described above has been applied when considering the potential for the Proposed Development to result in likely significant effects.

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

10.6.6 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.

## **10.7 Potential Significant Effects**

10.7.1 Potential impacts that may arise during the assessment may include the following for users of the road and those residents within the study area:

- Severance;
- Driver delay;
- Pedestrian delay;
- Non-motorised user amenity;
- Fear and intimidation;
- Road safety;
- Road safety audits; and
- Large loads.

10.7.2 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 and will present a robust assessment of the effects of construction traffic on the local and trunk road networks.

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

## 10.8 Assessment Scope and Methodology

- 10.8.1 The assessment will consider the potential effects associated with construction traffic across the proposed study area. Traffic effects will be considered based upon a peak traffic flow derived from the Proposed Developments' 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.
- 10.8.2 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.
- 10.8.3 The traffic and transport chapter of the EIAR 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 transport and access policy.
- 10.8.4 Where effects are considered significant for each of the potential effects noted in **Section 10.6: Mitigation**, additional mitigation will be considered. The assessment will consider residents and road users across the study area.
- 10.8.5 The following rules taken from the IEMA guidance 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 HGVs will increase by more than 30%).
  - Rule 2 – Include highway links of high sensitivity where traffic flows have increased by 10% or more.
- 10.8.6 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 as such no further consideration will be given in the EIAR to the associated environment effects.
- 10.8.7 In order to forecast future year traffic flows it is proposed that Low National Road Traffic Forecasts (NRTF) are used.
- 10.8.8 The estimated traffic generation for the construction of the Proposed Development will be compared with future baseline traffic flows, derived from existing traffic survey data, in order to determine the percentage increase in traffic.
- 10.8.9 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.
- 10.8.10 Significance is 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 EIA Regulations and would be the focus of further mitigation where feasible.
- 10.8.11 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.
- 10.8.12 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.
- 10.8.13 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.
- 10.8.14 The requirement for cumulative assessment will be considered with reference to other significant planned development proposals where a proposed development has planning consent and would have a significant impact on the study network (i.e. over 30% increase in traffic flows). Cumulative developments with the potential to have significant traffic and transport effects

will be reviewed drawing from the overall list of potential cumulative projects for the EIA (see **Chapter 12: Cumulative Effects**). These traffic flows would be included in the future baseline flows used within the assessment.

- 10.8.15 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 in the EIAR. The only exception would be the associated developments relating to the proposed Kintore to Tealing 400 kV OHL component of the Overall Project. Whilst these are the subject of separate planning applications, they are associated development and as such will be included.
- 10.8.16 Potentially significant environmental effects will then be assessed where the thresholds as defined above are exceeded. Suitable mitigation measures will be proposed, where appropriate, building on those outlined previously.

### **10.9 Issues Scoped Out**

- 10.9.1 Once operational, it is envisaged that the level of traffic associated with the Proposed Development would be minimal. Regular maintenance visits would be made to the Proposed Development typically using Light Goods Vehicles (LGV) or 4x4 vehicles. It is considered that the effects of operational traffic would be negligible and therefore no detailed transportation assessment of the operational phase of the development is proposed.
- 10.9.2 The traffic generation levels associated with the decommissioning phase are predicted to be less than those associated with the development phase as some elements such as access tracks to be retained by landowners would be left in place. As such, the construction phase is considered the worst-case assessment to review the impact on 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.

### **10.10 Summary**

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

## 11. NOISE AND VIBRATION

### 11.1 Introduction

11.1.1 This chapter provides an overview of the noise and vibration baseline conditions, the potential effects associated with the construction and operation of the Proposed Development and the proposed scope of noise and vibration assessment methodology to be adopted in the EIA. The methodology will primarily focus on assessment of effects on permanent residential receptors in the study area and on sensitive receptors identified along the routes proposed for construction traffic. Transport of Abnormal Indivisible Loads will not be considered due to the extremely limited duration of this particular activity.

#### Feedback from Consultation

11.1.2 In response to the Consultation Document issued in May 2023, Angus Council advised that impacts, including cumulative impacts, on residential receptors associated with potential noise sources is likely to be one of the main planning considerations.

**11.2 Study Area** The nearest groups of residential receptors are to the east of the Site (Balnuith Farm and Cottages, and Seventeen Acres). Other receptor clusters are located to the north of the Site (Balkemback Cottages and Dunian). Additional receptors along the proposed transport routes, as identified in the TA will also be considered.

### 11.3 Approach

11.3.1 The approach of the noise and vibration impact assessment will comprise the following:

#### Consultation and Screening

11.3.2 Initial consultation with the local authority; establishment of appropriate noise and vibration limits and criteria, agreement on methodology, and agreement of noise and vibration sensitive receptors (NSR) and base noise measurement locations.

11.3.3 A desk-based screening assessment using conservative project data will be used to establish potential impact zones.

#### Field Survey

11.3.4 A baseline noise survey will be conducted as detailed in **Section 11.4: Baseline Conditions**. This will define the pre-existing noise levels on site and at NSRs.

#### Detailed Desk-based Study

11.3.5 Detailed desk-based assessment following the methodology outlined in **Section 11.7: Potential Significant Effects**. The assessment will be primarily based on BS5228 for construction noise and BS4142 for operational noise and will comply with the standards set out in these as a minimum, including a cumulative noise impact assessment, determination of the requirement of mitigation if noise limits are predicted to be exceeded and the determination of residual noise impact.

### 11.4 Baseline Conditions

11.4.1 The Proposed Development is located within a predominantly rural area and hosts existing electricity transmission infrastructure. No specific baseline noise measurements have been conducted to date regarding the Proposed Development.

11.4.2 A survey of the background noise (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 and at any nearby NSRs likely to be affected by the noise in accordance with BS 4142. To ensure that values are reliable and representative of the outdoor amenity of NSRs, a minimum of 1-week continuous background monitoring will be conducted at primary NSRs, this data may be supplemented with additional attended spot measurements of 15-minutes in accordance with BS4142.

11.4.3 As the survey is based on long-term unattended measurements, a meteorological station will also be set up in the area to monitor for appropriate weather conditions. Meteorological conditions such as wind and rain will affect background noise (BGN) conditions and have possible effects on noise propagation. Measurements will be conducted every 15 minutes to coincide with the measured noise data.

11.4.4 Detailed Ordnance Survey maps and satellite imagery will be used to identify the potential NSRs. Receptors chosen will be representative of the closest residential properties surrounding the Proposed Development.

## 11.5 Sensitive Receptors

11.5.1 NSRs are defined in the context of this assessment as residential properties located within 1.5 km of a nominal centre of the Proposed Development, which is a typical distance beyond which the noise impact from construction and operation of the Proposed Development is deemed unlikely. Where properties lie in groups rather than alone, one location may be chosen as being representative of several properties that would produce duplicate results. 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. The noise assessment conducted for these properties will have the highest 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. Relevant NSRs associated with cumulative developments will be appropriately selected and assessed.

## 11.6 Mitigation

11.6.1 In-line with the hierarchy of mitigation set out in **Section 3.5: Mitigation**, the following section describes the Embedded and Applied Mitigation which is considered relevant to the Proposed Development in the context of this technical 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 11.7: Potential Significant Effects**.

