Heathland Wind Farm Grid Connection

Scoping Report

November 2023

Land & Planning

Prepared for:

SP Energy Networks

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Scoping Report:
Heathland Wind Farm Grid Connection

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Glossary

Abbreviation	Definition
AOD	Above Ordnance Datum
AQMAs	Air Quality Management Areas
BGS	British Geological Survey
CAR	Controlled Activity Regulation
CBC	Common Bird Census
CEMP	Construction Envionmental Management Plans
CIEEM	Chartered Institute of Ecology and Environmental Management
CILA	Chartered Institute for Acheaeologists
CRTN	Calculation of Roas Traffic Noise
CTMP	Constrcution Traffic Management Plan
DfT	Department for Transport
DMRB	Design Manual for Roads and Bridges
EDQ	Environment and Design Qualities
EcIA	Ecological Impact Assessment
ECoW	Ecological Clerk of Works
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EMP	Environmental Management Plan
GCR	Geological Conservation Review Sites
GLVIA	Guidelines for Landscape and Visual Assessment
GWDTE	Groundwater Dependent Terrestrial Ecosystems
GWP	Global warming potential
HEPS	Historic Environment Policy for Scotland
HER	Historic Environmental Records
HES	Historic Environment Policy for Scotland
HGV	Heavy Goods Vehicle
HSI	Habitat Suitability Indices
IEMA	Institute of Environmental Management and Assesment
kV	Kilovolt
LCT	Local Character Type
LDP	Local Development Plan
LGV	Large Goods Vehicle
LVIA	Landscape and Visual Impact Assessment
MW	Megawatts
NCAP	National Collection of Aerial Photographs
NLC	North Lanarkshire Council
NLLDP	North Lanarkshire Local Development Plan
NPF	National Planning Framework
NVC	National Vegetation Classification
OHL	Overhead Line
OS	Ordnance Survey
PAN	Planning Advice Note
PWS	Private Water Supplies
RBMP	River Basin Management Plan

Abbreviation	Definition
RCAHMS	Royal Commission for the Ancient and Historical Monuments of Scotland
RCD	Routing and Consultation Document
SAC	Special Area of Conservation
SEPA	Scottish Environment Protection Agency
SLA	Special Lanscape Area
SLC	South Lanarkshire Council
SLLDP2	South Lanarkshire Local Development Plan 2
SPEN	SP Energy Networks
SPP	Scottish Planning Policy
SPT	Scottish Power Transmission
SSSI	Site of Special Scientific Interest
VP	Vantage Point
WCA	Wildlife and Countryside Act 1981 (as amended)
WFD	Water Framework Directive
WHO	World Health Organisation
WHS	World Heritage Sites
WoSAS	West of Scotland Archaeology Service
ZTV	Zone of Theortic Visibility

1. Introduction

1.1 Introduction

This Scoping Report has been prepared by AECOM on behalf of SP Energy Networks (SPEN) to identify and agree the extent and methods of surveys and assessments required to determine the potential effect of the Heathland Wind Farm Grid Connection, hereafter referred to as the Grid Connection, on the surrounding natural, physical, and built environment. The Grid Connection, comprising a new wood pole 132 kilovolt (kV) overhead line (OHL) will connect Heathland Wind Farm to the electricity transmission system at Wishaw Substation. Heathland Wind Farm is located approximately 10 km southwest of West Calder, West Lothian and approximately 15 km east of Wishaw, North Lanarkshire with the Grid Connection extending to the east to Wishaw Substation located off Castlehill Road within Wishaw. Figure 1-1 illustrates the location of Heathland Wind Farm and the transmission system.

It is proposed that, as a result of increased technical and spatial constraints, that the entry of the Grid Connection to Wishaw Substation will be via an underground cable. The point of transition from OHL to underground cable is still to be defined as part of the Grid Connection's ongoing development with input from environment and technical surveys and assessment. Figure 1-2 indicates the potential extent of the underground cable section.

1.2 Background

As part of their commitments to tackling climate change the Scottish and UK Governments have set legally binding targets to reach net zero in their greenhouse gas emissions, by 2045 in Scotland. In delivering net zero, the electricity system - how electricity is generated, transmitted, distributed, and used - is undergoing transformational change.

The Grid Connection is needed to connect the 80 megawatt (MW) Heathland Wind Farm to the transmission network. As Transmission Licence Holder SP Transmission (represented by SPEN) is legally obliged under the Electricity Act 1989 to provide a Grid Connection.

1.3 Document Purpose

This Scoping Report is provided by SPEN to the Scottish Ministers under Regulation 12 of The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (hereafter referred to as the 'EIA Regulations') in support of a request for a 'Scoping Opinion'. This Scoping Report seeks to focus the Environmental Impact Assessment (EIA) on the impacts likely to give rise to significant effects.

This Scoping Report is also provided to statutory authorities and other key consultees to facilitate their representations to the Scottish Ministers on the Scoping Opinion. The applicant invites consultees to comment on the proposed scope of the EIA.

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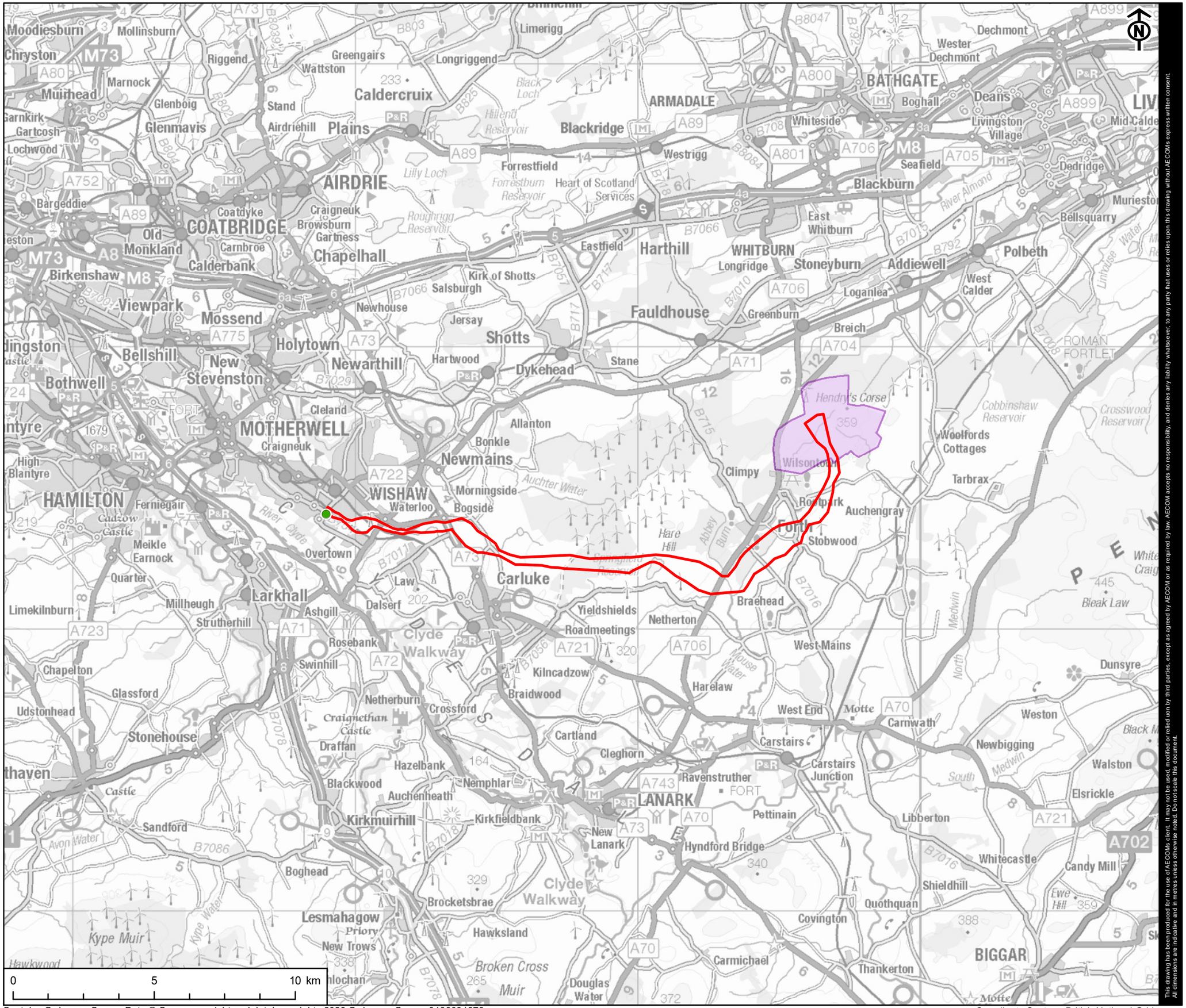

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AECOM

PROJECT
Heathland Wind Farm Grid Connection

CLIENT
SP Energy Networks

KEY
- Route Corridor
- Wishaw 400 kV Substation Location
- Heathland Wind Farm Site Boundary

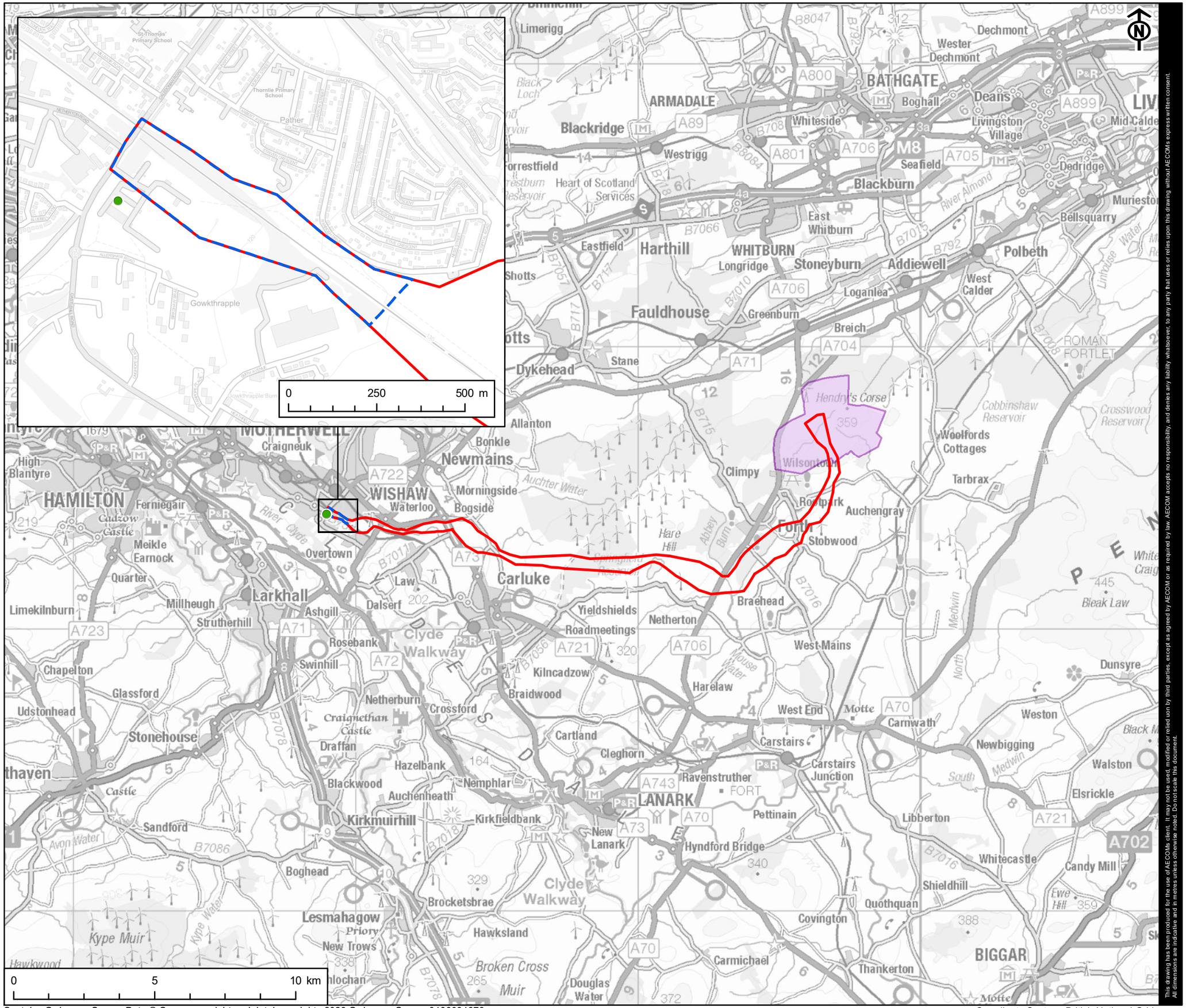
TITLE
Figure 1.1
Site Location

REFERENCE
HGC_20231113_SR_1.1_v2

SHEET NUMBER
1 of 1

DATE
13/11/23

Project Management Initials: DR Designer: LC Checked: DF Approved: TC



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Coordinate System: British National Grid

AECOM

PROJECT
Heathland Wind Farm Grid Connection

CLIENT
SP Energy Networks

KEY
- Route Corridor
- Potential Undergrounded Section
- Wishaw 400 kV Substation Location
- Heathland Wind Farm Site Boundary

TITLE
Figure 1.2
Grid Connection Overview

REFERENCE
HGC_20231113_SR_1.2_v1

SHEET NUMBER
1 of 1

DATE
13/11/23

1.4 Project Background and Need

SPEN is legally obliged under the Electricity Act to provide Grid Connections to new electricity generating developments and has been approached by the developer for Heathland Wind Farm to provide a Grid Connection to the wider electricity network.

Scottish Power Transmission (SPT) is required under the Electricity Act and under the terms of its Electricity Supply Licence '*to develop and maintain an efficient, coordinated and economical system of electricity transmission*'. SPEN's stated view is that wherever practical an OHL approach is taken when planning and designing new lines.

As a result, SPEN is proposing to construct a new 132 kV OHL between Heathland Wind Farm and the electricity transmission system at Wishaw Substation.

SPEN take a view that the project falls within the scope of the EIA Regulations which implement the requirements of the European Parliament and Council Directive No 2014/52/EU.

1.5 Legal and Planning Context

There are several legal provisions which apply to the development of electricity transmission and distribution lines and associated infrastructure. The key provisions are as follows:

- the Electricity Act 1989 is the principal legislation which applies in the UK;
- the Town & Country Planning (Scotland) Act 1997 as amended by The Planning etc. (Scotland) Act 2006; and
- The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017.

1.5.1 Scottish Power Transmissions Statutory License Duties

SPT's licensed businesses are authorised to transmit and distribute electricity within its network areas under the Electricity Act. As such, SPT has a statutory obligation to carry out the duties outlined within the Electricity Act.

A statutory duty is imposed on SPEN by Schedule 9 of the Electricity Act, to ensure that the following factors are accounted for when formulating proposals for the installation of OHLs:

"*to have regard to the desirability of preserving natural beauty, of conserving flora, fauna and geographical or physiographical features of special interest and of protecting sites, buildings, and objects of architectural, historical or archaeological interest; and to do what it reasonably can to mitigate any effects which the proposals would have on the natural beauty of the countryside or any such flora, fauna, features, sites, buildings or objects."*

1.5.2 Consenting Requirements

Section 37 of the Electricity Act requires that, with the exception of certain specific examples, all electricity lines exceeding 20 kV will require consent to be granted by the Scottish Ministers. This 'Section 37 consent' gives approval to install, and keep installed, an OHL. Section 57 of the Town & Country Planning (Scotland) Act 1997 as amended by The Planning etc. (Scotland) Act 2006 provides that ''*Planning permission may also be deemed to be granted in the case of development with government authorisation''*. In certain circumstances, deemed planning permission may include works that are 'ancillary' or necessary to the operation of the OHL such as cable sealing end compounds.

In some instances, there may also be the need for separate planning permission where development does not form part of a Section 37 application. For example, separate planning permission may be

required for 'ancillary development' such as a substation. Where consent for development is sought, an application must be made to the relevant planning authority, under the Town & Country Planning (Scotland) Act 1997 as amended, before such works are able to be carried out.

Finally, some forms of development, including underground cables, are typically classed as 'permitted development' under the Town and Country Planning (General Permitted Development) (Scotland) Order 1992 (as amended). Developments classified as permitted development may automatically be granted planning permission, by statutory order, and do not require submission of a planning application to the local planning authority.

At the same time as applying for Section 37 consent, SPEN will request deemed planning permission under Section 57 of the Town and Country Planning (Scotland) Act 1997 from South Lanarkshire and North Lanarkshire Council as the planning authority for the OHL and all ancillary elements.