### Embedded Mitigation

11.6.2 As described in **Section 3.5: Mitigation**, the design evolution for the Proposed Development has included changes which result in a reduced likelihood of negative, 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:

- Operational Noise – The level of noise experienced at NSRs resulting from the operation of the Proposed Development will depend on factors such as the sound power output of electrical equipment, distance between a noise source or sources and a NSR; the presence of structures between source and receptor which might act as a barrier; topography and ground conditions; and weather. The need for and approach to mitigating significant noise effects at NSRs will be determined through the noise impact assessment. Various strategies are available to mitigate noise, mostly involving mitigation at source, such as procuring equipment with an inherently low sound power output; enclosing equipment either fully or partially, and/or relying on bunds or barriers. The most appropriate approach will be determined through the impact assessment.

### Applied Mitigation

11.6.3 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 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. The Applied Mitigation considered relevant to this technical assessment will comprise a CEMP and Construction Noise Management Plan (CNMP) which includes, but is not limited to:

Construction Noise and Vibration.

11.6.4 A full noise impact assessment will be performed for construction noise associated with the Proposed Development. British Standard (BS) 5228 2009 +A1:2014 provides recommended limits for noise from construction sites to meet a maximum 65 dB limit at receptors.

11.6.5 Even if the construction noise limit is met, it is best practice that construction noise should continue to be controlled with a CNMP, in accordance with the guidance and procedures outlined in BS 5228-1. Procedures will 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.



- 11.6.6 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.
  - Ensure plant and equipment are regularly and properly maintained. All plant should be situated to sufficiently minimise 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.
  - 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.
- 11.6.7 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.
- 11.6.8 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.
- 11.6.9 Best practice measures will be put in place during construction to mitigate impacts from noise and vibration. The measures will be included in the CEMP, to be agreed with Angus Council and secured by an appropriately worded planning condition and will include best practice measures as outline in BS 5228 such as:
- Avoiding undertaking noisy activities at the weekends or outside of daytime defined hours as necessary. In setting working hours, consideration is given to the fact that the level of noise through the normal working day is more easily tolerated than during the evening and night-time. Selecting quiet working methods, including the use of inherently quiet plant/equipment, reasonable working hours for noisy operations, and economy and speed of operations. Site work continuing throughout at 24-hour period should be programmed, where appropriate, including scheduling of haulage vehicles during the working day.
  - Avoidance of vehicles waiting or queuing, particularly on public highways or in residential areas with their engines running.
  - Ensuring plant and equipment are regularly and properly maintained. All plant should be situated to sufficiently minimise noise impact at nearby properties.

#### Summary and Next Steps

- 11.6.10 The Applicant is committed to delivering both Embedded and Applied Mitigation as set out in **Section 3.5: Mitigation** and as described above in relation to this technical assessment. The mitigation described above has been applied when considering the potential for the Proposed Development to result in likely significant effects.
- 11.6.11 The impact assessment will, therefore, assess the potential for likely significant residual effects to arise and identify any further mitigation, in addition to the Embedded and Applied Mitigation, necessary to reduce their significance (referred to as 'Additional Mitigation') as far as practicable.
- 11.6.12 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.

## **11.7 Potential Significant Effects**

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

- Noise and vibration during the construction phase;
- Operational effects of noise from the substation including but not limited to transformers, reactors, capacitors, cooling, and air handling units; and
- The operational noise has the potential to increase following installation of the new conductors and in the increased operational voltage of the OHL.

#### Construction Noise

11.7.2 There is the potential for construction noise impacts from static, quasi static and mobile plant items involved in the:

- Creation of earthworks comprising the platform for the substation, access track, landscape bunding and SuDS;
- Installation of electrical infrastructure equipment; and
- Installation of connections to terminal towers, potentially including the use of cranes.

11.7.3 Noise from construction traffic also has a potential to cause impact. Vehicle movements of the construction equipment on the access tracks and main roads will be estimated to find the noise impact on nearby noise sensitive receptors. These will be summed with the activity of onsite noise.

#### Operational Noise

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

11.7.5 Of relevance to assessing the cumulative effects of noise from the substation and the proposed OHL, 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.

11.7.6 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. Aeolian noise is caused by wind blowing over a structure resulting in vibration that matches that the natural frequency of the structure, or vortex shedding on the surface of a structure. There is currently not a standardised method to predict this type of noise, therefore it is difficult to assess.

### **11.8 Assessment Scope and Methodology**

11.8.1 The Proposed Development and methodology of assessment will be agreed with Angus Council to confirm that the following methodology of assessment is appropriate.

#### Construction Noise and Vibration

11.8.2 The assessment of construction noise will comply with the following standards and guidance:

- British Standard 5228-1/2:2009 +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.

- 11.8.3 Part 1: Noise BS5228-1 provides recommended limits for noise from construction sites. 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. This could include NSRs near the Proposed Development or along any access route.
- 11.8.4 In line with best practice (BS 5228-1), A Construction Noise Management Plan (CNMP) prepared in line with BS5228, will be submitted as part of the EIAR.
- Part 2: Vibration. BS5228-2 provides recommended limits for vibration from construction sites. The construction vibration impact assessment (CVIA) will be carried out against the guidance on effects of vibration levels specified in Table B.1 of BS5228-2. The level of vibration ranging from  $0.14 \text{ mm.s}^{-1}$  to  $10 \text{ mm.s}^{-1}$  indicates where vibration may be perceptible however acceptable, or intolerable.
- 11.8.5 Construction activities that induce vibration are likely to be limited to potential piling activities.
- 11.8.6 Potential of heavy goods vehicle (HGV) vibration on receptors along haul roads will be predicted using the procedures in Transport and Road Research Laboratory (TRL) Research Report 246 – Traffic Induced Vibrations in Buildings.

#### Operational Noise - Substation

- 11.8.7 The assessment of operational noise will comply with the following standards and guidance:
- Planning Advice Note (PAN) 1/2011: 'Planning and Noise'.
- 11.8.8 Published in March 2011, this document provides advice on the role of the planning system in helping to prevent and limit adverse effects of noise (Scottish Government, 2011). 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.
- 11.8.9 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)
- 11.8.10 British Standard 4142 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 premises; and
  - 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.
- 11.8.11 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.
- 11.8.12 In accordance with the assessment methodology, the specific sound level ( $LA_{eq,T}$ ) 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' ( $L_{Ar,Tr}$ ). The British Standard effectively compares and rates the difference between the rating level and the typical background sound level ( $LA_{90,T}$ ) in the absence of the noise source being assessed. The assessment will be based on a 3D digital model of the Proposed Development and surrounding area to industry standard in accordance with ISO 9613-2.
- 11.8.13 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.
- 11.8.14 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.”

#### Operational Noise – Overhead Lines

- 11.8.15 The National Grid has derived a procedure to assess the impact of OHL noise in both dry and rainy conditions – TGN (E) 322 – Operational Audible Noise Assessment Process for Overhead Lines. 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.
- 11.8.16 The procedure requires that a series of assessments are conducted in tiers. Tier 3 requires that the background noise 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 background noise 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.
- 11.8.17 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 background noise levels at NSRs, or groups of such NSRs, within at least 280 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
  - Determination of total excess at the most likely rain rate.