1.5.3 The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017

The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 require that, before consent is granted for certain developments, an EIA must be undertaken. The EIA Regulations set out the types of development that are always subject to an EIA (Schedule 1 developments) and other developments which may require an EIA if they exceed certain thresholds and are likely to give rise to significant environmental effects (Schedule 2 developments). The Grid Connection currently falls under two Schedule 2 definitions:

> *"(2) an electric line installed above ground –*
>
> *1. with a voltage of 132 kilovolts or more*
>
> *2. the purpose of which installation is to connect the electric line to a generating station the construction or operation of which requires consent under section 36 of the Electricity Act 1989"*

As such, SPEN propose to undertake an EIA of this project to support the application for Section 37 Consent and Deemed Planning Permission.

1.5.4 National Planning Policy

The Scottish Government has adopted NPF4 which sets out the priorities for the planning system up to 2045 with an emphasis on the transition to a net zero sustainable Scotland by 2045.

NPF4 sets out a number of priorities to guide the planning system. The need for increased renewable energy generation and the associate grid infrastructure is highlighted within the identified National Developments to Deliver Sustainable, Liveable Places, noting:

> *"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."* Annex B National Developments Statements of Need, pg. 103.

The aim of the Grid Connection supports Scotland's renewable energy targets by facilitating the connection of Heathland Wind Farm.

1.5.5 Local Planning Policy

The Grid Connection is located within South Lanarkshire, and North Lanarkshire Council areas. Policies relevant to the Grid Connection are identified in the respective sub-sections below.

1.5.5.1 South Lanarkshire Council

In South Lanarkshire local planning policy is set out within the Local Development Plan 2 (SLLDP2) which was adopted in April 2021. The SLLDP2 provides the framework to encourage development that will benefit communities and safeguard the environment. Embedded within the vision of the SLLDP2 is the concept of sustainable development as the Council seeks to transition to a low carbon economy (SLLDP, Volume 1, Vision and Strategy, para 3.2). The relevant policies to be considered in the development of the Grid Connection are summarised in
Table 1-1..

Table 1-1. Summary of Relevant Policies within the SLLDP2

Planning policy	Relevant Purpose
Policy 1 Spatial Strategy	States that sustainable development that supports the transition to a low carbon economy will be encouraged, including renewable energy projects where they are sited in "appropriate locations".
Policy 2 Climate Change	Notes that any new developments must seek to minimise and mitigate against effects of climate changes and emission of greenhouse gases. Relevant to the Grid Connection this includes avoiding areas of flood risk, ensuring no significant adverse effects on the natural environment, minimisation of waste and minimising disturbance of carbon-rich soils. Relevant Volume 2 policies include: • SDCC2 – Flood Risk
Policy 13 Green Network and Greenspace	States that South Lanarkshire Council will not support development which results in the loss of priority greenspace, that development proposals should safeguard the green network, and that green infrastructure will be a core component of any significant development proposal. Exceptions which will be considered if there will be partial loss of priority greenspace are listed.
Policy 14 Natural and Historic Environment	South Lanarkshire Council seeks to protect natural and historic sites and features. The policy outlines the provisions in place for designated sites (internationally, nationally, and locally), protected species, local nature conservation, and the landscape. Relevant Volume 2 policies include: • NHE2 – Archaeological Sites and Monuments • NHE3 – Listed Buildings • NHE7 – Natura 2000 Sites • NHE8 – National Nature Reserves and Sites of Special Scientific Interest • NHE9 – Protected Species • NHE11 – Peatland and Carbon Rich Soils • NHE12 – Water Environment and Biodiversity • NHE13 – Forestry and Woodland • NHE16 – Landscape • NHE18 – Walking, Cycling and Riding Routes • NHE 20 – Biodiversity • NHE21 - Geodiversity.
Policy 16 Water Environment and Flooding	Stipulates that no development will be permitted where is has an unacceptable impact on the water environment. This includes water levels, flows, quality, features, flood risk and biodiversity within the water environment.
Policy 18 Renewable Energy	States that renewable energy proposals will be accepted subject to assessment against other relevant SLLDP2 policies, including the Assessment Checklist and SPP. Whilst not directly applicable to the Grid Connection, the need for the Grid Connection to connect renewable energy to the electricity transmission system

The SLLDP is supported by a number of supplementary guidance documents. These were prepared in support of the Local Development Plan (2015) but remain available as guidance for proposals considered under SLLDP2. The supplementary guidance documents that are of relevance for the Grid Connection include:

- Natural and historic environment,
- Sustainable development and climate change, and
- Deposits and operational sites (minerals).

1.5.5.2 North Lanarkshire Council

The North Lanarkshire Local Development Plan (NLLDP) was adopted in July 2022 and provides a 10 year strategy aiming to increase sustainable growth and regeneration whilst improving places in support of their new corporate vision. Their corporate vision strives to improve economic opportunities, support all children to reach their full potential as well as improving the health and wellbeing of communities whilst ensuring that natural and cultural resources are protected and enhanced.

The relevant policies to be considered in the development of the Grid Connection are summarised in Table 1.

Table 1-2. Summary of Relevant Policies within the NLLDP

Planning policy	Relevant Purpose
PROM LOC4 Special Landscape Areas & Green Network Improvements	Sets out the requirement for ALL provisions within the 'Protecting Assets' and 'Environmental & Design Qualities' policies to be satisfied for proposals affecting Special Landscape Areas and Green Networks.
PROM ID2 Utilities Improvements	Policy ID2 states that utilities development will be supported in principle, subject to assessment against defined criteria. This specifically includes renewable energy developments "and associated infrastructure". Whilst much of the policy refers to appropriate siting of wind turbines, it recognises that developments must be proportionate to their setting and environmentally and culturally sensitive areas.
PROT A Natural Environment and Green Network Assets	States that the Council will safeguard natural heritage assets including international sites (e.g., European sites), national sites (including Sites of Special Scientific Interest (SSSIs) and woodland listed on the Ancient Woodland Inventory (AWI)), local sites (e.g., Seven Lochs Wetland Park, Sites of Importance for Nature Conservation (SINCs), and Local Nature Reserves (LNRs)), urban Green Network (e.g., wildlife corridors, trees and woodlands, watercourses and wetlands, and flood plains), and protected species.
PROT B Historic Environment Assets	States that the Council will safeguard historic environment assets including international sites (e.g. World Heritage Sites), national sites (e.g. Scheduled Monuments, Category A Listed Buildings), and regional/local sites (e.g. Category B and C Listed Buildings and Conservation Areas).
EDQ 1 Site Appraisal	Details the matters to be addressed within site appraisal including *"Green Network, landscape character and quality on the site and surrounding Land Use Character Area", "impacts associated with the holistic water environment and flood risk",* and *"biodiversity of plants and animals on the site and surrounding Land Use Character Area".*
EDQ2 Specific Features for Consideration	Details three categories of hazards or specific features that require specific assessment against by any development proposals should the zones or features be applicable to the area of the proposal. Those potentially relevant to the Grid Connection are: • Category EDQ 2A Hazardous Zones: – Flood risk – Contaminated land – Ground instability • Category EDQ 2B Utilities infrastructure: – Pipelines – Cables There are no air quality management areas, or noise management areas within the proximity of the Grid Connection and therefore the third category – 'management areas' is not applicable.
EDQ 3	Sets out the high standards of site planning expected from developments, including consideration of existing Green Network features and those identified during site appraisal.

Planning policy	Relevant Purpose
Quality of Development	

1.6 Scoping Methodology

This Scoping Report aims to provide sufficient detail to characterise the potential interactions between the Grid Connection and the environmental receptors identified. In presenting a rationale for the proposed scope of EIA, this Scoping Report has taken the sensitivity of the current state of the environment into account, based on an understanding of the baseline conditions. This Scoping Report has also been prepared with reference to the potential magnitude of impacts, considering the typical construction and operational activities, physical characteristic and potential emissions/residues associated with the Grid Connection.

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

In accordance with Schedule 4 (paragraph 5) of the EIA Regulations, this Scoping Report will consider the potential for significant effects associated with:

- the construction and existence of the Grid Connection (note: there are no relevant demolition works proposed);
- the use of natural resources (in terms of effects on resource sustainability);
- the emission of pollutants, noise, vibration, light, heat and radiation, the creation of nuisances, and the disposal and recovery of waste;
- the risks to human health, cultural heritage or the environment (for example due to accidents or disasters);
- the cumulation of effects with other existing and/or approved development;
- the impact of the Grid Connection on climate (for example the nature and magnitude of greenhouse gas emissions) and the vulnerability of the Grid Connection to climate change; and
- the technologies and the substances used.

This Scoping Report will seek to identify, describe and assess significant effects on the factors identified in Regulation 4.

Environmental topics included for initial assessment in this Scoping Report are:

- Ecology and Ornithology;
- Archaeology and Cultural Heritage;
- Landscape and Visual Amenity;
- Geology, Soils and Mining;
- Hydrogeology and Hydrology;
- Noise and Vibration;
- Transport;
- Recreation, Tourism and Socio-Economics;
- Land Use, Agriculture and Forestry;
- Air Quality and Climate Change; and
- Accidents and Disasters.

1.7 Structure of the Document

This Scoping Report is structured as follows:

- **Chapter 2** provides a description of the main elements of the Grid Connection;
- **Chapter 3** describes the proposed scope and methodology for the EIA;
- **Chapters 4-14** provide a scoping stage assessment for each of the identified environmental receptors, summarises existing baseline information relating to the environmental characteristics of the area for the Grid Connection, identifying the potential for significant effects and outlining how the environmental effects will be predicted and assessed in each case. Where it is proposed to scope issues out of further assessment this is described;
- **Chapter 15** provides a summary of the proposed scope and **Chapter 16** poses a series of questions to focus the scoping exercise and describes the next steps in the EIA process; and
- There are a number of **Appendices** which support the Scoping Report. These are cross-referenced throughout the Scoping Report where relevant.

1.8 Consultation Process

SPEN is committed to consulting with statutory and non-statutory bodies throughout the development process, not only as a statutory duty within the planning system, but as a measure to involve and gain feedback from as broad a range of consultees and stakeholders as possible.

A Routeing and Consultation Document (RCD) describing the route selection process for the Grid Connection was published in May 2023, giving interested stakeholders the information required to engage and comment on the project at an early stage. Community consultation events on the preferred route option were held in Netherton and Forth in May and June 2023. The Preferred Route Option is now being carried forward by SPEN and is the subject of this Scoping Report, referred to within as the 'Route Option'.

A copy of the Consultation Report is available to download on the SPEN website at https://www.spenergynetworks.co.uk/pages/heathlands_wind_farm_connection.aspx and is also included in **Appendix A** of this Scoping Report.

2. The Grid Connection

2.1 Overview

The Grid Connection, for the purpose of the application for consent, will be approximately 22 km in length and will comprise of 132 kV OHL which would be supported by wood poles. The western section of the route, connecting into Wishaw Substation, will be an underground cable.

While the Section 37 consent is concerned only with the installation of the OHL, the applicant will seek deemed planning permission for this development and any ancillary works under s57(2) of the Town and Country Planning (Scotland) Act 1997. Ancillary works for a wood pole line may include minor work to form new or improve existing bellmouths at public road access points, to provide temporary construction access tracks and working areas and construction compounds.

To facilitate the connection of the Grid Connection to Wishaw Substation, an extension to the substation is required. Consent for the extension of the substation will be sought under a sperate planning permission from North Lanarkshire Council.

At the application stage, the Environmental Impact Assessment Report (EIAR) will include an alignment with proposed micrositing tolerances to allow specific locations for poles be determined on the basis of site-specific information obtained in the course of ground investigation and construction.

2.2 Overhead Line Design

SPEN's policy is to seek a continuous OHL solution for all transmission connections and only where there are exceptional constraints are underground cables considered an acceptable design option. Such constraints can be found in urban areas and in rural areas of the highest scenic and amenity value. While underground cables have visual benefits, there are associated technical, environmental, and economic disadvantages including:

- the physical extent of land required;
- the fault repair time;
- difficulties associated with general maintenance;
- increased cost;
- greater ground disturbance from excavating trenches;
- the restriction of development and planting within the underground transmission cable corridor; and
- requirements for cable sealing end compounds or platforms at each end of each section of underground cable; and the fact that underground cabling is a less efficient means of transporting electricity.

Due to technical constraints associated with crossings of multiple railways, greater urban development, including other utilities and spatial constraints that may limit or restrict the construction and operation of an OHL, installing part of the western section of the Grid Connection underground is known to be required. The extent of underground cabling, and the location of associated cable sealing end compound(s) – i.e. where the OHL transitions to underground and vice versa, are subject to further technical assessment.

The approach is to minimise the length of underground cable necessary to overcome the relative constraint to OHL routeing, consistent with a balance between technical and economic viability, deliverability and environmental considerations.

Should the appraisal identify any areas where any other section(s) of the proposed OHL is likely to give rise to unacceptable effects, alternative options (such as alternative routes and underground cables) will be considered.

2.2.1 Wood Poles

2.2.1.1 Wood Pole Types

The OHL will be supported on Trident wood poles with galvanised steelwork cross-arms supporting aluminium conductors on insulators. These are suitable for supporting single circuit lines operating at 132 kV.

Wood poles are fabricated from pressure impregnated softwood, treated with a preservation to prevent damage to structural integrity.

There are three types of wood pole structure, in terms of appearance:

- Suspension or Line: Where the pole structure forms part of a straight section of line and no change in direction is required. Straight sections of wood poles include section poles where segmentation is required to contain any failure in the OHL.
- Tension or Angle: Where there is a horizontal or vertical deviation in line direction. The maximum allowable angle deviations on single wood pole designs is 30 degrees, with deviations up to 75 degrees being permitted. All angle structures require to be back stayed.
- Terminal: Where the OHL terminates before entry into a substation or on to an underground cable section via a cable sealing end compound or platform.

2.2.1.2 Wood Pole Heights and Span Lengths

The standard height of trident poles (including steel work and insulators) varies from 11 m to 16 m. Whilst wood poles have a standard height above ground of 15 m, these can be extended or reduced in height, as required. Pole heights may require to be increased where circumstances dictate, e.g. over elevated land, structures or features.

The section of OHL between wood poles is known as the 'span', with the distance between them known as the 'span length'. Span lengths between wood poles average between 80 m to 120 m but can be increased if there is a requirement to span a larger distance due to the presence of a feature in the landscape such as a river or loch.

Wood poles are used to regulate the statutory clearances required for conductor height, which is determined the voltage of the OHLs (the higher the voltage, the greater the safety clearance that is required) and the span length between wood poles.

2.2.1.3 Wood Pole Appearance

Wood poles are fabricated from pressure impregnated softwood, treated with a preservative to prevent damage to structural integrity. New wood poles are dark brown in colour and weather over time to a light grey. The wood pole top cross-arms are galvanised steel and support the aluminium conductors on stacks of grey insulator discs. Both the steelwork and aluminium will weather and darken after a few years.

2.2.2 Overhead Line Construction and Maintenance

The construction of OHLs follows a well-established process. As well as the OHL it also requires additional temporary land-take and infrastructure, for example temporary accesses and temporary construction compounds to store materials.

2.2.2.1 Construction

Key phases of construction comprise the following activities:

- Tree felling or lopping (where required);
- Construction of temporary construction compounds;
- Preparation of accesses (where required);
- Excavation and construction of foundations;
- Assembly and erection of poles;
- Insulator and conductor erection and tensioning; and
- Clearance and reinstatement.

Construction of a wood pole takes place in one single operation, i.e., the hole is dug and the pole erected within the same day depending on ground conditions and location. Angle poles can take longer due to the need for “stay wires” to stabilise the pole in the ground.

Prior to constructing the OHL, temporary accesses will be constructed, as necessary, and laydown/ storage areas established, usually mid-way along the route. Any trees which may impact on safety clearances will be removed or lopped. Following commissioning of the OHL, all equipment and temporary access of construction areas will be removed with the land being reinstated to its former use/condition.

The construction programme for the Grid Connection will be confirmed at detailed design stage and prior to project start following the granting of statutory consents and after all necessary land purchase/ wayleave arrangements have been concluded. At this stage it is considered that construction of the proposed connection would be approximately 18 months with works scheduled to be complete by Q1 2027.