#### Noise Rating Curves and BS8233:2014

- 11.8.18 The Noise Rating – NR – curve is developed by the International Organization for Standardization (ISO 1973) to determine the acceptable indoor environment for hearing preservation, speech communication and annoyance.
- 11.8.19 The noise rating graphs for different sound pressure levels are plotted as acceptable sound pressure levels at different frequencies. Acceptable sound pressure level varies with the room and the use of it. Different curves are obtained for each type of use. Each curve is referenced by a NR number as set out in **Table 11.1: Noise Rating**.

**Table 11.1: Noise Rating**

Noise Rating	Application
NR 20	Quiet rural area (council defined) for protection of amenity
NR 25	Concert halls, broadcasting and recording studios, churches
NR 30	Private dwellings, hospitals, theatres, cinemas, conference rooms
NR 35	Libraries, museums, court rooms, schools, hospitals operating theatres and wards, flats, hotels, executive offices

Noise Rating	Application
NR 40	Halls, corridors, cloakrooms, restaurants, night clubs, offices, shops
NR 45	Department stores, supermarkets, canteens, general offices
NR 50	Typing pools, offices with business machines
NR 60	Light engineering works
NR 70	Foundries, heavy engineering works
NR 20	Quiet rural area (council defined) for protection of amenity

11.8.20 British Standard 8233:2014: Guidance on sound insulation and noise reduction for buildings provides guidance for the control of noise in and around buildings. The guidance provided within the document is applicable to the design of new buildings, or refurbished buildings undergoing a change of use, but does not provide guidance on assessing the effects of changes in the external noise levels to occupants of an existing building.

11.8.21 The guidance provided includes appropriate internal and external noise level criteria which are applicable to dwellings exposed to steady-state external noise sources. It is stated in the British Standard that it is desirable for internal ambient noise level not to exceed the criteria set out in **Table 11.2: Summary of Internal Ambient Noise Level Criteria for Dwellings from BS 8233:2014**.

**Table 11.2: Summary of Internal Ambient Noise Level Criteria for Dwellings from BS 8233:2014**

Activity	Location	07:00 to 23:00 Hours, i.e. Daytime	23:00 to 07:00 Hours, i.e. Night time
Resting	Living Room	35 dB LAeq,16 hour	
Dining	Dining Room/Area	40 dB LAeq,16 hour	
Sleeping (daytime resting)	Bedroom	35 dB LAeq,16 hour	30 dB LAeq,8 hour

#### Cumulative Noise

11.8.22 Cumulative noise will be assessed where sources can be categorised as the same type and therefore similar assessment methodology can be applied. Industrial noise source levels can be combined to a single received noise level and assessed to BS4142 methodology. Cumulative overhead line noise can use the same methodology, however the derived 'wet' background noise level will be used as a baseline rather than dry levels.

11.8.23 If significant impacts are predicted mitigation will be applied as appropriate to each source. If assets of cumulative projects are owned by the Applicant, a combined approach to mitigation will be applied to meet noise limits. If cumulative assets are owned by a third party, it is to be assumed that those assets are able to operate up to their defined noise limits, and therefore mitigation must be applied to solely to Applicant assets.

### 11.9 Issues Scoped Out

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

### 11.10 Summary

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

11.10.2 Mitigation measures will be proposed, where required, to avoid or reduce likely significant effects.

11.10.3 Noise limits (in line with best practice guidance) will be agreed with Angus Council. Appropriate mitigation measures will be implemented to ensure these limits will be met and that the noise impact of the Proposed Development is low.

## 12. CUMULATIVE EFFECTS

### 12.1 Introduction

- 12.1.1 This chapter explains the classification of cumulative effects for the EIA, sets out the proposed approach to identifying other development proposals in the cumulative effects assessment, and provides an outline scope of the anticipated cumulative effects assessment including the approach to identifying, mitigating and assessing impacts for the construction and operation of the Proposed Development.
- 12.1.2 The approach follows an assessment of two types of cumulative effect:
- In-combination effects (sometimes known as inter-project effects) which relates to the cumulation of impacts from the Proposed Development with other reasonably foreseeable<sup>80</sup> development projects; and
  - Interactive effects (also known as intra-project effects) which considers the effects from different impact types of the Proposed Development on key receptors such as communities, designated areas or ecosystems.
- 12.1.3 The in-combination assessment will take into account the potential for significant effects of the Proposed Development with the connection for the proposed Kintore to Tealing 400 kV OHL in order to provide an assessment of the Overall Project as far as it is relevant to the EIA for the proposed substation. The assessment will also consider the potential for further significant cumulative effects of the Overall Project with other development proposals in proximity to the Proposed Development including those associated with projects being planned by SSEN Transmission which will require upgrading and redirection of existing OHLs in the vicinity of Tealing Substation and the proposed Emmock substation (see **Section 12.3**).

### 12.2 Study Area

#### *In-combination Cumulative Effects*

- 12.2.1 An initial study area of 10 km from the Site 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)<sup>81</sup>. The reasonably foreseeable development proposals identified in planning and those proposals reasonably known to the Applicant within this initial study area are identified in **Table 12.1: Major Developments with Planning Applications and Consents** and **Table 12.2: Developments Foreseeable to the Applicant** forming a long list of potential projects for the cumulative assessment. This study area was subsequently refined on the basis of the likely significant cumulative effects identified in the preceding technical chapters.
- 12.2.2 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 Overall Project taking account of committed embedded and applied mitigation. This is also consistent with the extent of the proposed LVIA study area drawing from review of the initial 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 Overall Project and the receiving environment. More expansive study areas associated with some

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<sup>80</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.

<sup>81</sup> The ornithological assessment study area extends to up to 20 km in relation to SPAs however it is anticipated that the potential for cumulative effects would diminish with distance from the receptor SPA(s) and the Proposed Development is not located closer than 8 km to any of the potentially affected sites. The requirement to consider other cumulative developments up to 20 km from the relevant SPAs will be addressed in a staged approach drawing on developing appraisal of the ornithological effects of the Proposed Development and any required HRA work. At the EIA stage the reasonably foreseeable developments to be included in the cumulative assessment for ornithology will address this issue further and all projects scoped into the cumulative assessment will be captured within the EIAR's ornithological assessment. A pragmatic approach has therefore been taken at the EIA scoping stage to definition of a study area to inform collation of a long list of potential reasonably foreseeable projects to a maximum radius from the site of 10 km. This is supported by recent consultation feedback from NatureScot which indicates they consider there would not be likely significant effects on any SPAs from the Proposed Development.

technical chapters were not adopted due to the specialised nature of those study area and the anticipated attenuation of in-combination effects as distance increases from the Site.

#### Interactive Cumulative Effects

- 12.2.3 Given the nature of the Proposed Development and Overall Project and the receiving environment it is anticipated that interactive cumulative effects will have a smaller, bespoke, study area which will comprise only receptors with potential direct pathways for multiple effects arising from the Overall Project. As the EIA progresses, further detail on the emerging predicted environmental effects of the proposals will allow for identification of key common receptors which may be sensitive to intra-project effects and the cumulative assessment will define these receptors therefore a fixed study area cannot be defined at this scoping stage.

### **12.3 Approach**

#### In-combination Cumulative Effects

- 12.3.1 Consideration will be given to predicted cumulative environmental effects, which have the potential to arise from the effects associated with the Proposed Development and Overall Project when considered in addition to and in combination with other reasonably foreseeable development proposals. The potential for cumulative effects will be considered in relation to an agreed schedule of reasonably foreseeable developments. The criteria which are proposed to be used to inform selection of these developments will include:
- Development proposals of more than local scale (i.e. national or major development) located within 3 km<sup>82</sup> 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.
- 12.3.2 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 and Overall Project. There is also likely to be publicly available information on their predicted effects, for example through published EIARs which is necessary to inform anything other than a very high-level cumulative assessment.
- 12.3.3 The list of reasonably foreseeable developments to be included in the cumulative effects assessment would be finalised prior to EIAR publication to allow sufficient time to complete the assessment and compile the EIAR. Each subject assessment presented in the EIAR, and as outlined in the preceding chapters of this Scoping Report, would include an assessment of potentially significant cumulative effects as part of their assessment of the Proposed Development and Overall Project. Development proposals at the pre-application stage (e.g. those where a PAN notice has been lodged with the ECU or LPA) are generally not proposed to be included as cumulative projects. 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. A list of cumulative developments for the EIA will be finalised and agreed with the LPA drawing on advice provided in the Scoping Opinion. At this stage it is considered that the following project types would typically be included:
- Proposals for new or extended onshore wind farm developments;

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<sup>82</sup> It is recognised that given the larger potential zone of influence of the proposals in relation to SPAs, consideration will be given to other foreseeable developments out to 10 km from the Proposed Development location specifically (and only) in respect of potentially significant cumulation of effects for relevant qualifying species of the affected SPAs.

- Energy transmission infrastructure proposals promoted by developers other than the Applicant and typically in close proximity to the existing Tealing Substation and the Proposed Development (e.g. proposals for onshore connections and substations for offshore wind farms and larger scale battery energy storage sites);
- Proposals for upgrading and re-powering of existing OHLs (between Alyth and Tealing and between Tealing and Westfield) which will also need to be re-directed to tie in with the Proposed Development rather than their current connection with Tealing Substation;
- Other types of development proposal of national or major scale such as those associated with settlement expansion or larger scale agricultural development, for example; and
- The proposed new Kintore to Tealing 400 kV OHL (part of the Overall Project).

12.3.4 Significant projects (i.e. major developments and national developments) which are under construction at the point of the cumulative assessment would be considered as part of the future EIA baseline and not as cumulative development.

12.3.5 In considering the potential for inter-project effects, an initial list of major developments within 10 km of the proposed Emmock substation have been identified at this scoping stage and they are collated in **Table 12.1: Major Developments with Planning Applications and Consents**. The table also provides a provisional indication of the development projects which are proposed to be screened from further consideration in the cumulative assessment with reference to the selection criteria set out above.



**Table 12.1: Major Developments with Planning Applications and Consents**

Planning Reference No.	Description of Development	Site Location	Distance from Emmock	Date Approved	Shortlisted (Yes/No)
24/00048/FULM	Installation of a Solar Photovoltaic Array (PV) with an export capacity of not more than 49.9 MW and associated infrastructure. Applicant: Berryhill Solar Farm Ltd	Field 300 m west of Grange of Berryhill, Invergowrie	8.7 km south-west of the Site	Awaiting decision	No – over 3 km threshold
20/00102/FULM	20/00102/FULM – Redevelopment of former hospital site to include new build and conversion to residential and community use and creche, associated access, landscape and infrastructure works. Applicant: Chamberlain Bell Ltd 21/00957/MSC – Matters specified in conditions 2(a)(i)-(vii), 2(b)(i)-(vii), 2(c)(i)-(vi), (b) and (c) of planning permission 20/00102/FULM resulting in a development of 212 new build residential units, roadways, landscape, drainage and open space. Applicant: Miller Homes/Chamberlain Bell Developments	Strathmartine Hospital, Strathmartine, Dundee, DD3 0PG	3.83 km	30 November 2020	Yes
20/00120/MSC and 20/00190/MSC	The formation of underground electricity transmission cables and associated temporary and permanent ancillary works to service the Seagreen Phase 1 Offshore Wind Farms. Applicant: Seagreen Wind Energy Ltd	Land between Templehall and Tealing Substation, Tealing, as well as land between mean low water mark at Carnoustie Beach and Templehall	20/00120 – 1.2 km 20/00190 – 9.4 km	19 June 2020	Yes
23/00017/EIASCR and 22/00322/EIASCR (screening)	Installation of a solar energy park exceeding 100 MW in installed capacity and associated infrastructure. Applicant: Sirius EcoDey (Tealing) Ltd	Land around Gagie/Kellas	3.7 km	Awaiting decision	No – over 3 km threshold
21/00872/MSC (RM) 19/00095/PPPM (Outline) Angus	RM – Application for Matters Specified by Condition 1A (Overall development), Condition 1B (Leisure/Golf Development Zone), Condition 1C (Hotel & Spa), Condition 1D (iii), (iv) and (vi), and Condition 2 (Technical requirements) compliant with Conditions 3, 4, 5 and 6 of Planning Permission 19/00095/PPPM for the formation of 18 Hole Championship Golf Course, Gold Academy, Hotel Spa and Lodges, Golf Clubhouse, 160 Residential Plots and associated accesses. Outline – The Formation of 18 Hole Championship Golf Course, Gold Academy, Hotel Spa and Lodges, Gold Clubhouse, 160	Land at Shank of Omachie, Wellbank	8.6 km	RM – 8 March 2022 Outline – 12 August 2021	No – over 3 km threshold

Planning Reference No.	Description of Development	Site Location	Distance from Emmock	Date Approved	Shortlisted (Yes/No)
	Residential Plots and Associated Accesses at Land at Shank of Omachie, Wellbenk. Applicant: The Angus Venture Ltd – Mike Forbes				
21/00661/PAN Consultation – not planning application	Residential-led (approx. 300 units), including 25% affordable housing, open space, landscaping and associated infrastructure. Applicant: Barrat North Scotland	Field 400 m north of Ashludie Hospital, Victoria Street, Monifieth	9.8 km	1 September 2021	No – over 3 km threshold
24/00124/EIASCR ECU00005034	Consultation for proposed excess 50 megawatt (MW) Solar Array and BESS. Applicant: Banks Renewables	Field 300 m north of Myreton of Claverhouse Farm, Myreton of Claverhouse, Strathmartine	Adjacent to proposed Emmock substation	Screening opinion requested	Yes
24/00123/EIASCR	Consultation for Battery Energy Storage System (BESS) screening request. Applicant: AKKU Energy Ltd	Field 400 m south-east of Myreton Farm, Myreton of Claverhouse, Strathmartine	Approximately 900 m south-east of proposed Emmock substation	Awaiting decision	Yes
21/00765/EIAL	Extension to Ark Hill Wind Farm consisting of the erection of 4 wind turbines, formation of access tracks, hardstanding areas, set down areas, construction compound, electrical substation and borrow pit. Applicant: Ark Hill Wind Farm 2 Ltd	Ark Hill Wind Farm, Glen Ogilvie, Glamis	Approximately 3.8 m north-west of proposed Emmock substation	Awaiting decision	No – over 3 km threshold
ECU00004803	The construction and operation of a Battery Energy Storage Facility for the storage of up to 249 MW of electricity together with associated infrastructure, substation, security fencing, CCTV, security lighting and landscaping. Applicant: Green Power Consultants	Balnuith Farm, Tealing, DD4 0RE	Approximately 200 m east of proposed Emmock substation (immediately north-west of Tealing substation)	Screening opinion issued 6 September 2023	Yes