2.2.2.2 Operation and Maintenance

OHLs require minimal maintenance. The condition of the wood poles will be inspected regularly for early identification of any unacceptable deterioration and to ensure action can be taken to maintain the security and safety of all components of the OHL. Poles which have deteriorated significantly may be removed and replaced. Access arrangements for maintenance will be agreed in advance with landowners and will be undertaken within the agreed wayleave. There is also an ongoing requirement to ensure that any vegetation within proximity to the OHL does not impact on safety clearances.

2.2.2.3 Decommissioning

If an OHL line is to be decommissioned, wood poles will be removed with components re-used where possible. Foundations/supports are removed to a minimum depth of 1 m below ground level and the ground reinstated to the satisfaction of the landowner.

3. Environmental Impact Assessment Scope

3.1 Introduction

The EIAR will be prepared to meet the requirements of Schedule 4 of the EIA Regulations. The EIAR would also take account of the relevant guidance set out in the Scottish Government Planning Advice Note 1/2013 – Environmental Impact Assessment, which emphasises the importance of achieving a proportionate EIA scope, focussed on the likely significant effects. In line with Schedule 4 of the EIA Regulations, it is anticipated that the EIAR will provide introductory chapters to provide:

- a description of the Grid Connection comprising information on the location of the OHL; its physical characteristics, including the conductor selection, voltage and pole design, and the area of land required during construction and operational phases; the main characteristics of the operational phase of the Grid Connection; and the type and quantity of expected residues and emissions produced during the construction and operation phases; and
- a description of reasonable alternatives studied in terms of the OHL alignment selection and technology (conductor selection, voltage, pole design) and the main reasons for the chosen option, including a comparison of the environmental effects, highlighting how the Grid Connection delivers 'mitigation by design'.

3.2 Assessment of Likely Significant Environmental Effects

It is proposed that the EIAR will provide assessment chapters for the relevant factors specified in regulation 4(3) of the EIA Regulations where they are likely to be significantly affected, taking account of the description of the Grid Connection and the mitigation by design.

Each assessment chapter will set out:

- a detailed methodology used to establish the relevant aspects of the current state of the environment (the baseline), and the criteria used to identify and assess the likely significant effects;
- a description of the current environment (baseline conditions) and any relevant 'future baseline' scenarios that are used as a basis for the impact assessment;
- a description of the likely significant effects;
- a description of the measures proposed to avoid, prevent, reduce, or, if possible, offset any likely significant effects (mitigation measures); and
- a description of residual effects remaining following the implementation of proposed mitigation measures.

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

3.2.1 Cumulative Effects

Consideration will also be given to the potential for cumulative effects, where the assessment will describe the additional effect associated with the Grid Connection, when considered in combination with other existing projects and reasonably foreseeable projects (defined as those which are the subject of a valid consent or application for consent). The final list of developments to be considered in the cumulative effects assessment will be finalised in advance of the publication of the Section 37 application, allowing for sufficient time to compile the EIAR.

The following committed development proposals, Table 3-1, have been identified at the time of preparing this Scoping Report as relevant to be considered, where appropriate, in assessing the

cumulative effects of the Grid Connection. The location of these proposed developments are identified in Figure 3-1.

Table 3-1. Cumulative Developments

Application Reference	Project Location	Description	Date of Application
P/21/0282	Heathland Wind Farm, A706 From Forth To Northern Boundary Wilsontown Lanark South Lanarkshire	Erection and operation of wind farm consisting of 14 turbines up to a maximum height to blade tip of 180m (Consultation from Scottish Ministers under S36 of the Electricity Act 1989)	19 Feb 2021
P/19/1700	Hyndshaw Farm Hyndshaw Road Carluke South Lanarkshire	Residential development	12 Nov 2019
P/23/0191	Land 38M Northwest Of 27 St Andrews Drive St Andrews Drive Law Carluke	Erection of 16 dwellinghouses with associated roads and landscaping.	16 Feb 2023
P/18/0603	Muirhead Drive Law Carluke ML8 5FB	Erection of 157 dwellings, construction of access roads, formation of play areas and associated works	30 Apr 2018
21/01766/FUL	Pather Farm Dimsdale Road Wishaw North Lanarkshire ML2 0RX	New cemetery, including associated buildings, access, roads, parking, landscaping, fencing and drainage	29 Nov 2021
22/00296/MSC	Wemysshill Farm Castlehill Road Overtown North Lanarkshire ML2 0RU	Construction of 401 Houses and ancillary infrastructure: MSC application for development at Wemysshill North in respect of conditions 1, 3, 4, 5, 6, 7, 8, 9, 10, 18, 21 and 22 of permission ref: 20/01468/S42 (Residential Development & Associated Uses, including Community Uses and Retail)	14 Mar 2022
21/01316/MSC	Land At Castlehill Road Gowkthrapple Wishaw North Lanarkshire	Construction of 96 Dwellinghouses (Semi-Detatched, Terraced, Bungalows and Cottage Flats), Day Care Unit, New Infrastructure including Roads and SUDS Drainage Systems (MSC application in relation to 21/00982/PPP)	16 Aug 2021
20/00946/FUL	Land At Netherton Street Netherton Wishaw North Lanarkshire	Battery energy storage system and associated infrastructure	21 Aug 2020

No other committed development proposals have been identified, where there is the potential for cumulative effects in combination with the Grid Connection.

There would be no potential for transboundary effects associated with the Grid Connection, and therefore no further assessment of transboundary effects is proposed. A more detailed overview of the guidance and methodology adopted for each technical study is provided within the respective technical chapters of this Scoping Report.

3.3 Matters scoped out of the EIA

3.3.1 EMF

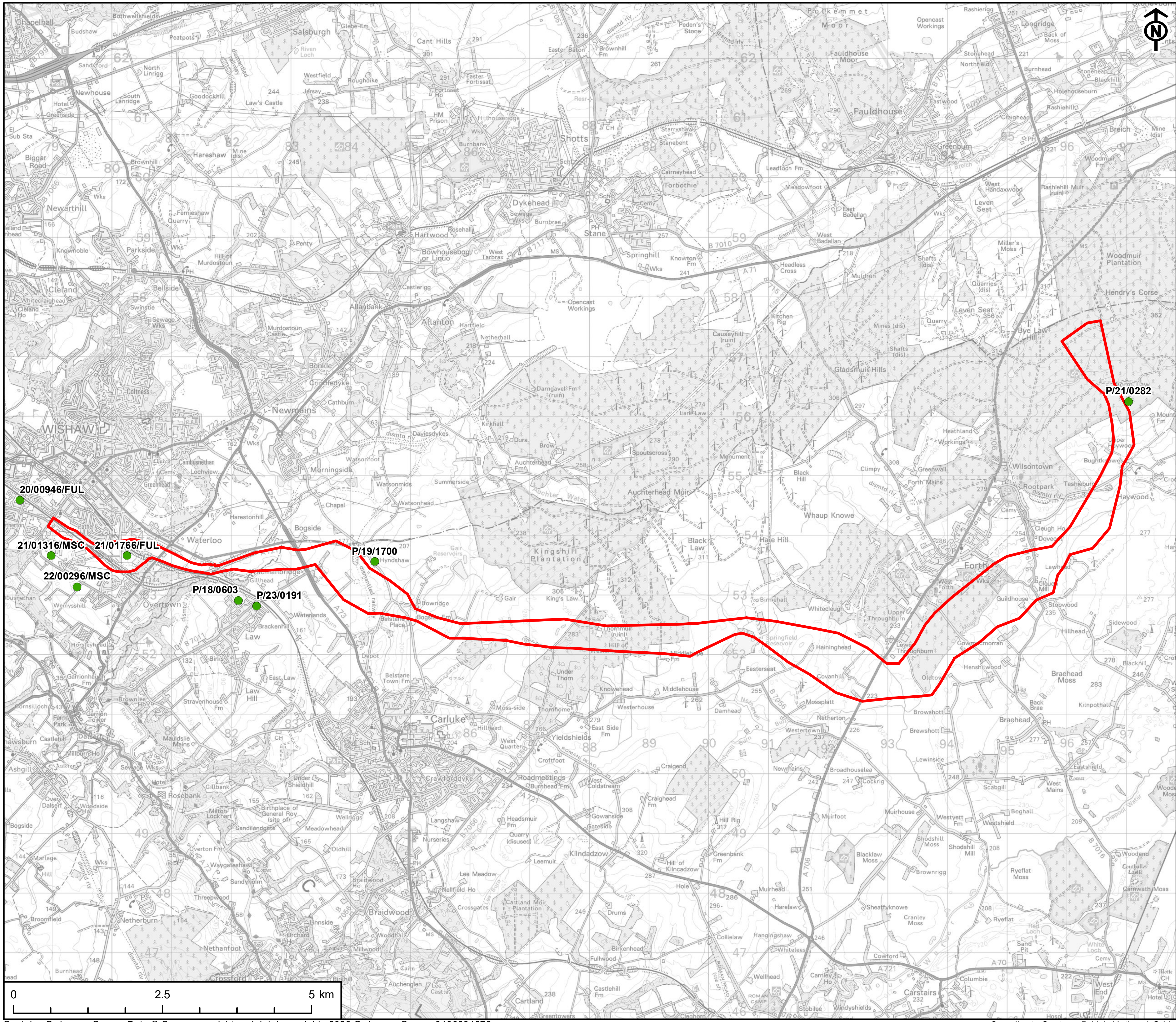
EMFs are produced by electric charges. Exposure guidelines have been developed by the International Commission on Non-Ionising Radiation Protection (ICNIRP) to ensure the protection of human health from dangerous levels of occupational exposure and public exposure. These guidelines have been adopted by Public Health England (PHE) who the Scottish Government take their lead from on matters regarding EMFs. The calculated field strengths for a 132 kV overhead line are always within the safe limits outlined in ICNIRP exposure guidelines.

3.3.2 TV and Radio Reception

Potential effects from OHLs on TV signals arise from physical obstruction of the signal. The proposed wood poles would not represent a significant obstruction and it is not anticipated that any adverse effects on TV reception would be experienced. Therefore, this issue will not be considered in the EIA.

It is possible for radio receivers in the vicinity to experience interference from such electromagnetic fields from OHLs. In practice little radio and television interference would arise, except when directly beneath the overhead line. The route proposed would avoid sensitive receptors, indicating that significant adverse effects on radio receivers are not anticipated. Therefore, this issue will not be addressed in the EIA.

Project Management Initials: DR   Designer: LC   Checked: DF   Approved: TC



Scale @ A3 1:60,000

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Coordinate System: British National Grid

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PROJECT
Heathland Wind Farm Grid Connection

CLIENT
SP Energy Networks

KEY
Route Corridor
Cumulative Development

TITLE
Figure 3.1
Cumulative Developments

REFERENCE
HGC_20231113_SR_3.1_v2

SHEET NUMBER
1 of 1

DATE
13/11/23

4. Ecology and Ornithology

4.1 Introduction

This chapter addresses ecology and ornithology. Throughout this chapter the term 'ecological feature' is used to refer to sites designated for nature conservation, habitats and species. The term the 'Site' refers to the Route Option as defined from the routeing and optioneering work undertaken. Where referenced, species are given their scientific names when first referred to and their common names only thereafter. All distances are cited as the shortest boundary to boundary distance 'as the crow flies', unless otherwise specified.

The scope of survey and assessment proposed in this chapter has been in part informed by the results of an ecological desk study carried out by AECOM in September 2023.

The approach to scoping for ecology and ornithology accords with the Guidelines for Ecological Impact Assessment in the UK and Ireland, published by the Chartered Institute of Ecology and Environmental Management (CIEEM).

4.2 Legislation, Policy and Guidance

4.2.1 Legislation

The following nature conservation legislation is potentially relevant to the Grid Connection and will be considered during the EIA:

- Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (the 'Habitats Directive');
- Directive 2009/147/EC on the conservation of wild birds (the 'Birds Directive');
- Convention on Wetlands of International Importance ('Ramsar Convention');
- Conservation (Natural Habitats, &c.) Regulations 1994 (as amended) (the 'Habitats Regulations');
- Wildlife and Countryside Act 1981 (as amended) (the 'WCA');
- Nature Conservation (Scotland) Act 2004 (as amended);
- Wildlife and Natural Environment (Scotland) Act 2011 (as amended) ('WANE Act'); and,
- Protection of Badgers Act 1992 (as amended).

Under the Nature Conservation (Scotland) Act 2004, public bodies in Scotland have a duty to further the conservation of biodiversity. The Scottish Biodiversity List (SBL) is a list of habitats, plants and animals that Scottish Ministers consider to be of principal importance for biodiversity conservation in Scotland. The purpose of the SBL is to identify habitats and species that are of highest priority for biodiversity conservation, thereby helping public bodies to carry out their Biodiversity Duty.

4.2.2 National Planning Policy

National Planning Framework 4 (NPF4) was formally adopted by Scottish Ministers on 13 February 2023. NPF4 includes the following statements of policy intent: "To protect, restore and enhance natural assets making best use of nature-based solutions" and "To protect biodiversity, reverse biodiversity loss, deliver positive effects from development and strengthen nature networks". Wherever possible and proportionate to the scale and nature of the project, the Grid Connection should therefore seek to deliver benefits for biodiversity, in addition to protecting existing biodiversity. NPF4 also states that major development will only be supported where nature networks "are in a demonstrably better state than

without intervention" using best practice and including future monitoring and management where appropriate.

Prior to the UK's exit from the European Union (EU), Scotland's Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) were part of a wider European network of such sites known as the 'Natura 2000 network'. They were consequently referred to as 'European sites'. Now that the UK has left the EU, Scotland's SACs and SPAs are no longer part of the Natura 2000 network but form part of a UK-wide network of designated sites referred to as the 'UK site network'. However, it is current Scottish Government policy to retain the term 'European site' to refer collectively to SACs and SPAs.

4.2.3 Local Planning Policy

The Grid Connection spans two local authority areas, North Lanarkshire and South Lanarkshire. Relevant local planning policies for each are detailed below.

4.2.3.1 North Lanarkshire Local Development Plan

Local planning policies for North Lanarkshire are detailed in the NLLDP (adopted July 2022). Table 4-1 lists those policies of the NLLDP which are potentially relevant to nature conservation and the Grid Connection (for full policy text refer to the NLLDP).

Table 4-1. Summary of Relevant Policies Within the NLLDP

Planning Policy	Relevant Purpose
PROM LOC4 Special Landscape Areas & Green Network Improvements	Sets out the requirement for ALL provisions within the '*Protecting Assets*' and '*Environmental & Design Qualities*' policies to be satisfied for proposals affecting Special Landscape Areas and Green Networks.
PROT A Natural Environment and Green Network Assets	States that the Council will safeguard natural heritage assets including international sites (e.g., European sites), national sites (including Sites of Special Scientific Interest (SSSIs) and woodland listed on the Ancient Woodland Inventory (AWI)), local sites (e.g., Seven Lochs Wetland Park, Sites of Importance for Nature Conservation (SINCs), and Local Nature Reserves (LNRs)), urban Green Network (e.g., wildlife corridors, trees and woodlands, watercourses and wetlands, and flood plains), and protected species.
EDQ 1 Site Appraisal	Details the matters to be addressed within site appraisal including "*Green Network, landscape character and quality on the site and surrounding Land Use Character Area*", "*impacts associated with the holistic water environment and flood risk*", and "*biodiversity of plants and animals on the site and surrounding Land Use Character Area*".
EDQ 3 Quality of Development	Sets out the high standards of site planning expected from developments, including consideration of existing Green Network features and those identified during site appraisal.

4.2.3.2 South Lanarkshire Local Development Plan

Local planning policies for South Lanarkshire are detailed in the SLLDP2 (adopted April 2021) with supplementary guidance on Natural and Historic Environment, and Local Nature Reserves. Table 4-2 lists those policies of the SLLDP2 which are potentially relevant to nature conservation and the Grid Connection (for full policy text refer to the LDP).

Table 4-2. Summary of Potentially Relevant Policies Within the SLLDP2

Planning Policy	Relevant Purpose
Policy 13 Green Network and Greenspace	States that South Lanarkshire Council will not support development which results in the loss of priority greenspace, that development proposals should safeguard the green network, and that green infrastructure will be a core component of any significant development proposal. Exceptions which will be considered if there will be partial loss of priority greenspace are listed.
Policy 14 Natural and Historic Environment	South Lanarkshire Council seeks to protect natural and historic sites and features. The policy outlines the provisions in place for designated sites (internationally, nationally, and locally), protected species, local nature conservation, and the landscape.

4.2.3.3 North Lanarkshire Biodiversity Action Plan

The NLLDP is supported by the North Lanarkshire Biodiversity Action Plan 2023-2027 which outlines actions needed to safeguard vulnerable species in North Lanarkshire, and to protect and enhance key habitats at an ecosystem scale. It highlights priority habitats and species within the local authority area. Floodplain and grazing marsh, hedgerow, rivers and burns, woodland, and lowland raised bog are priority habitats potentially relevant to the Grid Connection. Priority species which are potentially relevant to the Grid Connection include small pearl-bordered fritillary *Boloria selene*, barn owl *Tyto alba*, kestrel *Falco tinnunculus*, farmland waders, otter *Lutra lutra*, water vole *Arvicola amphibius*, great crested newt *Triturus cristatus*, taiga bean goose *Anser fabalis fabalis*, pine marten *Martes martes* and bluebell *Hyacinthoides non-scripta*.

4.2.3.4 South Lanarkshire Biodiversity Strategy

The SLLDP2 is supported by the South Lanarkshire Biodiversity Strategy 2018-2022 which sets out priority habitats and the key issues faced by each. Lowland and farmland, freshwater, peatland, and woodland are priority habitats which are potentially relevant to the Grid Connection. Whilst no priority species are detailed, invasive non-native species are considered a key issue for each habitat. Himalayan balsam *Impatiens glandulifera*, giant hogweed *Heracleum mantegazzianum*, Japanese knotweed *Fallopia japonica*, and American signal crayfish *Pacifastacus leniusculus* all threaten freshwater habitats, and rhododendron *Rhododendron ponticum* threatens woodland and peatland habitats.

4.2.4 Guidance

The guidance in the published documents listed below will be followed when conducting the EIA for the Grid Connection, including during the assessment of effects on ecological features:

- CIEEM Guidelines for Ecological Impact Assessment in the UK and Ireland;
- NatureScot guidance on the Assessment and mitigation of impacts of power lines and guyed meteorological masts on birds; and,
- standing advice notes for protected species published by NatureScot.

In addition, other industry-standard good practice guidelines for surveying for ecological features identified as being potentially relevant to the Grid Connection will also be followed and clearly referenced in the EIA Report.

4.3 Baseline Conditions

A desk study to help establish the baseline conditions relevant to the Site has been completed. The desk study sought to identify ecological features which could occur within the zone of influence (ZoI) of the Grid Connection and be significantly affected by its construction and/or operation.

A stratified approach was taken when defining the desk Study Area based on the likely ZoI of the Grid Connection. Accordingly, the desk study searched for:

- any Special Areas of Conservation (SAC), Special Protection Area (SPA) or Wetlands of International Importance (Ramsar sites) within 10 km of the Site, this being extended to 20 km for SPAs for which geese are a qualifying feature, or for SACs for which a clear hydrological connection to the Site exists;
- any Sites of Special Scientific Interest (SSSI) within 2 km of the Site;
- any other locally designated nature conservation sites within 2 km of the Site; and,
- records of protected and/or notable habitats and species within 1 km of the Site.

A range of data sources were used for the desk study, as set out in Table 4-3.

Table 4-3. Desk Study Data Sources

Data Source	Date Accessed	Data Obtained
Ordnance Survey (OS) 1:25,000 maps and aerial photography (https://www.bing.com/maps/)	01 September 2023	• Habitats and connectivity relevant to interpretation of planning policy and potential protected / notable species constraints.
North Lanarkshire Council website (https://www.northlanarkshire.gov.uk/planning-and-building/development-plans)	04 September 2023	• Local non-statutory nature conservation designations within 2 km of the Site • LDP policies relevant to nature conservation.
South Lanarkshire Council website (https://www.southlanarkshire.gov.uk/info/200145/planning_and_building_standards/39/development_plans/2)	04 September 2023	• Local non-statutory nature conservation designations within 2 km of the Site • LDP2 policies relevant to nature conservation.
NatureScot SiteLink webpage (https://sitelink.nature.scot/home_	01 September 2023	• SSSIs within 2 km of the Site

Data Source	Date Accessed	Data Obtained
		• SACs, SPAs and Ramsar sites within 10 km of the Site
NatureScot Natural Spaces webpage (https://cagmap.snh.gov.uk/natural-spaces/)	01 September 2023	• Carbon and Peatland 2016 map • Ancient Woodland Inventory for Scotland • Results of Native Woodland Survey of Scotland (NWSS).
NBN Atlas Scotland (https://scotland.nbnatlas.org/)	01 September 2023	• Commercially available records of protected and/or notable species within 1km of the Site, made since 2000.
Saving Scotland's Red Squirrels (scottishsquirrels.org.uk)	01 September 2023	• Red squirrel *Sciurus vulgaris* records.
Mammal Society Species Hub (https://www.mammal.org.uk/species-hub/full-species-hub/discover-mammals/)	01 September 2023	• Information on protected and notable mammals.

4.4 Nature Conservation Sites

4.4.1 Statutory Designated Sites

Table 4-4 summarises the statutory designated sites situated within the Site in order of proximity to the Site.

Table 4-4. Statutory Designated Sites Within the Potential ZOI

Designated Site	Reason for Designation	Relationship to the Site
European Sites		
Clyde Valley Woods SAC	Mixed woodland on base-rich soils associated with rocky slopes.	60 m south
Braehead Moss SAC	Active raised bog.	370 m south
Cranley Moss SAC	Active and degraded raised bog.	2.9 km south
North Shotts Moss SAC	Active and degraded raised bog.	7.6 km north
Westwater SPA	Non-breeding pink-footed geese *Anser brachyrhynchus* and non-breeding waterfowl assemblage.	14.3 km east
Slamannan Plateau SPA	Non-breeding taiga bean goose.	17.8 km north

Designated Site	Reason for Designation	Relationship to the Site
Westwater Ramsar site	Non-breeding pink-footed geese and non breeding waterfowl assemblage.	14.3 km east
Sites of Special Scientific Interest		
Greenhead Moss and Perchy Pond Local Nature Reserve	Greenhead Moss Community Park comprises various habitats including ponds, wildflower meadows, remnant raised peat bog, old and new woodlands. It was designated to protect Perchy Pond from future development	270 m north
Cambusnethan Woodland Local Nature Reserve	Comprising mature broadleaved woodland, Cambusnethan Woodland LNR is also designated as a Site of Importance for Nature Conservation (SINC), with a variety of wildlife including bluebell, jay Garrulus glandarius, badger Meles meles, and pipistrelle bats Pipistrellus spp.	440 m south

4.4.2 Non-statutory Designated Sites

There are no non-statutory designated sites within the desk Study Area.

4.5 Habitats

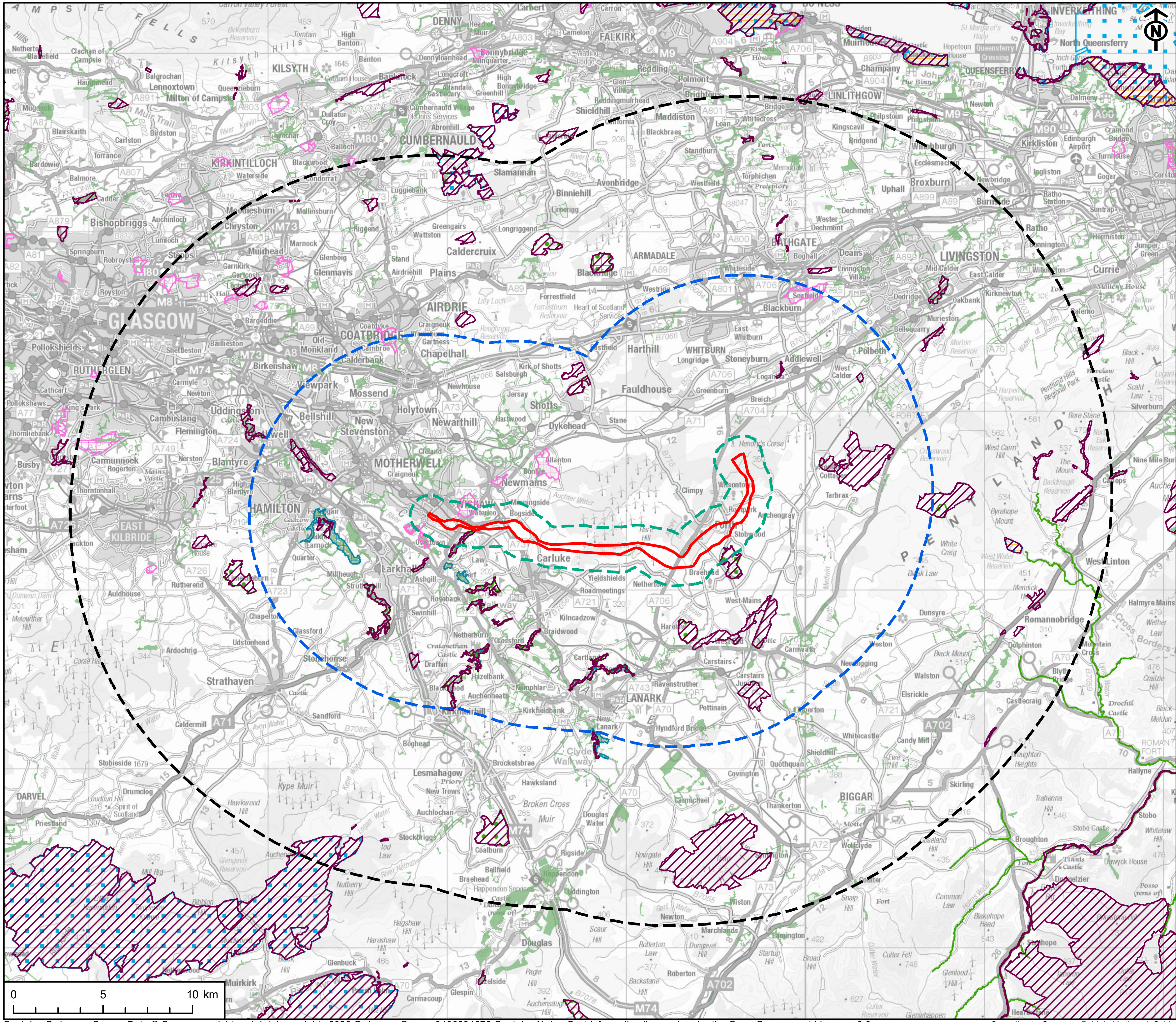
Habitat within the Site appears to be predominantly farmland, both arable and pastoral, with some areas of commercial forestry (dense coniferous woodland or recently felled areas), and very localised hedgerows and sections of broadleaved woodland.

There are no woodlands listed on the AWI within the Site, however, the closest ancient woodland (of semi-natural origin) is 55 m south, while the closest long-established woodlands (of plantation origin) are 80 m south 110 m west.

Five areas of Class 1 peatland were identified within the Site. Class 1 areas are likely to contain nationally important carbon-rich soils, deep peat and priority peatland habitat and are likely to be of high conservation value.

Several watercourses flow through or along the Site, including Garrion Burn, and Springfield Reservoir and its tributaries including the Netherton Burn, Through Burn, and Mouse Water. Mouse Water flows through the Site for approximately 4 km. Additionally, there appear to be 13 ponds within the Site.

Project Management Initials: DR Designer: LC Checked: DF Approved: TC



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Coordinate System: British National Grid

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PROJECT
Heathland Wind Farm Grid Connection

CLIENT
SP Energy Networks

KEY
- Route Corridor
- 1km Study Area
- 10km Study Area
- 20km Study Area
- Site of Special Scientific Interest
- Special Protection Area
- Special Area of Conservation
- Ramsar
- National Nature Reserve
- Local Nature Reserve
- Ancient Woodland

TITLE
Figure 4.1
Designated Sites

REFERENCE
HGC_20231113_SR_4.1_v2

SHEET NUMBER
1 of 1

DATE
13/11/23

4.6 Species Records

The desk study returned the following records of protected species:

- 58 records of bats around OS 10 km grid square NS95. Although the exact location of these records was not available, these could be from within the Site. Species for which records were identified were:
  - Natterer's bats *Myotis nattereri* (24 records);
  - Daubenton's *Myotis daubentoniid* (15 records);
  - brown long-eared bats *Plecotus auratus* (three records);
  - common pipistrelle *pipistrellus pipistrellus* (one record); and,
  - 16 records of unknown species.
- two records of badger south of Wishaw; and,
- one record of otter south of wishaw.

The following records of notable species were returned from the desk study:

- seven records of common toad *Bufo bufo,* one outside Wishaw and six west of Braehead;
- 11 records of brown hare Lepus europaeus around Wildmanbridge; and,
- one record of hedgehog *Erinaceus europaeus* in Overtown, outside Wishaw.

Furthermore, records of 26 notable bird species were identified by the desk study. These are detailed in Table 4-5. Barn owl and kestrel are priority species under the North Lanarkshire Biodiversity Action Plan 2023-2027 and have been recorded within 1 km of the Site (11 and seven records respectively) in the past 20-years. Most of these records are associated with the western sections of the Site. Presence of willow tit *Poecile montanus*, a scarce species in Scotland, can indicate good quality wet woodland habitat and five records were identified within the desk study from 2003-2006. These records are all associated with Greenhead Moss LNR.

Table 4-5. Notable Bird Species Recorded Within 1km of the Site

Species	Annex 1 of the Birds Directive	Schedule 1 of the WCA	Scottish Biodiversity List	BoCC5 Red List*
Barn owl	-	Yes	Yes	-
Black grouse *Tetrao Tetrix*	Yes	-	Yes	Yes
Black-headed gull *Chroicocephalus ridibundus*	-	-	Yes	-
Brambling *Fringilla montifringilla*	-	Yes	Yes	-
Bullfinch *Pyrrhula pyrrhula*	-	-	Yes	-

Species	Annex 1 of the Birds Directive	Schedule 1 of the WCA	Scottish Biodiversity List	BoCC5 Red List*
Curlew *Numenius arquata*	-	-	Yes	Yes
Goldeneye *Bucephala clangula*	-	-	-	Yes
Grasshopper warbler *Locustella naevia*	-	-	Yes	Yes
Greenfinch *Chloris chloris*	-	-	-	Yes
Herring gull *Larus argentatus*	-	-	Yes	Yes
House martin *Delichon urbicum*	-	-	-	Yes
House sparrow *Passer domesticus*	-	-	Yes	Yes
Kestrel	-	-	Yes	-
Kingfisher *Alcedo atthis*	Yes	Yes	Yes	-
Lapwing *Vanellus vanellus*	-	-	Yes	Yes
Lesser redpoll *Acanthis cabaret*	-	-	Yes	Yes
Peregrine *Falco peregrinus*	Yes	Yes	Yes	-
Pochard *Aythya ferina*	-	-	Yes	Yes
Reed bunting *Emberiza schoeniclus*	-	-	Yes	-
Siskin *Spinus spinus*	-	-	Yes	-
Skylark *Alauda arvensis*	-	-	-	Yes
Song thrush *Turdus philomelos*	-	-	Yes	-
Starling *Sturnus vulgaris*	-	-	-	Yes
Swift *Apus apus*	-	-	Yes	Yes
Tree sparrow *Passer montanus*	-	-	Yes	Yes
Willow tit	-	-	Yes	Yes

*The Birds of Conservation Concern 5 (BoCC5)

In addition to protected and notable species, records of three non-native species were identified. These are:

- 22 records of grey squirrel *Sciurus carolinensis*, mostly located around Wishaw with a few records around Forth;
- five records of Japanese knotweed, south of the Site between Wishaw and Carluke (the closest within 300 m of the Site); and,
- one record of rhododendron associated with Law, approximately 1 km from the Site.

4.7 Proposed Methodology

4.7.1 Important Ecological Features

The Guidelines for Ecological Impact Assessment in the UK and Ireland recommend that only those ecological features that are 'important' and that could be significantly impacted by a development require detailed assessment, stating that "*it is not necessary to carry out detailed assessment of ecological features that are sufficiently widespread, unthreatened and resilient to project impacts and will remain viable and sustainable*".

Consequently, for the purposes of future desk study, field survey and assessment of effects, 'important' ecological features will be taken to include:

- sites designated for nature conservation, including those designated at international, national and local levels;
- the qualifying features of SPAs, SACs and Ramsar sites within 10 km of the Site (extended to 20 km for sites designated for non-breeding geese species), and the notified features of SSSIs within 2 km of the Site;
- woodland listed on the AWI;
- habitats listed on Annex I of the Habitats Directive;
- species listed on Annexes I and II of the Habitats Directive;
- species listed on Schedules 2 and 4 of the Habitats Regulations;
- species listed on Schedule 1, 5 and 8 of the WCA;
- badger;
- species on the SBL, which are thus identified as being of principal importance for biodiversity conservation in Scotland; and,
- invasive non-native species listed on Schedule 9 of the WCA (although this does not legally apply in Scotland) and those considered to be of EU concern under the Invasive Alien Species Regulation (Regulation (EU) 1143/2014).