12.3.6 Developments which are not currently subject to planning applications, but which are considered reasonably foreseeable to the Applicant are listed in **Table 12.2: Developments Foreseeable to the Applicant** below. There is limited detail available relating to the predicted environmental effects of these potential developments at this time. Further information will be gathered as the EIA work for the Proposed Development and for these other proposed developments progresses and will be used to inform the cumulative assessment. The consideration of potential cumulative effects will be influenced by the level of detail of assessment information available and the cumulative assessment will therefore be supported by professional experience.

**Table 12.2: Developments Foreseeable to the Applicant**

Description of Development	Site Location	Distance from Emmock	Shortlisted (Yes/No)
Kintore to Tealing 400 kV OHL: Forming part of the 400 kV East Coast Upgrade this proposal will connect to the Proposed Development. It comprises creation of a new overhead transmission line with associated towers, conductors and ancillary works.	Concurrent with Proposed Development	Connects to the Proposed Development	Yes
Alyth to Tealing Reconductoring: Upgrade of the existing Alyth to Tealing 275 kV OHL to carry new 400 kV conductors. This proposal will require restringing of the existing towers and a minor variation of the existing OHL alignment to bring the newly conductored OHL into the proposed Emmock substation.	Concurrent with Proposed Development	Connects to the Proposed Development	Yes
Westifield to Tealing Reconductoring: Upgrade of the existing Alyth to Tealing 275 kV OHL to carry new 400 kV conductors. This proposal will require restringing of the existing towers and a minor variation of the existing OHL alignment to bring the newly conductored OHL into the proposed Emmock substation.	Concurrent with Proposed Development	Connects to the Proposed Development	Yes
Tie back connection of two short sections of parallel 275 kV OHLs between the proposed Emmock substation and the existing Tealing Substation.	Between Proposed Development and Tealing Substation	Connects to the Proposed Development	Yes

12.3.7 From the proposed developments listed in **Table 12.1: Major Developments with Planning Applications and Consents** and **Table 12.2: Developments Foreseeable to the Applicant**, a short list of projects to be included in the cumulative assessment has been determined to be taken forward for assessment in the EIA. These have been selected on the basis of the rationale set out above and are listed in **Table 12.3: Developments for Cumulative Effects Assessment**. The final list of reasonably foreseeable developments to be included in the cumulative assessment will be finalised taking account of key consultee feedback.

**Table 12.3: Developments for Cumulative Effects Assessment**

Planning Reference No.	Description of Development	Site Location	Distance from Emmock Substation
20/00120/MSC and 20/00190/MSC Angus Council	The formation of underground electricity transmission cables and associated temporary and permanent ancillary works to service the Seagreen Phase 1 Offshore Wind Farms.	Land between Templhall and Tealing Substation, Tealing as well as land between mean low water mark at Carnoustie Beach and Templehall.	20/00120 – 1.2 km 20/00190 – 9.4 km
24/00124/EIASCR Angus Council ECU00005034 Energy Consents Unit (ECU)	Consultation for proposed excess 50 megawatt (MW) Solar Array and BESS.	Field 300 m north of Myreton of Claverhouse Farm, Myreton of Claverhouse, Strathmartine	Adjacent to Emmock substation
24/00123/EIASCR Angus Council	Consultation for Battery Energy Storage System (BESS) screening request.	Field 400 m southeast of Myreton Farm, Myreton of Claverhouse, Strathmartine	Approximately 900 m southeast of Emmock substation
ECU00004803 Energy Consents Unit (ECU)	The construction and operation of a Battery Energy Storage Facility for the storage of up to a 249 MW of electricity together with associated infrastructure, substation, security fencing, CCTV, security lighting and landscaping.	Balnuith Farm, Tealing, DD4 ORE	Approximately 200 m east of proposed Emmock substation (immediately northwest of Tealing Substation)
Not in planning system	Kintore to Tealing 400 kV OHL: Forming part of the 400 kV East Coast Upgrade this proposal will connect to the Proposed Development. This will comprise creation of a new overhead line with associated towers, conductors and ancillary works.	Concurrent with Proposed Development	Connects to the Proposed Development
Not in planning system	Alyth to Tealing Reconductoring: Upgrade of the existing Alyth to Tealing 275 kV OHL to carry new 400 kV conductors. This proposal will require restringing of the existing towers and a minor variation of the existing OHL alignment to bring the newly conductored OHL into the proposed Emmock substation.	Concurrent with Proposed Development	Connects to the Proposed Development
Not in planning system	Westfield to Tealing Reconductoring: Upgrade of the existing Alyth to Tealing 275 kV OHL to carry new 400 kV conductors. This proposal will require restringing of the existing towers and a minor variation of the existing OHL alignment to bring the newly conductored OHL into the proposed Emmock substation.	Concurrent with Proposed Development	Connects to the Proposed Development
Not in planning system	Tie-back connection of two short sections of parallel 275 kV OHLs between the proposed Emmock substation and the existing Tealing Substation.	Between Proposed Development and Tealing Substation	Connects to the Proposed Development

### Interactive Cumulative Effects

- 12.3.8 This assessment will consider the effects from the interaction of different impact types of the Overall Project on key receptors such as communities, designated areas, important recreational areas etc (taking into consideration effects at the site preparation and earthworks, construction and operational phases), which may collectively cause more significant effect than individually. A theoretical example is the culmination of disturbance from dust, noise, vibration, artificial light, human presence and visual intrusion on sensitive fauna adjacent to a construction site. This assessment will also consider cumulative interactions from the Overall Project on potentially vulnerable receptors to the interaction of cumulative effects from the Proposed Development.
- 12.3.9 It should be noted however that assessment of cumulative effects is challenging and is constrained by the availability and detail of baseline data, the complexity of the systems involved both individually and in combination and by an absence of externally benchmarked thresholds for some topics. Resultantly, the cumulative effects assessment will be, in part, qualitative and based on the professional judgement of technical assessors.

## **12.4 Baseline Conditions**

- 12.4.1 There are no development proposals within or immediately adjacent to the Proposed Development currently subject to a submitted planning application, at the time of writing which are in, or entering, their construction phase. The nearest proposal subject to a planning application is 24/00123/EIASCRC, approximately 900 m south-east of the Proposed Development. This application comprises the proposed installation of a BESS facility. Resultantly, there are no developments, at the time of writing, in the planning system which will be considered part of the baseline for the Proposed Development. As noted above, this will be revisited during the authoring of the EIAR.
- 12.4.2 Similarly, there are potential developments which the Applicant deems reasonably foreseeable which are proximal to the Proposed Development but which are not yet subject to a planning application. These developments will be assessed as part of the cumulative assessment and therefore would not be considered part of the baseline.
- 12.4.3 The assessment of cumulative effects will draw on relevant existing and future baseline information from the technical topic-specific assessments which will be undertaken for the EIA of the Proposed Development together with relevant information from the EIARs and other documentation prepared for reasonably foreseeable developments which are to be included in the in-combination cumulative assessment.

## **12.5 Sensitive Receptors**

- 12.5.1 Sensitive receptors relevant to specific disciplines are listed in their respective chapters and are not replicated here. Instead, this section of the Scoping Report discusses those receptors likely to receive effects from the Proposed Development and Overall Project in conjunction with other reasonably foreseeable proposals or more than one effect from the Proposed Development itself.
- 12.5.2 Given the rural location there are a relatively limited number of sensitive anthropogenic receptors proximal to the Proposed Development. These primarily comprise groups of residential receptors and isolated cultural heritage assets. Given the current land-use (arable land), potentially sensitive receptors in the natural environment are also limited. Irrespective of current land-use, watercourses are considered as sensitive receptors in relation to the Proposed Development.

## **12.6 Potential Significant Effects**

### In-combination Cumulative Effects

- 12.6.1 The Proposed Development has the potential to interact with other major and proximal development proposals, notably with the proposed Kintore to Tealing 400 kV OHL as part of the Overall Project, and as set out in the preceding technical chapters. The preliminary assessments of these effects are included in those chapters and are not replicated here.

### Interactive Cumulative Effects

- 12.6.2 The Proposed Development has the potential for interactive cumulative effects on residential and transport receptors through the release of emissions arising from construction. These may comprise the release of noise, dust and construction lighting amongst others.

- 12.6.3 The Proposed Development has the potential for interactive cumulative effects on the water environment within and proximal to the Site. This may occur through the release of emissions arising from construction, comprising the release of dust and pollutants amongst others.

### **12.7 Assessment Scope and Methodology**

- 12.7.1 There is no universally accepted standard for undertaking an assessment of cumulative effects. Therefore, the assessments will be undertaken in-line with relevant guidance for each technical discipline, the approach set-out above and the assessor's professional judgement.

Where technical disciplines provide guidance on the assessment of cumulative effects these have been applied within the relevant technical chapters. Where discipline specific guidance does not exist, professional judgement has been used instead within the framework set out in **Section 12.3**.

- 12.7.2 To ensure that the in-combination effects assessment takes full account of the predicted cumulative effects of the Overall Project, the cumulative effects sections of each technical chapter of the EIAR will form a key focus for the assessment of in-combination cumulative effects. These will be addressed in a discrete section specific to consideration of likely significant cumulative effects associated with the Overall Project. The findings of the EIA being undertaken for the proposed Kintore to Tealing 400 kV OHL will be closely considered with the predicted effects of the Proposed Development for each relevant topic and 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 Overall Project.
- 12.7.3 Having defined the predicted cumulative effects of the Overall Project, the EIAR chapters will then present a section reporting the predicted cumulative effects with other reasonably foreseeable development projects. This will take into account in particular the proposals by the Applicant to relocate existing OHLs currently connecting to Tealing Substation into the proposed Emmock Substation, and a number of proposed BESS development applications in the vicinity of Tealing Substation.
- 12.7.4 The assessment of interactive cumulative effects will also focus on the Overall Project when considering potential significant synergistic effects arising from the combination of impacts from the proposals on key receptors and sites. The assessment will therefore similarly draw on key emerging impact assessments from the EIAs for both the Proposed Development and for relevant parts of the proposed new 400 kV OHL, particularly at its southern extent.

### **12.8 Issues Scoped Out**

- 12.8.1 Whilst indirect effects can occur within the full range of technical disciplines, given the nature of the Proposed Development and the rural nature of the receiving environment, indirect cumulative effects are not anticipated.

### **12.9 Summary**

- 12.9.1 The above section sets out the approach and scope of the proposed assessment of cumulative effects in relation to the Proposed Development. This chapter concludes there is potential for both in-combination and interactive cumulative effects arising as a result of the Proposed Development.
- 12.9.2 Mitigation measures will be proposed, where relevant, to avoid or reduce the potential for significant cumulative environmental effects where these are not controlled by the committed mitigation which will be outlined for each of the technical impact assessments in the EIAR.

## 13. SUMMARY OF PROPOSED EIA SCOPE

### 13.1 Scope of the EIA

13.1.1 The scoping assessment has identified that a number of environmental effects are not predicted to be significant and will be scoped out from further consideration within the EIA process. **Table 13.1: Environmental Topics and Aspects 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, with a short summary of the justification for the scoping decisions.

**Table 13.1: Environmental Topics and Aspects Scoped In and Out**

Topic	Scoped In		Scoped Out	
	Construction	Operation	Construction	Operation
Landscape and Visual Amenity	Both construction and operational effects on visual amenity and landscape are scoped into the assessment. These relate to potential effects on visual amenity.		Assessment of effects at night on landscape character and visual amenity at night. Residential properties located at a distance greater than 500 m from the Proposed Development will not be assessed as part of the RVAA.	
Cultural Heritage and Archaeology	Both construction and operational effects on cultural heritage and archaeology are scoped into the assessment. These primarily relate to potential effects on visual setting.		<p>Direct construction effects on heritage assets outwith the Study Area.</p> <p>Indirect effects on standing archaeological remains or structures, and buried archaeological remains or deposits.</p> <p>Temporary setting effects on cultural heritage assets resulting from construction activities.</p> <p>Assessment of the effect of the Proposed Development on the settings of listed buildings in urban settings.</p>	Assessment of direct operational effects from maintenance or replacement works.
Ecology	Both construction and operation effects on ecology are scoped into the assessment. These relate to potential effects on protected and notable species and habitats.		<p>Ecological effects from disturbance as a result of construction activities.</p> <p>Designated sites for which no impact pathway has been identified.</p> <p>Aquatic ecological features (including fish).</p> <p>Pine marten, red squirrel, water vole and mountain hare.</p> <p>Amphibians and reptiles.</p> <p>Invertebrates.</p>	Operational impacts on designated sites, habitats of conservation concern, and protected and notable species.