Other habitats or species that may be rare, scarce or otherwise notable will be included where deemed appropriate through available information and/or professional judgement.

4.7.2 Ecological Features Scoped Out

It is not currently proposed to carry out surveys of foraging or commuting bats. The Grid Connection will generally seek to avoid linear features (e.g., hedgerows) which could be used by bats for these purposes and will over-sail suitable bat habitat as far as possible. Any minor impacts on habitat which could be of value to foraging or commuting bats will be mitigated through standard and straightforward measures (e.g., replanting of any hedgerow which is removed to facilitate construction).

It is proposed to scope out of survey and assessment fish and aquatic invertebrates. The watercourses in the vicinity of the Route Option are likely to be typical of this part of central Scotland, and the Grid Connection will not require construction of permanent in-stream structures. Any potential impacts on

fish or aquatic invertebrates can therefore reliably be mitigated through standard good practice construction measures.

No targeted survey is proposed for reptiles or non-protected mammals including brown hare and hedgehog. These species will all be assumed to be present where habitat is suitable, and appropriate and proportionate mitigation adopted where necessary to minimise impacts on them.

4.7.3 Ecological and Ornithological Field Survey

Based on the information collected through the desk study described above and the recommendations in relevant guidance documents, it is proposed that the following field surveys will be carried out to determine the potential effects of the Grid Connection on important ecological features.

4.7.3.1 Habitat Survey

A habitat survey adopting the UKHab classification system will be completed along the route of the Grid Connection plus a 100 m buffer. Notes will be made for each habitat of dominant, typical and notable plant species, and any relevant ecological characteristics (particularly where relevant to habitat condition).

4.7.3.2 National Vegetation Classification Survey

In all areas of notable habitat identified by the UKHab survey (e.g. ancient woodland, groundwater dependent terrestrial ecosystems (GWDTE) and priority habitats listed on the SBL) a National Vegetation Classification (NVC) survey will also be carried out following published guidelines. The NVC survey will extend to a distance of 100 m from all areas of proposed infrastructure, in notable habitat.

4.7.3.3 Otter and Water Vole Survey

Survey for otter and water vole will be carried out along all suitable water features (including watercourses and waterbodies), within 200 m of proposed infrastructure for otter and within 50 m for water vole. The survey will follow guidance in published literature. Evidence of otter to be searched for will include refuges (holts and lie-ups), spraints, footprints, trails and foraging signs. Spraints will be recorded as fresh, recent or old, according to their apparent age. Evidence of water vole to be searched for will include latrines, droppings, burrows, trails and foraging evidence.

4.7.3.4 Badger and Pine Marten Survey

A badger survey will be completed within 100 m of proposed infrastructure, in accordance with standard guidance. Evidence to be searched for will include setts, spoil heaps, bedding, guard hairs, latrines, footprints, trails, scratch marks and signs of foraging activity.

Concurrently with the badger survey, a search for pine marten will also to be carried out in areas of suitable habitat for this species within the same area as the badger survey. This will involve searching for field signs of this species, as described in Birks (2002) including possible den sites.

4.7.3.5 Bat Roost Suitability Assessment

A walkover will be carried out to assess the bat roost suitability of all trees and structures (excluding occupied private residences) which could be directly impacted by the Grid Connection (i.e., they will be damaged or destroyed). Any potential bat roost features which are identified will be assigned a suitability category, as defined by the Bat Conservation Trust.

Where trees or structures which could be directly impacted by the Grid Connection are found, these will be subject to further survey to determine use by roosting bats. Subsequent surveys will also follow the BCT guidelines and may involve aerial inspections and/or dusk emergence / dawn re-entry surveys.

4.7.3.6 Great Crested Newt Habitat Suitability Assessment

All ponds or waterbodies within 250 m of infrastructure will be assessed for their suitability to support great crested newts and Habitat Suitability Indices (HSI) calculated. Where ponds or waterbodies are deemed to have suitability to support great crested newts, further survey may be necessary, including, for example, eDNA analysis and/or traditional population estimate surveys such as bottle trapping.

4.7.3.7 Vantage Point Survey

Vantage point (VP) surveys would be carried out along the length of the Site. The surveys will follow the methods described by NatureScot for wind farms, and a total of six hours of survey will be completed from each of VP location per month for a period of one year. Target species during the surveys will be:

- all wader species;
- all raptor and owl species listed on Schedule 1 of the WCA;
- all ducks, geese and swans; and,
- black grouse.

Flightlines for all target species will be drawn and flight heights estimated.

4.7.3.8 General Breeding Bird Survey

It is not proposed to carry out survey for general breeding birds along the entire length of the Grid Connection. Instead, survey will be carried out only in areas of habitat which are likely to be of relative importance to breeding birds and/or which may support a reasonably diverse assemblage of species. It is not proposed to survey in areas of dense conifer plantation or in improved agricultural fields, but survey will be carried out in areas of scrub, semi-natural woodland, semi-improved grassland and moorland.

In areas of mixed or broadleaved woodland, scrub and semi-improved grassland, a modified version of the Common Bird Census (CBC) will be followed. The survey area for the CBC will cover all of these habitat types crossed by the Grid Connection, plus a 125 m buffer. The survey will involve walking to within 50 m of all parts of the survey area where there is dense woodland or scrub, and to within 100 m of more open areas of habitat to record the birds present and their behaviour. A total of five CBC survey visits would be made between April and July, inclusive. CBC is temporally limited and can only take place during the early morning, with surveys needing to be completed within approximately four hours of the time of sunrise.

In moorland habitats such as bog and heath, a modified version of the Brown and Shepherd method of surveying moorland breeding birds will be adopted to record species such as waders, grouse and certain passerines. The survey area will encompass the Grid Connection plus a buffer of 500 m. The survey involves walking predetermined transects which cover the entire survey area to within at least 100 m. In line with recommendations made by Calladine *et al* (2009), a total of four survey visits would be carried out, with one visit per month between April and early-July.

4.7.3.9 Breeding Barn Owl

A search will be carried out for trees and buildings which are suitable for use by nesting or roosting barn owls within 100 m of the Grid Connection. Where possible, inspection of buildings will be carried out to search for evidence of use by barn owls.

4.7.3.10 Non-breeding Waterbird Survey

The Site lies within the foraging distance of pink-footed geese *Anser brachyrhynchus* from the Westwater SPA. Geese (and other waterbirds, including swans) are vulnerable to collisions with overhead power lines and it is therefore proposed that surveys are carried out to identify the foraging and/or roosting locations of these species. The survey area will encompass all suitable habitat within 500 m of the Grid Connection. Monthly surveys will be carried out during the non-breeding season (September to February, inclusive) to locate and count aggregations of waterbirds. The survey will be undertaken by following driven transects, with short vantage point watches made from suitable locations.

4.8 Ecological Impact Assessment

The results of the completed field surveys, in combination with the outcomes of the desk study and any consultation with relevant stakeholders, will be used to inform the Ecological Impact Assessment (EcIA) component of the EIA. This will be conducted in accordance with the industry-standard guidelines published by CIEEM.

Where significant effects on an ecological feature are predicted by the EcIA, appropriate mitigation measures will be proposed. Enhancement measures that are proportionate to the scale and impacts of the Grid Connection will also be identified in pursuance of the objectives of NPF4 to ensure that development delivers gains for biodiversity.

4.9 Likely Significant Effects

The potential significant effects from the construction and/or operation of the Grid Connection on ecological features are summarised below:

- permanent habitat loss (e.g. the loss of important habitats due to construction of access tracks or other infrastructure);
- temporary habitat loss (e.g. the temporary loss of habitat to accommodate temporary construction compounds or other works areas);
- habitat degradation as a result of pollution incidents (e.g. fuel or oil spills);
- permanent or temporary changes to hydrological conditions which may affect vegetation and habitats (e.g. where tracks intercept flushes or infrastructure impacts upon a groundwater dependent terrestrial ecosystem);
- loss of habitat which supports protected and/or notable species;
- creation of barriers to animal movements;
- temporary disturbance and/or displacement of species during construction (e.g. disturbance of protected species whilst occupying places of shelter);
- potential for direct mortality of species during construction (e.g. as a result of increased vehicular traffic, or as a result of pollution incident); and,
- potential for birds to collide with new overhead line.

The nearest European site to the Route Option is Clyde Valley Woods SAC, which at closest is approximately 60 m from the Site. However, this site is designated solely for woodland habitats, which

will not be impacted by the Grid Connection. There are no other SACs which could be impacted by the Grid Connection.

The Route Option lies within the core foraging range of pink-footed geese associated with Westwater SPA. Depending on the findings of the ornithological field surveys described above, it is possible that the Grid Connection could have impacts on birds associated with this SPA when using functionally linked habitat. It is therefore likely that a Habitats Regulations Appraisal (HRA) Screening will be required to test for likely significant effects from the Grid Connection on the qualifying birds of Westwater SPA.

4.10 Mitigation Measures

The Grid Connection will engage the following mitigation hierarchy where the is potential for adverse effects on ecological features:

1. avoid ecological features where possible;
2. minimise impact by design, method of working or other measures (mitigation); and,
3. compensate for significant residual effects (e.g. by providing suitable alternative habitat elsewhere).

This hierarchy requires the highest level to be applied where possible. Only where this cannot reasonably be adopted should lower levels be considered.

At this stage in the design of the Grid Connection, it is not possible to make detailed recommendations for mitigation. The requirement for specific mitigation will be determined based on the results of desk study and field survey work and the subsequent EcIA.

However, it is likely that the following generic mitigation measures will be required to reduce the impacts and effects of the Grid Connection on ecological features:

- minimising the loss of habitats of high conservation value through project design and micro-siting;
- providing compensatory habitat, where appropriate, for permanent losses to the Grid Connection (e.g. replanting of a larger area of native broadleaved trees than is felled to accommodate construction works);
- restoring areas of habitat temporarily lost during the construction period;
- implementing standard pollution prevention measures to protect surface water systems, groundwater and species;
- maintaining the existing hydrological regime, particularly in any areas of peat bog and GWDTE;
- designing watercourse crossings to be maintain passage for species such as otter, water vole and fish;
- avoiding key areas and/or features used by important ecological features through project design and micro-siting;
- timing of construction activities to minimise impacts upon species;
- pre-construction and pre-felling checks for protected species;
- implementing works exclusion zones around specially protected species to ensure that they are not disturbed or otherwise directly harmed during construction, and acquiring associated licensing where necessary to ensure legal compliance; and,
- appointment of an Ecological Clerk of Works (ECoW) for the duration of the construction period.

4.11 Summary and Conclusions

This chapter has identified the existing baseline and potential impacts associated from the Grid Connection on ecological resources. The scoping assessment has concluded that further survey and assessment is needed to identify whether these impacts are potentially significant, and therefore will be scoped into the EIA. The proposed approach to the assessment and impact pathways to be considered are set out, along with the proposed surveys to be undertaken to inform the assessment.

4.12 References

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- Calladine, J., Garner, G., Wernham, C. and Thiel, A. (2009). The influence of survey frequency on population estimates of moorland breeding birds, Bird Study 56, pp 381-388.

5. Archaeology and Cultural Heritage

5.1 Introduction

Cultural heritage in this context refers to the above and below-ground archaeological resource, built heritage, the historic landscape, and any other elements which may contribute to the historical and cultural heritage of the area. The aim of this chapter is to:

- Describe the cultural heritage assets within the Study Area and the surrounding vicinity;
- Identify the potential cultural heritage issues that may arise as a result of the Grid Connection; and
- Outline the methods and assessment to be undertaken for inclusion within the EIA Report.

5.2 Legislation, Policy and Guidance

5.2.1 Legislation

The assessment was conducted within the context of the legislative and planning framework designed to protect and conserve heritage resources. There are several statutory instruments and policies governing the approach to cultural heritage. The main pieces of legislation are:

- Town and Country Planning (Scotland) Act 1997 (as amended by the Planning (Scotland) Act 2019);
- The Town and Country Planning (Development Management Procedure) (Scotland) Regulations 2013 (as amended by the Town and Country Planning (Historic Environment Scotland) Amendment Regulations 2015);
- Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997;
- Ancient Monuments and Archaeological Areas Act 1979; and
- Historic Environment Scotland Act 2014.

5.3 National Planning Policy

The principal elements of national policy and guidance comprise:

- National Planning Framework 4 (NPF4);
- Historic Environment Policy for Scotland (HEPS);
- Our Place in Time - The Historic Environment Strategy for Scotland;
- Planning Advice Note (PAN) 2/2011 – Planning and Archaeology;
- PAN 71 – Conservation Area Management; and
- The HES ‘Managing Change in the Historic Environment’ series of guidance notes (particularly Managing Change in the Historic Environment: Setting).

NPF4 represents the latest national planning policy document relevant to the Grid Connection. Policy 7 relates to cultural heritage and key elements of the policy include point h) which relates to scheduled monuments and states:

“h) *Development proposals affecting scheduled monuments will only be supported where:*

- *direct impacts on the scheduled monument are avoided;*
- *significant adverse impacts on the integrity of the setting of a scheduled monument are avoided; or*
- *exceptional circumstances have been demonstrated to justify the impact on a scheduled monument and its setting and impacts on the monument or its setting have been minimised*.”

Impacts on non-designated assets are covered by points n) and o) of Policy 7:

"n) *Enabling development for historic environment assets or places that would otherwise be unacceptable in planning terms, will only be supported when it has been demonstrated that the enabling development proposed is:*

- *essential to secure the future of an historic environment asset or place which is at risk of serious deterioration or loss; and*
- *the minimum necessary to secure the restoration, adaptation and long-term future of the historic environment asset or place.*

The beneficial outcomes for the historic environment asset or place should be secured early in the phasing of the development and will be ensured through the use of conditions and/or legal agreements.

o) Non-designated historic environment assets, places and their setting should be protected and preserved in situ wherever feasible. Where there is potential for non-designated buried archaeological remains to exist below a site, developers will provide an evaluation of the archaeological resource at an early stage so that planning authorities can assess impacts. Historic buildings may also have archaeological significance which is not understood and may require assessment.

Where impacts cannot be avoided, they should be minimised. Where it has been demonstrated that avoidance or retention is not possible, excavation, recording, analysis, archiving, publication, and activities to provide public benefit may be required through the use of conditions or legal/planning obligations.

When new archaeological discoveries are made during the course of development works, they must be reported to the planning authority to enable agreement on appropriate inspection, recording and mitigation measures."

Policy 11 relates to energy and as such is also relevant to the Grid Connection. Point e) relates to impacts resulting from renewable developments and states:

"e) In addition, project design and mitigation will demonstrate how the following impacts are addressed:

- ii-significant landscape and visual impacts, recognising that such impacts are to be expected for some forms of renewable energy. Where impacts are localised and/ or appropriate design mitigation has been applied, they will generally be considered to be acceptable; … [and]
- vii-impacts on historic environment"

Our Place in Time was superseded by a new strategy entitled 'Our Past, Our Future' which was released in June 2023. The three main priorities identified in this document are:

- Priority 1: Delivering the transition to net zero;
- Priority 2: Empowering resilient and inclusive communities and places; and
- Priority 3: Building a wellbeing economy.

5.4 Local Planning Policy

The Grid Connection spans two local authority areas, North Lanarkshire and South Lanarkshire. Relevant local planning policies for each are detailed below.

5.4.1 North Lanarkshire Local Development Plan

Local planning policies for North Lanarkshire are detailed in the NLLDP (adopted July 2022) (for full policy text refer to the LDP). The main policy relevant to heritage is Policy "PROT B Historic Environment Assessment". This notes that North Lanarkshire Council will "protect and create resilient sustainable places by safeguarding historic environment assets". The policy notes that where possible assets

should be preserved in situ, however, if removal/impacts cannot be avoided a robust mitigation strategy should be developed.

5.4.2 South Lanarkshire Local Development Plan

The main local planning policies for South Lanarkshire are detailed in Volume 1 of the SLLDP2 (adopted April 2021). Policies relevant to cultural heritage are as follows:

- Policy 14: Natural and Historic Environment

  The Council will assess all development proposals in terms of their impact on the natural and historic environment, including biodiversity, geodiversity, landscape, and townscape.

  The Council will seek to protect important natural and historic sites and features, as listed in Table 6-2 Natural and Historic Environment Designations, and shown on the proposal map, from adverse impacts resulting from development, including cumulative impacts.