Topic	Scoped In		Scoped Out	
	Construction	Operation	Construction	Operation
Ornithology	Both construction and operational effects on ornithology are scoped into the assessment. These relate to potential effects on protected and notable species.		Designated Sites for which qualifying features show no connectivity.	Disturbance of birds during the operation phase. Barrier effects on qualifying features/Schedule 1 birds and BoCC.
Hydrology and Hydrogeology	Both construction and operational effects on hydrology and hydrogeology are scoped into the assessment. These relate to potential effects on the water environment.		Potential adverse effects on geology. Potential effects on GWDTE. Potential effects on peat and carbon-rich soils.	Potential effects on GWDTE. Potential effects on peat and carbon-rich soils. Potential adverse effects on geology. Potential adverse effects on water quality, PWS and groundwater abstractions.
Traffic and Transport	Construction effects on traffic and transport are scoped into the assessment. These primarily relate to potential effects on the local transport network and road user experience.		No construction effects are scoped out of the assessment.	No significant effects are predicted due to low traffic generation.
Noise and Vibration	Both construction and operational effects on noise and vibration are scoped into the assessment. These relate to potential effects from construction and substation noise on nearby sensitive receptors including residential properties.		No construction effects are scoped out of the assessment.	Operational vibration effects.
Land Use and Recreation	No construction or operational effects on land use and recreation are scoped into the assessment.		All elements of this topic are scoped out of the assessment. No significant effects on land use and recreation and outcomes have been predicted from the scoping assessment.	
Population and Human Health	No construction or operation effects on population and health are scoped into the assessment.		All elements of this topic are scoped out of the assessment. No significant effects on health determinants and outcomes have been predicted from the scoping assessment.	
Air Quality	No construction or operational effects on air quality are scoped in.		All elements of this topic are scoped out of the assessment. No significant effects on air quality have been predicted from the scoping assessment.	
Climate Change	No construction or operational effects on climate change are scoped in.		All elements of this topic are scoped out of the assessment. No significant effects on climate change have been predicted from the scoping assessment.	
Major Accidents and Disasters	No construction or operational effects on major accidents and disasters are scoped in.		All elements of this topic are scoped out of the assessment.	



Topic	Scoped In		Scoped Out	
	Construction	Operation	Construction	Operation
			No significant environmental effects from a comprehensive review of potential accidents and disasters have been predicted from the scoping assessment.	

## 14. NEXT STEPS

### 14.1 Next Steps

- 14.1.1 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 taking account of any further feedback provided by the EIA consultees. The EIAR will report the predicted significant environmental effects of the Proposed Development together with measures to mitigate predicted effects. The EIAR will be submitted by the Applicant to the LPA along with the planning application for the Proposed Development.
- 14.1.2 Separate applications for development consent for the proposed 400 kV substation at Hurlie will be submitted to Aberdeenshire Council and the ECU for the 400 kV OHL respectively. These consent applications will be supported by EIARs for each development proposal.
- 14.1.3 The EIARs for the Proposed Development, the Hurlie substation and the OHL will be prepared to take account of predicted respective cumulative environmental effects arising from the connections of the proposed OHL with the substation sites.

## APPENDIX A: COMPETENT EXPERT INFORMATION

This appendix presents information detailing the expert competency for each chapter of this Scoping Report.

**Table A.1: Competent Expert Information**

Chapter	Qualification/Expertise of Person Responsible
<b>Chapter 1: Introduction</b> (Prepared by LUC)	
<b>Chapter 2: Description of the Proposed Development</b> (Prepared by LUC)	<b>Hywel Roberts</b> BSc (Hons) CEnv MIEMA <b>Andrew Kenny</b> BSc (Hons) ACIWEM
<b>Chapter 3: EIA Methodology</b> (Prepared by LUC)	<b>Markus Naerheim</b> MA
<b>Chapter 4: Topics Scoped Out of the EIA</b> (Prepared by LUC)	
<b>Chapter 5: Landscape and Visual Amenity</b> (Prepared by LUC)	<b>Sam Oxley</b> BSc (Hons) MA CMLI <b>Erin Hynes</b> BSc (Hons) MSC MRTPI <b>Fiona Pennycook</b> MA (Hons) MLA <b>Matt Cairns</b> BA (Hons) CMLI <b>Ritvika Singh</b> BA (Hons) MA
<b>Chapter 6: Cultural Heritage and Archaeology</b> (Prepared by CFA Archaeology Ltd)	<b>Mhairi Hastie</b> BSc MSc MCifA FSA Scot <b>Linn Glancy</b> MA (Hons) ACifA
<b>Chapter 7: Ecology</b> (Prepared by LUC)	<b>Anna Dennis</b> BA (Hons) MSc ACIEEM <b>Lorna Hutchison</b> BSc (Hons) MSc ACIEEM <b>Rocio Martinez-Cillero</b> PhD
<b>Chapter 8: Ornithology</b> (Prepared by LUC)	<b>Jonathan Daisley</b> BSc (Hons) PhD <b>Iain Mackenzie</b> BSc (Hons) MSc MCIEEM
<b>Chapter 9: Hydrology and Hydrogeology</b> (Prepared by Kaya Consulting)	<b>Sally Stewart</b> BSc MSc PhD MCIWEM C.WEM <b>Cairns Harrison</b> BSc (Hons) MRes
<b>Chapter 10: Traffic and Transport</b> (Prepared by Pell Frischmann)	<b>Gordon Buchan</b> BEng (Hons) MSc CMILT FCIHfT
<b>Chapter 11: Noise and Vibration</b> (Prepared by Wood plc)	<b>Harry Matthews</b> BSc
<b>Chapter 12: Cumulative Effects</b> (Prepared by LUC)	<b>Andrew Kenny</b> BSc (Hons) ACIWEM <b>Harry Naylor</b> BSc (Hons) MSc
<b>Chapter 13: Summary of Proposed EIA Scope</b> (Prepared by LUC)	<b>Andrew Kenny</b> BSc (Hons) ACIWEM
<b>Chapter 14: Next Steps</b> (Prepared by LUC)	<b>Andrew Kenny</b> BSc (Hons) ACIWEM

## APPENDIX B: FIGURES

Figure 1.1: Site Boundary

Figure 2.1: Land Capability for Agriculture

Figure 2.2: General Arrangement

Figure 4.1: Forestry and Recreation



Figure 5.1: Preliminary Viewpoint Locations and Draft Zone of Theoretical Visibility

Figure 5.2: Landscape Character Types

Figure 5.3: Designated Landscapes

Figure 6.1: Cultural Heritage Study Area

Figure 6.2: Preliminary Cultural Heritage Viewpoint Locations and Draft Zone of Theoretical Visibility

Figure 7.1: Designated Sites within 10 km and 5 km of the Proposed Development

Figure 8.1: Ornithological Designated Sites

Figure 9.1: Hydrology and Private Water Supply



Figure 10.1: Transport Network

Figure 10.2: Haul Routes

## APPENDIX C: LIST OF PROPOSED SCOPING CONSULTEES

This appendix presents a list of the proposed scoping consultees.