Volume 1 of the SLLDP2 provides additional policies and further guidance which are to be used when assessing planning applications. Policies relating to cultural heritage are as follows:

- Policy NHE2: Archaeological Sites and Monuments

  Scheduled Monuments and their Setting

  Scheduled Monuments shall be preserved in situ and in an appropriate setting.

  Developments which have an adverse effect on scheduled monuments or the integrity of their setting shall not be permitted unless there are exceptional circumstances.

  Non-scheduled Archaeological Sites and Monuments

  All non-scheduled archaeological resources shall be preserved in situ wherever feasible. The Council will weigh the significance of any impacts on archaeological resources and their setting against other merits of the development proposals in the determination of planning applications.

  The developer may be requested to supply a report of an archaeological evaluation prior to determination of the planning application. Where the case for preservation does not prevail, the developer shall be required to make appropriate and satisfactory provision for archaeological excavation, recording, analysis, and publication, in advance of development.

- Policy NHE3: Listed Buildings

  Developments affecting a listed building or its setting shall, as a first principal, seek to preserve the building and its setting, and any features of special architectural interest which it has.

  The layout, design, materials, scale, siting, and use of any development shall be sensitive to, and respect the character and appearance of, the listed buildings and its setting. Any proposals for repair, alterations, and extensions to listed buildings shall demonstrate a sound knowledge and understanding of the building, and demonstrate a full awareness of its cultural significance and phases of development.

  Proposals for the total or substantial demolition of a Listed Building will only be supported where it is demonstrated to the satisfaction of the Council that every effort has been exerted by all concerned to find practical ways of keeping it. This will include the provision of evidence to the Council that the building is incapable of physical repair and re use, or the building is capable of repair but the cost of doing so means that repair is not viable. Supporting evidence should include a valuation of the existing building and site, a full survey identifying the repairs required, development costs including

a scheduled of repairs and an estimated value of the repaired property in accordance with current Historic Environment Scotland guidance.

South Lanarkshire Council has also published supplementary guidance on Natural and Historic Environment. While this relates to the original Local Development Plan (LDP1) and some policies have changed, it still provides guidance relating to heritage protection and management.

5.5 Guidance

The assessment has been undertaken following the Chartered Institute for Archaeologists (CIfA) *Standards and Guidance for Historic Environment Desk-Based Assessment*.

5.6 Baseline Conditions

A detailed baseline of information for the Grid Connection will be obtained as part of the EIA. This will cover all sites within 250 m of the Grid Connection (including the alignment and areas such as construction compounds). A larger Study Area of 1 km will be used for the assessing changes to the setting of designated assets. Some assets beyond this distance may also be considered where elements of their setting extend within the 1 km Study Area.

As part of this scoping exercise, a high-level search has been undertaken with material collected from online sources for sites within the Route Option, and a Study Area of 250 m. These included:

- PastMap (www.pastmap.org.uk);
- Historic Environment Scotland website (www.historicenvironment.scot); and
- Other available online sources.

A search of designated assets of a wider area of approximately 1 km from the Route Option has also been undertaken to allow consideration of setting issues.

The Route Option covers a varied landscape, with the eastern and central sections running through an undulating upland landscape, including rough upland pasture, semi-improved pasture, and improved grazing, along with large areas of commercial woodland. At the eastern end the Route Option is within higher ground north of the former industrial settlements of Forth and Wilsontown, within land that is now dominated by commercial woodland. These commercial plantations dominate much of the landscape north of the Route Option, while a number of large windfarm developments are also evident across the higher ground. While at the western end, the Route Option drops into the more urban environment of the Clyde Valley where it continues into the settlement of Wishaw.

5.6.1 Designated Assets

There are no designated assets within the Route Option, and only four designated assets within the 250 m Study Area (see Appendix B for gazetteer, and Figure 5-1). These consist of the Category B listed Thornlie Parish Church Manse, Wishaw (LB45577), and three scheduled monuments. Two of the latter sites are near the settlement of Wilsontown at the eastern end of the Route Option and are linked to industrial activities (Cleugh House bell pits (SM11234), and Tashieburn horse engine (SM9700)). The final scheduled monument is Brewshott limestone quarry (SM9679) located near the central section of the Route Option.

A review of the wider 1 km Study Area revealed a further 18 listed buildings (two of which are Category B listed, and the remaining 16 Category C listed), and two scheduled monuments (see Appendix B for

gazetteer and Figure 5-2). The majority of the listed buildings are located in the settlement of Wishaw, at the western end of the Route Option, and include public buildings such as churches (LB7984; LB7503; LB45605), church halls (LB47505; LB47503), a masonic lodge (LB47963), and a bank (LB47962). Most of the remaining listed buildings are located in the centre of Wishaw, on Main Street (LB47950; LB47951), and a grouping of three of the listed buildings are located at the eastern end of the Route Option near Wilsontown. These include a Category B listed dovecot at Cleugh House (LB710), as well as the Category C listed Cleugh House and Walled Garden (LB709).

The two additional scheduled monuments are both located at the eastern end of the Route Option, and are, like the scheduled monuments within the 250 m Study Area, linked to industrial processes. These are the former mining settlement of Haywood (SM9684), and the Wilsontown Ironworks (SM2654).

No Gardens or Designed Landscapes, Registered Battlefields, Conservation Areas, or World Heritage Sites were identified in either the 250 m Study Area, or the wider 1 km Study Area.

5.6.2 Non-Designated Assets

A full search of the Historic Environment Record (HER) for non-designated assets has not been undertaken at the scoping stage. However, a review of CANMORE data identified 273 non-designated assets within the 250 m Study Area, of which 38 are located within the Route Option (see Appendix B for gazetteer and Figure 5-1).

While the non-designated assets recorded date from the prehistoric period onwards, the majority of these assets date to the post-medieval period, with most representing the agricultural and industrial activities that dominated the area.

Prehistoric evidence is largely represented by findspots of lithics (47725; 47727; 47735), although possible burials have been recorded (85790; 45722). It is also possible that at least some of the cropmarks recorded may also represent prehistoric activity/settlement (85789; 133382).

Roman activity includes former roads (241929; 72161; 72155) as well as a number of Roman findspots (46696; 46691), while early medieval and medieval activity includes a long cist (46700) and a possible tower house (46690). Other medieval assets are linked to agricultural land use that appears to have dominated the area through into the post-medieval period, including areas of ridge and furrow (85726; 85733; 133520; 298474).

The dominance of agriculture in the area during the post-medieval period is demonstrated with features including sheepfolds (85744; 141765; 94106), farmsteads (85740; 85736; 179812; 82668) and limekilns (89178; 85783), while a watermill also hints at the need to process agricultural products (47739). However, a large number of industrial activities are also represented during the post-medieval period including quarrying (85737; 85749; 857850, 133381), mining (93911; 85798; 93901) and steel working (312452). Houses for the people involved in these industrial activities are also recorded in the form of miners cottages (93926; 39376).

Features dating specifically to the modern period (i.e. the 20th century) are less frequent, but are largely linked to the conflicts that dominated the 20th century and include drill halls (333028; 333039; 333041), war memorials (79626; 340070; 340635) and a search light battery (360011).

Project Management Initials: DR Designer: LC Checked: DF Approved: TC

Scale @ A3 1:30,000

0 1 2 km

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Coordinate System: British National Grid

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AECOM

PROJECT
Heathland Wind Farm Grid Connection

CLIENT
SP Energy Networks

KEY
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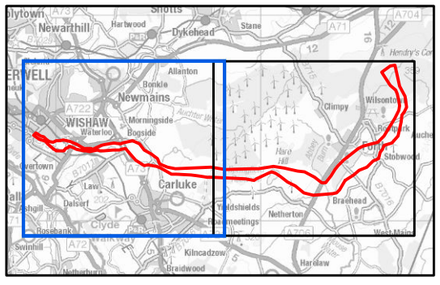
- 250m Study Area
- Canmore Point
- Category A Listed Buidling
- Category B Listed Building
- Category C Listed Building
- Conservation Area



TITLE
Figure 5.1
Heritage Assets within 250m

REFERENCE
HGC_20231113_SR_5.1_v2

SHEET NUMBER
1 of 2

DATE
13/11/23

Project Management Initials: DR Designer: LC Checked: DF Approved: TC

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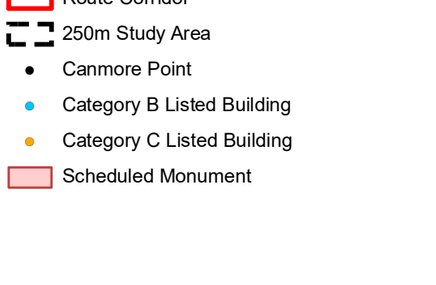
PROJECT
Heathland Wind Farm Grid Connection

CLIENT
SP Energy Networks

KEY
- Route Corridor
- 250m Study Area
- Canmore Point
- Category B Listed Building
- Category C Listed Building
- Scheduled Monument



TITLE
Figure 5.1
Heritage Assets within 250m

REFERENCE
HGC_20231113_SR_5.1_v2

SHEET NUMBER
2 of 2

DATE
13/11/23

Scale @ A3 1:30,000

0 1 2 km

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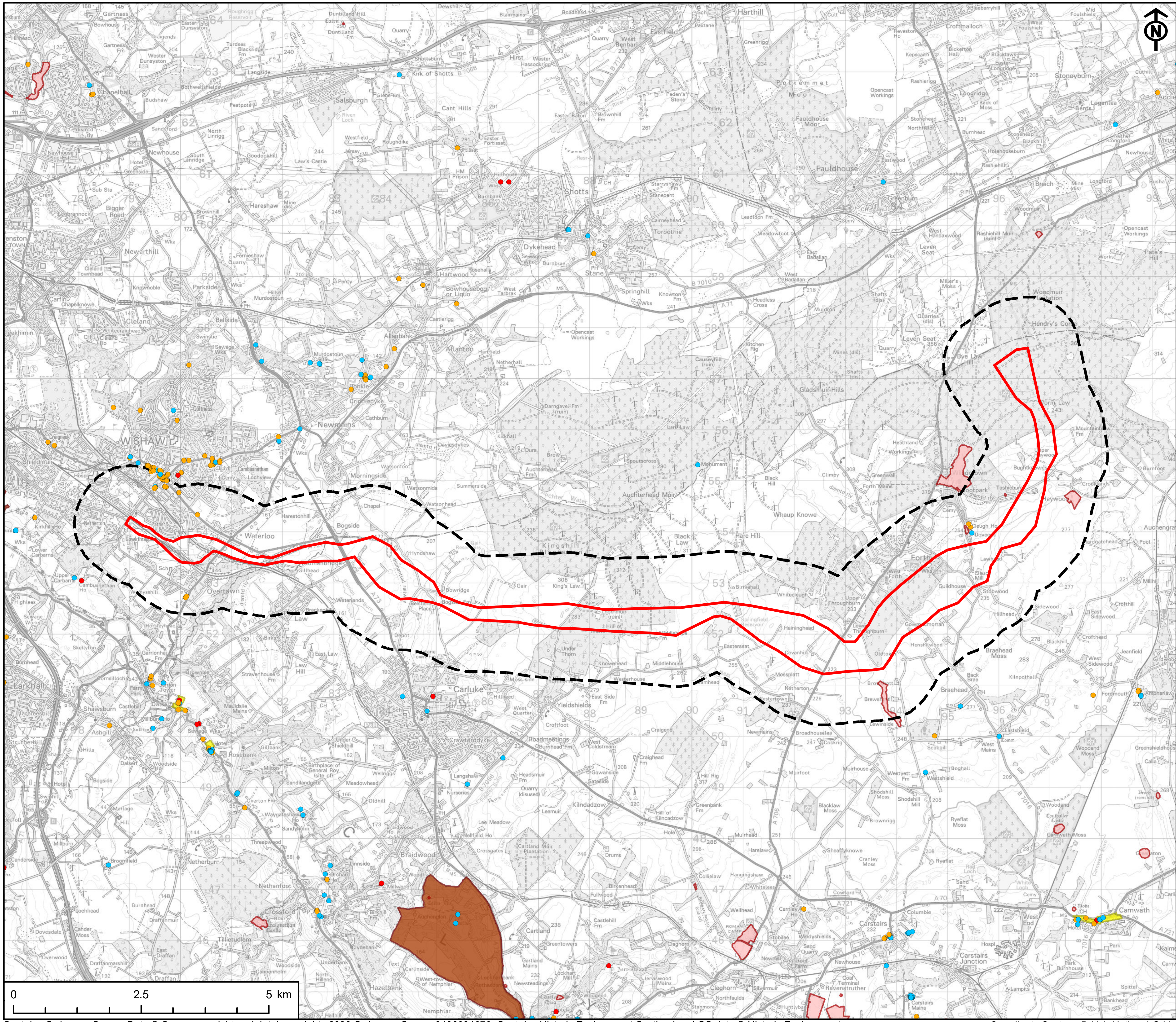
Coordinate System: British National Grid

Project Management Initials: DR Designer: LC Checked: DF Approved: TC



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AECOM

PROJECT
Heathland Wind Farm Grid Connection

CLIENT
SP Energy Networks

KEY
- Route Corridor
- 1km Study Area
- Category A Listed Buidling
- Category B Listed Building
- Category C Listed Building
- Scheduled Monument
- Conservation Area
- Gardens and Designed Landscapes

TITLE
Figure 5.2
Designated Heritage Assets within 1km

REFERENCE
HGC_20231113_SR_5.2_v2

SHEET NUMBER
1 of 1

DATE
13/11/23

5.7 Proposed Methodology

5.7.1 Study Area

A Study Area of 250 m from the Grid Connection site boundary will be used to provide baseline information for the assessment. A wider Study Area will be used to identify designated assets where there is the potential for changes to their setting. The Study Area for the assessment of setting will be limited to 1 km. The setting assessment will be guided by assets which fall within the Zone of Theoretical Visibility (ZTV). Some assets beyond this distance may also be considered where elements of their setting extend within the 1km Study Area.

Desk-based research will be undertaken as part of the EIA. Additional information will be gathered from the following sources:

- South Lanarkshire Historic Environment Record (HER) managed by West of Scotland Archaeology Service (WoSAS);
- North Lanarkshire HER;
- South Lanarkshire Archives Service, Lochgilphead;
- South Lanarkshire Archives Service;
- PastMap website and database (www.pastmap.co.uk) for the National Monuments Record, Scheduled Monuments, listed buildings, Inventory of Designed Landscapes and Registered Battlefields;
- Historic Environment Scotland;
- National Library of Scotland for plans and maps of the Study Area and its environs;
- Aerial photographs available from the National Collection of Aerial Photographs (NCAP) archive, Edinburgh;
- Geotechnical data and other assessments as appropriate and available;
- An archaeological walkover survey to assess known heritage assets and their setting and to determine the potential for previously unrecorded heritage assets. This will not be an exhaustive survey of the entirety of the Study Area and will focus on the proposed works, including pole locations, access tracks, construction compounds and other infrastructure.

Information collected from these sources will be used to describe the known archaeology and built heritage within the 250 m Study Area and the wider 1 km Study Area that will be provisionally used for the setting assessment. The results of the desk-based research and the layout design will be discussed with WoSAS, who act as advisors for South Lanarkshire Council, and North Lanarkshire Council, to agree any requirement for additional field evaluation, such as geophysical survey or trial trenching, prior to determination.

5.8 Impact Assessment

The impact assessment will consider any impacts to the value (significance) of an asset, either physically or through changes to its setting.

The value (significance) of a heritage asset is determined by professional judgement, guided but not limited to any designated status the asset may hold. The value of an asset is also judged upon a number of different factors including the special characteristics the assets might hold which can include evidential, historical, aesthetic, communal, archaeological, artistic and architectural interests. This value of a heritage asset is assessed primarily in accordance with the guidance set out in Scottish Planning Policy (SPP) and the Historic Environment Policy for Scotland (HESP) (HES, 2019). The value

(significance) is defined by the sum of its heritage interests. Taking these criteria into account, each identified heritage asset can be assigned a level of value (significance) in accordance with a three-point scale as set in Table 5-1.

Table 5-1. Heritage Value (Sensitivity) Criteria

Value	Examples
Very High	• World Heritage Sites (WHS); • Assets of acknowledged international importance; and • Historic landscapes of international sensitivity, whether designated or not.
High	• Scheduled Monuments; • Non-designated sites/features of schedulable quality and national importance; • Category A Listed Buildings; • Gardens and landscape on the Inventory of Designed Landscapes of outstanding archaeological, architectural, or historic interest; and • Registered Battlefields.
Medium	• Sites/features that contribute to regional research objectives; • Category B and C Listed Buildings; • Locally listed or non-designated buildings that can be shown to have special interest in their fabric or historical association; • Conservation areas; • Historic townscapes or built-up areas with historic integrity in their buildings, or built settings; and • Non-designated historic landscapes of regional sensitivity.
Low	• Non-designated sites/features of local importance; • Non-designated buildings of modest quality in their fabric or historical association; and • Historic landscapes whose sensitivity is limited by poor preservation and/or poor survival of contextual associations or with specific and substantial importance to local interest groups.
Negligible	• Assets with very little or no surviving archaeological interest; • Buildings of no architectural or historical note; buildings of an intrusive character; and • Landscapes with little or no significant historical interest.

Having identified the value of the heritage asset, the next stage in the assessment will be to identify the level and degree of impact to an asset arising from the Grid Connection. Impacts may arise during construction or operation and can be temporary or permanent. Impacts can occur to the physical fabric of the asset or affect its setting.

When professional judgement is considered, some sites may not fit into the specified category in this table. Each heritage asset will be assessed on an individual basis and take account of regional variations and their individual qualities.

The level and degree of impact (magnitude of impact) will be assigned with reference to a four-point scale as set out in Table 5-2. In respect of cultural heritage, an assessment of the level and magnitude of impact is made in consideration of any scheme design mitigation (embedded mitigation).

Table 5-2. Magnitude of Change Criteria

Magnitude of Change	Examples
High	Total removal or alteration of an asset, such that the physical resource and /or the key components of its setting are totally altered resulting in complete change to an asset's setting and loss of heritage value of the asset.
Medium	Partial alteration of an asset, such that the heritage value of the resource and/or the key components of its setting are clearly modified.
Low	Minor alteration of an asset, such that the components of its setting are noticeably different, but the physical characteristics are not affected and the impact does not result in a noticeable loss of heritage value.
Negligible	Slight changes to historic elements that hardly affect the setting of an asset and do not result in any loss of value.
No Change	No change.

An assessment of the level of significant effect, having taken into consideration any embedded mitigation, will be determined by cross-referencing between the significance (heritage value) of the asset (Table 5-1) and the magnitude of impact (Table 5-2). The resultant level of significant effect (Table 5-3) can be negligible, minor, moderate or major and neutral, adverse or beneficial.

Table 5-3. Assessment of Significance (bold text would typically indicate a significant effect in terms of EIA)

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

Effects of major or moderate significance are considered to be significant.

An assessment of the predicted significance of effect will be made both prior to and following the implementation of mitigation measures to identify the residual effects. This first highlights where mitigation may be appropriate, and then demonstrates the effectiveness of that mitigation, providing a

framework for the assessment of the significance of effect which takes mitigation measures into consideration.

All archaeological work will be undertaken in line with guidance published by the CIfA. The setting assessment should follow the Historic Environment Scotland Guidance on Managing Change in the Historic Environment: Setting.

5.9 Likely Significant Effects

Due to the limited footprint of construction works, the potential for significant effects from the construction of the Grid Connection on heritage assets are thought to be minimal, with most assets being avoided at the design stages, or through micro-siting. However, due to the early phase of project design the potential impacts resulting from construction could include:

- Permanent physical impacts on heritage assets due to construction/erection of new wooden poles;
- Permanent physical impacts on heritage assets due to construction of access tracks or other infrastructure;
- Permanent physical impacts on heritage assets due to construction of temporary construction compounds or other works areas; and
- Temporary impacts on the setting of heritage assets due to the introduction of elements such as machinery and lighting during construction.

The Grid Connection also has the potential to result in permanent impacts on the setting of assets due to the introduction of the new timber poles and associated OHLs. While the distance between the assets and the Grid Connection, as well as other elements such as existing tree cover and topography, means that the potential for significant impacts to setting is considered to be low, a full assessment will form part of the ES.

5.10 Mitigation Measures

Mitigation measures could include further design intervention, to avoid physical impacts on known heritage assets through micro-siting of wooden poles, as well as supporting infrastructure such as access tracks and compounds. If it is not possible to avoid heritage assets, mitigation measures may include detailed survey, archaeological excavation of features being removed and archaeological monitoring/watching brief.

Mitigation of potential permanent impacts on the setting of heritage assets may be more difficult to address as methods such as screening and planting may not be suitable. A mitigation strategy for impacts on setting, if significant impacts are identified, will be developed with the local Conservation Officers as well as the team undertaking the assessment of landscape and visual impacts.

5.11 Summary and Conclusions

This chapter was prepared using heritage datasets available from online resources. It examined a Route Option within which the final preferred line will be located, as well as a 250 m Study Area for designated and non-designated assets to provide an overview of baseline conditions, and a wider 1 km Study Area to examine impacts on the setting of designated assets.

No designated assets were recorded within the Route Option, although a single listed building and three scheduled monuments were recorded within the 250 m Study Area. A further 18 listed buildings and two scheduled monuments were also recorded within the wider 1 km Study Area.

A search of non-designated assets was limited to the CANMORE database which identified 273 assets within the 250 m Study Area dating from the prehistoric period onwards. Of these, 38 were located within the Route Option.

The initial assessment found there is the potential for physical impacts on non-designated assets, as well as previously unrecorded archaeological remains, from the construction of the new poles and associated works, but these should be largely avoided through careful design. Where assets cannot be avoided, it should be possible to mitigate impacts through standard measures such as excavation, recording, and field survey.

There is also the potential for impacts on the setting of designated assets, although these should be limited as a result of existing screening (from the built environment and tree/vegetation), the topography, and the size of the poles. Impacts on the setting of designated assets should also be limited as a result of the distance between the assets and the new poles.

However, as it is recognised that the Grid Connection has the potential to result in impacts on heritage assets, a cultural heritage assessment will be completed as part of the EIA.

5.12 References

- Scottish Government (1997) Town and County Planning Act, Edinburgh: Scottish Government.
- Scottish Government (2013) The Town and Country Planning (Development Management Procedure) (Scotland) Regulations, Edinburgh: Scottish Government.
- Scottish Government (1997) Planning (Listed Buildings and Conservation Areas) (Scotland) Act, Edinburgh: Scottish Government.
- UK Government (1979) Ancient Monuments and Archaeological Areas Act, Edinburgh: HMSO.
- Historic Environment Scotland (2014) Historic Environment Scotland Act, Edinburgh: HMSO.
- Scottish Government (2023) National Planning Framework 4, Edinburgh: Scottish Government.
- Historic Scotland (2019) Historic Environment Policy for Scotland, Edinburgh: Historic Environment Scotland.
- Historic Environment Scotland (2014) Our Place in Time, Edinburgh: Historic Environment Scotland.
- Scottish Government (2011) Planning Advice Note 2/11 – Planning and Archaeology, Edinburgh: Scottish Government.
- Scottish Government (2004) Planning Advice Note 71 – Conservation Area Management, Edinburgh: Scottish Government.
- Historic Environment Scotland (2016) Managing Change in the Historic Environment, Edinburgh: Historic Environment Scotland.
- Historic Environment Scotland (2023) *Our Past, Our Future: The Strategy for Scotland's Historic Environment,* Edinburgh: Historic Environment Scotland.
- https://www.northlanarkshire.gov.uk/sites/default/files/202211/North%20Lanarkshire%20Local%20Development%20Plan.pdf
- https://www.southlanarkshire.gov.uk/info/200145/planning_and_building_standards/39/development_plans/2.
- https://www.southlanarkshire.gov.uk/downloads/file/9921/natural_and_historic_environment.

6. Landscape and Visual Amenity

6.1 Introduction

The Landscape and Visual Impact Assessment (LVIA) will assess the effects of the Grid Connection on the landscape resource of the site and its environs and on the visual amenity of the site and surrounding area.

Landscape and visual effects are interrelated with other environmental effects but will be assessed separately. Landscape effects associated with a development relate to the changes to the fabric, character, and quality of the landscape and how it is experienced. Visual effects relate closely to changes to the landscape, but concern changes in people's views as a result of the introduction of the Grid Connection.

This chapter is supported by the following Figures:

- Figure 6-1: Landscape Character and Designations
- Figure 6-2: Zone of Theoretical Visibility and Visual Receptors

Various technical terms are used throughout this chapter, which are defined below:

- Landscape Character Type (LCT): areas of relatively homogenous landscape which are defined by a combination of physical and cultural elements including landform, hydrology, vegetation, land cover, land use pattern, cultural and historic features which combine to create a common 'sense of place' and identity.
- Zone of Theoretical Visibility (ZTV): a digitally produced map showing areas of land within which the Grid Connection will theoretically be visible.
- Visual receptors: people who will experience views of the Grid Connection. Potential visual receptors have been identified through desk study and initial site visits undertaken in February and March 2023.

6.2 Legislation, Policy, and Guidance

Legislation and policy relevant to the Grid Connection are set out in Chapter 1, section 1.5. The LVIA will consider relevant national and local policies as necessary and the assessment will be carried out in accordance with the following good practice guidance documents:

- The Landscape Institute and Institute of Environmental Management and Assessment (2013). Guidelines for Landscape and Visual Impact Assessment (GLVIA), Third Edition;
- Landscape Institute (2019) Technical Guidance Note 06/19, Visual Representation of Development Proposals; and
- Landscape Institute (2021) Technical Guidance Note 02/21, Assessing landscape value outside national designations.

6.3 Baseline Conditions

An initial study of the baseline environment has been carried out to gain an understanding of the landscape and visual resource of the area to inform the routeing and options appraisal process. Further, reviews and analysis will be undertaken as part of the LVIA, informed by a range of resources and publications, including:

- Ordnance Survey (OS) mapping and aerial photography;
- OS Digital Terrain model;
- Landscape Character Type descriptions published by NatureScot;
- Landscape designation descriptions and citations; and

- Relevant local and national planning policy documents.

This desk-based research will be combined with site survey to establish the character of the existing landscape and the nature of existing views in order to define the baseline against which potential change will be assessed. The baseline section of the LVIA will provide a description of the identified landscape and visual receptors, indicating their key characteristics and value.

6.3.1 Study Area

An initial Study Area of 1 km either side of the Preferred Route Option has been identified for the landscape and visual assessments. The extent of the Study Area has been informed by initial desk and site-based review, analysis of the ZTV diagram (Figure 6-2), aerial photography and mapping and application of professional judgement. The Study Area extent will be reviewed and refined during the assessment processes where appropriate, to ensure the assessment is focused on potential significant landscape and visual effects.

6.3.2 Zone of Theoretical Visibility

Initial ZTV mapping has been undertaken to establish the theoretical extent of visibility of the OHL within the wider landscape. This is based on an indicative alignment through the middle of the Preferred Route Option as described in Chapter 2 The Grid Connection. The ZTV has been used to inform the extent of the Study Area and the identification of landscape and visual receptors.

The ZTV maps indicate areas from where it may be possible to view the proposed OHL. It should be considered as a tool to assist in assessing the theoretical visibility of the Grid Connection and not a measure of the visual effect. The use of these maps needs to be qualified by the following considerations:

- The ZTV is based on a bare ground model – Ordnance Survey Terrain 5 DTM data which does not take account of the screening effects of vegetation, buildings or other structures;
- The ZTV has been calculated based on a maximum wood pole height of 16 m;
- Some areas of theoretical visibility may comprise forestry, moorland or agricultural land, which don't tend to be visited and the likelihood of views being experienced is consequently low; and
- The ZTV maps do not take account of the likely orientation of a viewer, such as the direction of travel and there is no allowance for reduction of visibility with distance, weather, or light.

Further ZTV analysis will also be undertaken as part of the LVIA in parallel with the iterative design process to identify and refine the final alignment of the Grid Connection.

6.3.3 Overview of the Proposed Route

The identified Preferred Route Option passes through a range of landscapes, including large scale moorland, forestry and agricultural areas on a broad undulating plateau. This predominantly rural landscape, transitions to urban fringe and urban character towards Wishaw in the west of the Study Area.

A network of roads and transport routes are present within the Study Area, including the A706 running north-south across the east, and the A71, A73 and A721 and railway lines in the west. These principal routes are interconnected by a range of local and minor roads and numerous core paths. Scattered properties and farmsteads and occasional settlements are located throughout the landscape, with a greater concentration towards the west.

Existing electrical infrastructure consists of a network of OHL, including 400 kV and 275 kV lines in the west and a series of smaller wood pole lines which cross the Study Area and context, becoming more apparent where they converge towards Wishaw in the west. Several large scale wind farms and smaller scattered wind turbines are also present within and adjacent to the Study Area.

6.3.4 Landscape Designations

Information about areas which contribute to the value of the landscape can be recognised by statute and/or in local plans. Information on these areas and their status forms a landscape designation. The routeing and option appraisal process has ensured that the Grid Connection is not within any recognised landscape designation. However, the following two landscape designations are found within the Study Area, and as such will be considered in the assessment:

- Clyde Valley Special Landscape Area (SLA); and
- Middle Clyde Valley SLA.

The locations of the landscape designations are shown on Figure 6-1.

6.3.5 Landscape Character Type

Landscape character can be considered at a range of scales and levels of detail. The landscape assessment for the Grid Connection will be based on the LCT defined and described by NatureScot, although reference will also be made to local landscape character studies where relevant. The LCTs found within the Study Area and immediate context are shown on Figure 6-1, and briefly described below. In addition, parts of the Study Area are of urban character, where the existing nature of the landscape limits the potential for significant effects.

6.3.5.1 Plateau Farmland LCT

The Plateau Farmland LCT covers a band of lower slopes, largely towards the west and south of the Study Area, acting as a transition between the extensive area of plateau moorland to the north and the river valleys and urban areas further to the west and south. This is an open, exposed and large-scale landscape defined by an undulating landform and predominant agricultural land use. Settlement is variable with scattered farms in the east and a number of small and larger settlements to the west where this landscape transitions to urban character. Roads, rail and notable electrical infrastructure also have an influence on the impression of this landscape.

6.3.5.2 Plateau Moorland LCT

The Plateau Farmland LCT covers a band of lower slopes, largely towards the west and south of the Study Area, acting as a transition between the extensive area of plateau moorland to the north and the river valleys and urban areas further to the west and south. This is an open, exposed and large-scale landscape defined by an undulating landform and predominant agricultural land use. Settlement is variable with scattered farms in the east and a number of small and larger settlements to the west where this landscape transitions to urban character. Roads, rail and notable electrical infrastructure also have an influence on the impression of this landscape.

6.3.5.3 Broad River Valley LCT

The Broad River Valley LCT covers a small part in the southwest of the Study Area encompassing the edge of the Clyde valley and connected smaller valley along the Garrion Burn. The landscape is largely defined by sloping farmland consisting of a variable field pattern defined by fragmented hedgerows and

woodland. This landscape is bordered by settlement to the north and slopes down to the River Clyde to the south, and as such includes a mix of rural and urban fringe characteristics. Along the Garrion Burn, steeply sloping topography and extensive woodland provides a greater sense of enclosure and reduced influence from neighbouring settlement and development.

6.3.6 Visual Amenity

The visual assessment will determine the degree of anticipated change to visual amenity experienced by people (visual receptor) that would occur as a result of the Grid Connection. Potential visual receptors likely to experience views of the Grid Connection include:

- Nearby settlements and residential properties, including in parts of Forth and eastern Wishaw, and a range of scattered rural properties;
- Users of recreational facilities and routes, such as Core Paths and informal green space on the edge of Wishaw; and
- Those travelling through the Study Area by road or railway.

6.3.6.1 Representative Viewpoints

The visual assessment will be based on a series of representative viewpoints, selected to provide a cross section of receptor types, locations and distances from the grid connection and focused on receptors with the potential for significant effects. Table 6-1 below, provides details of the proposed viewpoints and reason for selection, and the locations of each are shown on Figure 6-2.