**Table C.1: Proposed Scoping Consultee List**

Consultees	Email Address/Contact
<b>Consultation Bodies</b>	
Angus Council	<a href="mailto:planning@angus.gov.uk">planning@angus.gov.uk</a> <a href="mailto:taylor@angus.gov.uk">taylor@angus.gov.uk</a>
Historic Environment Scotland (HES)	<a href="mailto:hmconsultations@hes.scot">hmconsultations@hes.scot</a> <a href="mailto:victoria.clements@hes.scot">victoria.clements@hes.scot</a> <a href="mailto:nicola.hall@hes.scot">nicola.hall@hes.scot</a>
NatureScot	<a href="mailto:katie.bain@nature.scot">katie.bain@nature.scot</a>
Scottish Environment Protection Agency (SEPA)	<a href="mailto:planning.south@sepa.org.uk">planning.south@sepa.org.uk</a> <a href="mailto:zoe.griffin@sepa.org.uk">zoe.griffin@sepa.org.uk</a>
<b>Statutory EIA Consultees</b>	
Dundee City Council	<a href="mailto:planning@dundeecity.gov.uk">planning@dundeecity.gov.uk</a> <a href="mailto:alistair.hilton@dundeecity.gov.uk">alistair.hilton@dundeecity.gov.uk</a>
Marine Scotland	
Network Rail	<a href="mailto:assetprotectionscotland@networkrail.co.uk">assetprotectionscotland@networkrail.co.uk</a>
Scottish Forestry	Perth & Argyll Conservancy: <a href="mailto:mike.strachan@forestry.gov.scot">mike.strachan@forestry.gov.scot</a>
Scottish Water	<a href="mailto:planningconsultations@scottishwater.co.uk">planningconsultations@scottishwater.co.uk</a> <a href="mailto:protectdwsources@scottishwater.co.uk">protectdwsources@scottishwater.co.uk</a>
Transport Scotland	<a href="mailto:andrew.erskine@transport.gov.scot">andrew.erskine@transport.gov.scot</a>
<b>Non-statutory</b>	
British Horse Society	<a href="mailto:h.mauchlen@bhs.org.uk">h.mauchlen@bhs.org.uk</a>
BT	<a href="mailto:radionetworkprotection@bt.com">radionetworkprotection@bt.com</a>
Catchment Partnership	<a href="mailto:info@deerpartnership.org">info@deerpartnership.org</a> <a href="mailto:info@theriverscouthesk.org">info@theriverscouthesk.org</a>
Civil Aviation Authority – Airspace	<a href="mailto:aerodromes@caa.co.uk">aerodromes@caa.co.uk</a>
Crown Estate Scotland	<a href="mailto:olivia.morrad@crownestatescotland.com">olivia.morrad@crownestatescotland.com</a>
Defence Infrastructure Organisation	<a href="mailto:dio-safeguarding-statutory@mod.gov.uk">dio-safeguarding-statutory@mod.gov.uk</a>
Fisheries Management Scotland	<a href="mailto:brian@fms.scot">brian@fms.scot</a>
Fisheries – Local District Salmon Fisheries & Fisheries Trust	Tay District Salmon Fisheries Board & Tay Foundation: <a href="mailto:admin@tdsfb.org">admin@tdsfb.org</a>
John Muir Trust	<a href="mailto:rosie.simpson@johnmuirtrust.org">rosie.simpson@johnmuirtrust.org</a> <a href="mailto:fiona.ballie@johnmuirtrust.org">fiona.ballie@johnmuirtrust.org</a>
Joint Radio Company	<a href="mailto:windfarms@jrc.co.uk">windfarms@jrc.co.uk</a>
Mountaineering Scotland	<a href="mailto:access@mountaineering.scot">access@mountaineering.scot</a> <a href="mailto:stuart@mountaineering.scot">stuart@mountaineering.scot</a>
National Farmers Union Scotland	<a href="mailto:info@nfus.org.uk">info@nfus.org.uk</a>
National Farmers Union Scotland (Policy Advisor)	<a href="mailto:rhianna.montgomery@nfus.org.uk">rhianna.montgomery@nfus.org.uk</a>
National Grid (Gas)	<a href="mailto:box.assetprotection@nationalgas.com">box.assetprotection@nationalgas.com</a>

Consultees	Email Address/Contact
National Trust Scotland	<a href="mailto:enquiries@nationaltrust.org.uk">enquiries@nationaltrust.org.uk</a>
NATS Safeguarding	<a href="mailto:natssafeguarding@nats.co.uk">natssafeguarding@nats.co.uk</a>
Nuclear Safety Directorate (HSE)	<a href="mailto:onr-land.use-planning@onr.gov.uk">onr-land.use-planning@onr.gov.uk</a>
RSPB Scotland	<a href="mailto:scotland.planning@rspb.org.uk">scotland.planning@rspb.org.uk</a>
Scottish Canoe Association	<a href="mailto:office@canoescotland.org">office@canoescotland.org</a>
Scottish Rights of Way and Access Society (ScotWays)	<a href="mailto:Info@scotways.com">Info@scotways.com</a>
Scottish Wild Land Group (SWLG)	<a href="mailto:admin@swlg.org.uk">admin@swlg.org.uk</a> <a href="mailto:beryl@chway.plus.com">beryl@chway.plus.com</a>
Scottish Wildlife Trust (SWT)	<a href="mailto:bwilson@scottishwildlifetrust.org.uk">bwilson@scottishwildlifetrust.org.uk</a>
Sustrans	<a href="mailto:malcolm.black@sustrans.org.uk">malcolm.black@sustrans.org.uk</a>
Visit Scotland	<a href="mailto:info@visitscotland.com">info@visitscotland.com</a>

## APPENDIX D: LIST OF APPLIED MITIGATION DOCUMENTS

This appendix presents a list of statutory mitigation plans which have been developed by SSEN Transmission and include General Environmental Management Plans (GEMPs) and Species Protection Plans (SPPs).

**Table D.1: List of SSEN Transmission GEMPs and SPPs**

Document Reference	Document Name
<b>General Environmental Management Plans (GEMPs)</b>	
TG-NET-ENV-510	Oil Storage and Refuelling GEMP
TG-NET-ENV-511	Soil Management GEMP
TG-NET-ENV-512	Working in or Near Water GEMP
TG-NET-ENV-513	Working in Sensitive Habitats GEMP
TG-NET-ENV-514	Working with Concrete GEMP
TG-NET-ENV-515	Watercourse Crossings GEMP
TG-NET-ENV-516	Waste Management GEMP
TG-NET-ENV-517	Contaminated Land GEMP
TG-NET-ENV-518	Private Water Supplies GEMP
TG-NET-ENV-519	Forestry GEMP
TG-NET-ENV-520	Dust Management GEMP
TG-NET-ENV-521	Biosecurity GEMP
TG-NET-ENV-522	Restoration GEMP
TG-NET-ENV-523	Bad Weather GEMP
<b>Species Protection Plans (SPPs)</b>	
TG-NET-ENV-500	Freshwater Pearl Mussel Species Protection Plan
TG-NET-ENV-501	Badger Species Protection Plan
TG-NET-ENV-502	Bat Species Protection Plan
TG-NET-ENV-503	Otter Species Protection Plan
TG-NET-ENV-504	Red Squirrel Species Protection Plan
TG-NET-ENV-505	Birds Species Protection Plan
TG-NET-ENV-506	Water Vole Species Protection Plan
TG-NET-ENV-507	Wildcat Species Protection Plan
TG-NET-ENV-508	Pine Marten Species Protection Plan
TG-NET-ENV-527	Wood Ant Species Protection Plan
TG-NET-ENV-529	Beaver Species Protection Plan