Table 6-1. Proposed Viewpoint Locations

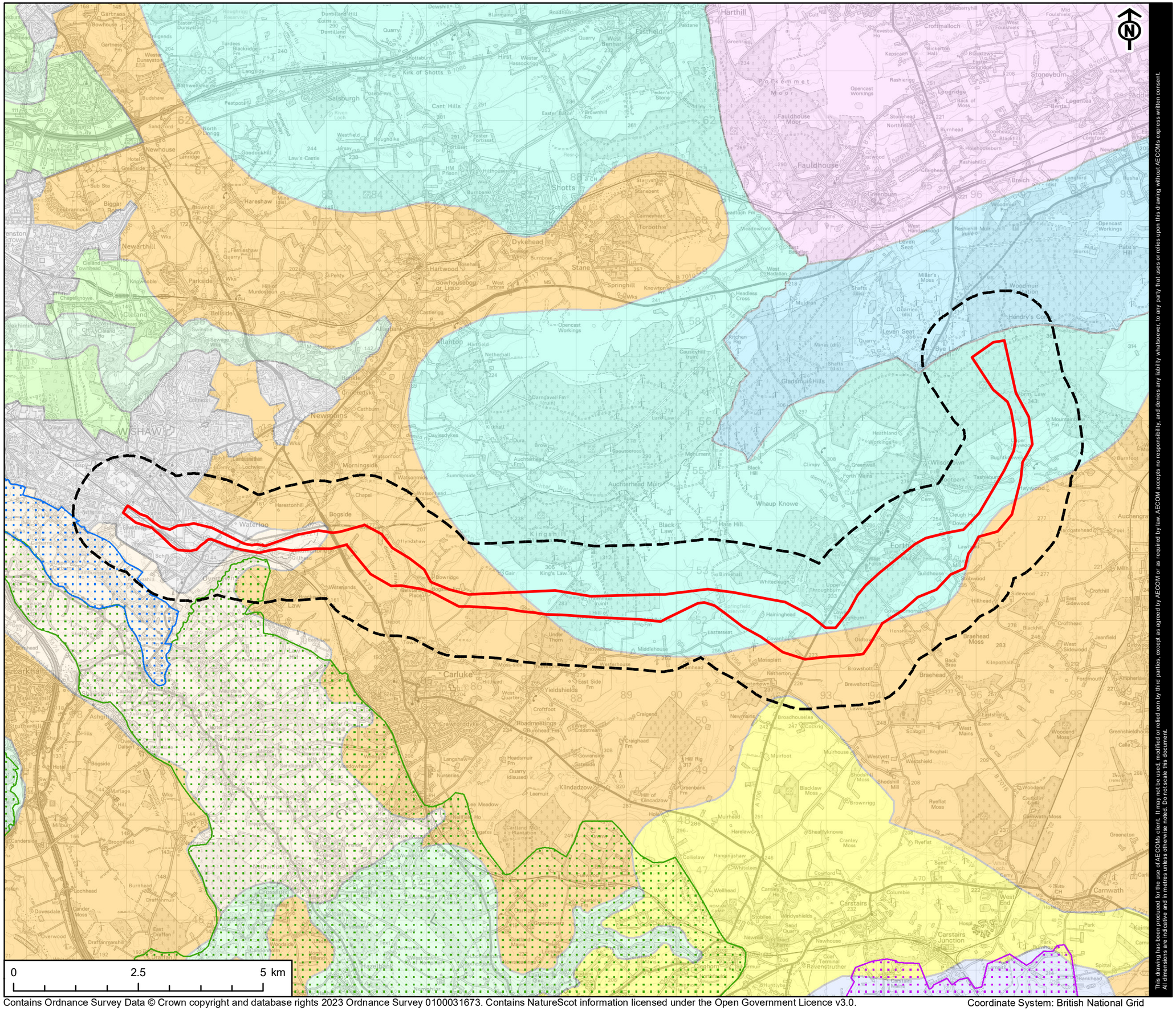
Viewpoint Number	Location Description	Reasons for Selection
VP1	Gowkthrapple	Representative of residential receptors with potential visibility of upgrade works to the existing substation.
VP2	Priory Gate, Overtown	Representative of residential receptors at the settlement edge, and recreational receptors on the local core path network.
VP3	A71 Overtown Road	Representative of residential receptors and road users along the A71 between Overtown and Waterloo, Wishaw.
VP4	Gillhead/ Gillyburn	Representative of residential receptors and road users along the A721 to the east of Wishaw.
VP5	Bogside	Representative of residential receptors at the small settlement of Bogside and along the adjacent A721 and A73.
VP6	Gair Road	Representative of nearby scattered residential properties.
VP7	Thorn Road	Representative of recreational receptors on the local core path network and nearby scattered residential receptors.

Viewpoint Number	Location Description	Reasons for Selection
VP8	Springfield Reservoir	Representative of visitors to the reservoir / fishery and recreational receptors on the local core path network.
VP9	Henshilwood Farm	Representative of nearby scattered residential receptors and users of the local road network.
VP10	B7016 near Stobwood	Representative of nearby residential receptors and users of the B7016 south of Forth.
VP11	Forth	Representative of views from residential receptors on the eastern edge of Forth.
VP12	Haywood	Representative of nearby residential properties and users of the local road network.

6.3.6.2 Visualisations

The visual assessment will be supported by a range of visualisations, prepared in accordance with Landscape institute Technical Guidance Note 06/19: Visual Representation of Development Proposals (2019). Type 1 visualisations (annotated baseline photography) will be provided for each of the identified viewpoints to help understanding of the nature of existing views. These will be supplemented by additional Type 2 (wireline) or Type 3 (photomontage) visualisations from up to four of the viewpoints to give an indication of how the Grid Connection would sit within the landscape and view.

Project Management Initials: DR Designer: LC Checked: DF Approved: TC



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Coordinate System: British National Grid

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PROJECT
Heathland Wind Farm Grid Connection

CLIENT
SP Energy Networks

KEY

- Route Corridor
- 1km Study Area
- Middle Clyde Valley Special Landscape Area
- Upper Clyde Valley Special Landscape Area
- Clyde Valley Special Landscape Area

Landscape Character Assessment (NatureScot)

- Broad River Valley
- Broad Valley Upland
- Incised River Valleys
- Lowland Plateaux - Lothians
- Plateau Farmland - Glasgow & Clyde Valley
- Plateau Moorlands - Glasgow & Clyde Valley
- Rolling Farmland - Glasgow & Clyde Valley
- Upland Fringes - Lothians
- Urban
- Urban Fringe Farmland

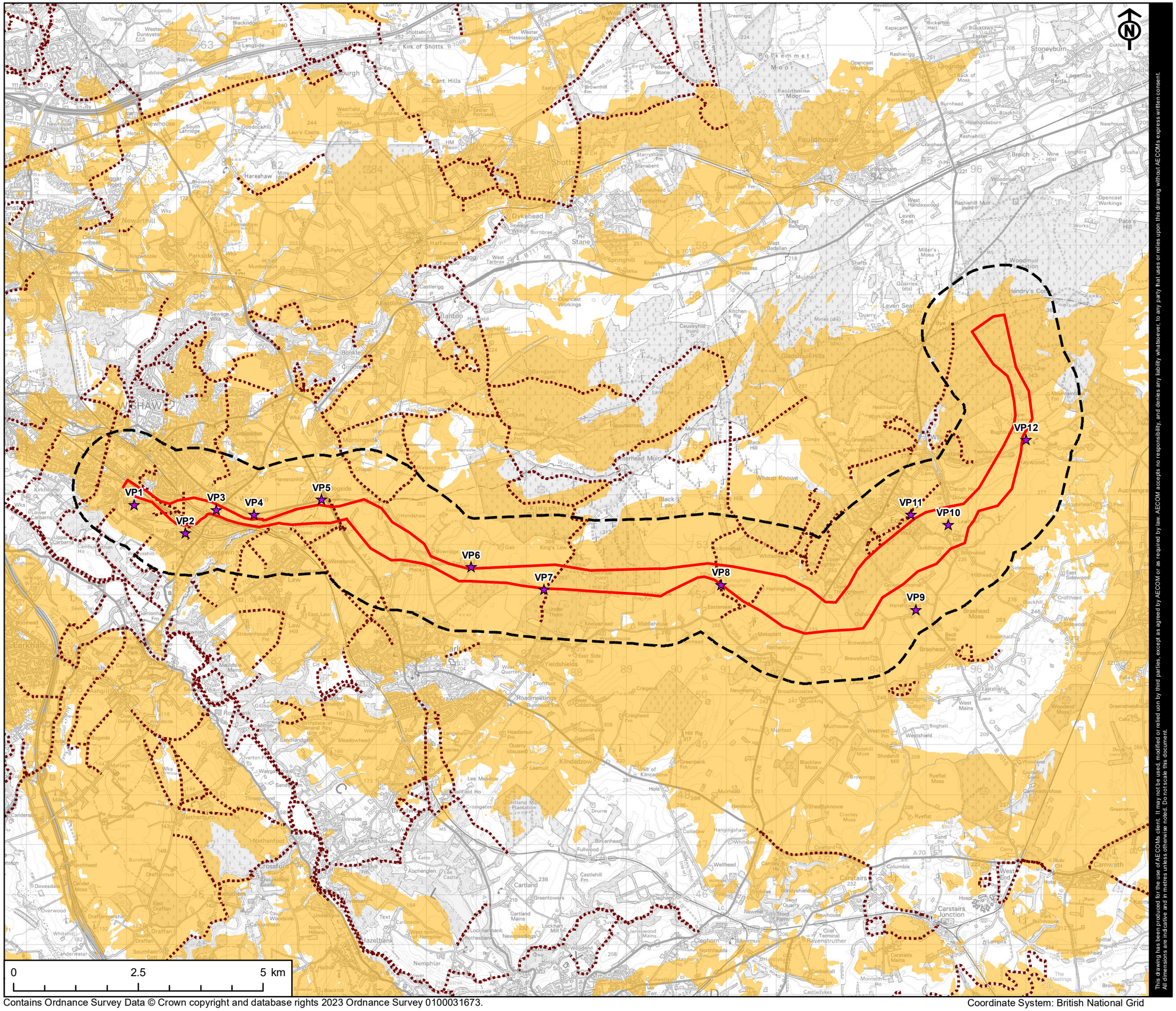
TITLE
Figure 6.1
Landscape Designations and Character

REFERENCE
HGC_20231113_SR_6.1_v3

SHEET NUMBER
1 of 1

DATE
13/11/23

Project Management Initials: DR Designer: LC Checked: DF Approved: TC



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AECOM

PROJECT
Heathland Wind Farm Grid Connection

CLIENT
SP Energy Networks

KEY
- Route Corridor
- 1km Study Area
- Corepath
- Viewpoint Location
- Zone of Theoretical Visibility

NOTES:
Zone of Theoretical Visibility (ZTV) has been generated using OS Terrain 5 digital terrain model (DTM) which does not take into account the screening effects of vegetation, buildings or other structures.
ZTV is based upon a point at each tower location along the indicative route alignment at a height of 16m with an observer eye height of 1.7m.
All heights mentioned above are above ground level (AGL) unless otherwise specified.

TITLE
Figure 6.2
Zone of Theoretical Visibility and Viewpoint Locations

REFERENCE
HGC_20231113_SR_6.2_v2

SHEET NUMBER
1 of 1

DATE
13/11/23

6.4 Proposed Methodology

The landscape and visual assessment will be carried out in accordance with the principles of GLVIA and other good practice guidance listed in Section 6.2, above.

GLVIA places a strong emphasis on the importance of professional judgement in identifying and defining the significance of landscape and visual effects. The LVIA will be undertaken by Chartered Landscape Architects with experience in the assessment of OHLs. Professional judgement will be used in combination with structured methods and criteria to evaluate landscape and visual value and susceptibility, the resulting sensitivity, magnitude, and significance of effect.

A detailed methodology will be included within the LVIA and can be summarised into four key stages:

- **Establishment of baseline conditions**, involving the identification and description of the existing landscape character and the nature of visual receptors and views experienced at each of the representative viewpoints. The baseline will also include judgements relating to the value of the landscape or view, defined with reference to a range of criteria and described on a scale ranging from high to low;
- **Initial evaluation of potential significant effects** anticipated to result from the introduction of the grid connection into the baseline context. Routeing and siting design advice to guide identification of a final alignment which seeks to minimise landscape and visual effects, in balance with a range of other technical and environmental considerations;
- **Assessment of landscape and visual effects** based on evaluation of the sensitivity to change and magnitude of effect. Judgements on sensitivity will be made by combining and analysing the identified value of the landscape or view with consideration of the susceptibility to change. Magnitude of effect will consider a range of factors, including the nature and scale of change, geographical extent and duration. Sensitivity and magnitude will be described on a scale of high to low, or no change; and
- **Description of the anticipated level, nature (adverse or beneficial) and significance of** effects based on a four-point scale.

The nature of effects can vary at different stages of a project and can vary over time as proposed mitigation measures develop. The LVIA will consider and report separately potential effects relating to both the construction and operation stages of the Grid Connection.

The assessment will also consider potential for cumulative effects of the Grid Connection with other nearby consented or application stage developments of a similar nature and scale (i.e. other 132 kV wood pole OHLs).

6.5 Likely Significant Effects

The following identifies the potential significant effects on landscape and visual amenity at each stage of the development which will be considered in the assessment.

6.5.1 Construction

- Landscape Character
  - Temporary physical change to the landscape as a result of introduction of construction compounds, laydown or storage areas, access tracks etc.
  - Temporary change to perceptual aspects of the landscape character and / or landscape designations as a result of nearby construction activity, including lighting at night.
- Visual Amenity
  - Longer term and / or permanent change to the composition and nature of views as a result of introduction of the grid connection, including wood poles and works to the existing substation.

6.5.2 Decommissioning

Decommissioning of the Grid Connection is considered unlikely even in the long term. However, for the purposes of assessment, potential decommissioning effects are likely to be broadly similar to those experienced during construction.

6.6 Mitigation Measures

Primary mitigation measures will be the steps taken during the iterative design phase of the Grid Connection to help influence the design in order to minimise potential effects, based on key sensitivities, constraints, and opportunities as part of an iterative process of design and assessment. These measures are embedded in the scheme design. Landscape and visual considerations have been important in informing the identification and evaluation of route options and selection of the preferred route and will continue to inform the selection of a preferred alignment as part of the assessment and design process.

Secondary mitigation measures are those that are not built into the final development proposals and seek to further reduce potential effects that could not be entirely designed out. Where required and where appropriate, potential mitigation measures will be developed to ensure that the Grid Connection is integrated into the surrounding landscape and views. The approach to potential mitigation design will be informed by an understanding of the existing landscape character, pattern and context, developed through the assessment process.

6.7 Summary and Conclusions

The LVIA will be undertaken in accordance with GLVIA and other current good practice guidance. The landscape assessment will consider potential effects on recognised LCTs and landscape designations. The visual assessment will be based on a series of representative viewpoint locations informed by detailed baseline study and selected in consultation with statutory consultees. The LVIA will also consider the potential for cumulative effects during the operation phase, resulting from the addition of the Grid Connection in relation to other similar developments. Where appropriate, mitigation measures will be developed and informed by the detailed baseline and assessment stages and will seek to minimise potential adverse effects.

6.8 References

- The Landscape Institute and Institute of Environmental Management and Assessment (2013). Guidelines for Landscape and Visual Impact Assessment (GLVIA), Third Edition.
- Landscape Institute (2019) Visual Representation of Development Proposals, Technical Guidance Note 06/19.
- Landscape Institute (2021) Technical Guidance Note 02/21, Assessing landscape value outside national designations.
- NatureScot (2019) Scottish Landscape Character Types and Descriptions [online resources]. Available at: https://www.nature.scot/professional-advice/landscape/landscape-character-assessment/scottish-landscape-character-types-map-and-descriptions

7. Geology, Soils, and Mining

7.1 Introduction

The Geology, Soils and Mining Chapter considers the potential effects the Grid Connection could have on the geology and soil receptors within the Route Option during construction and operation. This section sets out the relevant baseline conditions at the Route Option. The information provided in this Scoping Report is based on publicly accessible data at the time of writing.

This chapter should be read in conjunction with the Chapter 8: Hydrology and Hydrogeology, where effects associated with the Grid Connection on the water environment (groundwater and surface water) have been considered.

7.2 Legislation, Policy, and Guidance

Legislation and policy relevant to the Grid Connection are set out in Chapter 1, section 1.5. The transport assessment will consider relevant national and local policies and spatial plans as necessary.

The EIA will be carried out in general accordance with the most recent edition of the Highways England (National Highways) guidance document Design Manual for Roads and Bridges (DMRB). The potential impacts for geology will be assessed based on guidance in the (DMRB) LA109, Geology and Soils. As there is no specific guidance in relation to transmission infrastructure for assessing soils, geology and hydrogeology, DMRB is considered to be the most appropriate methodology for the Route Option because it is designed for assessing effects of linear schemes (albeit road schemes). It is also a well-established and tested methodology, familiar to the statutory consultees.

7.3 Baseline Conditions

Important features of relevance to geology and soils within and adjacent to the Route Option are shown on Figures 7-1 to 7-4. A high-level baseline summary is presented below.

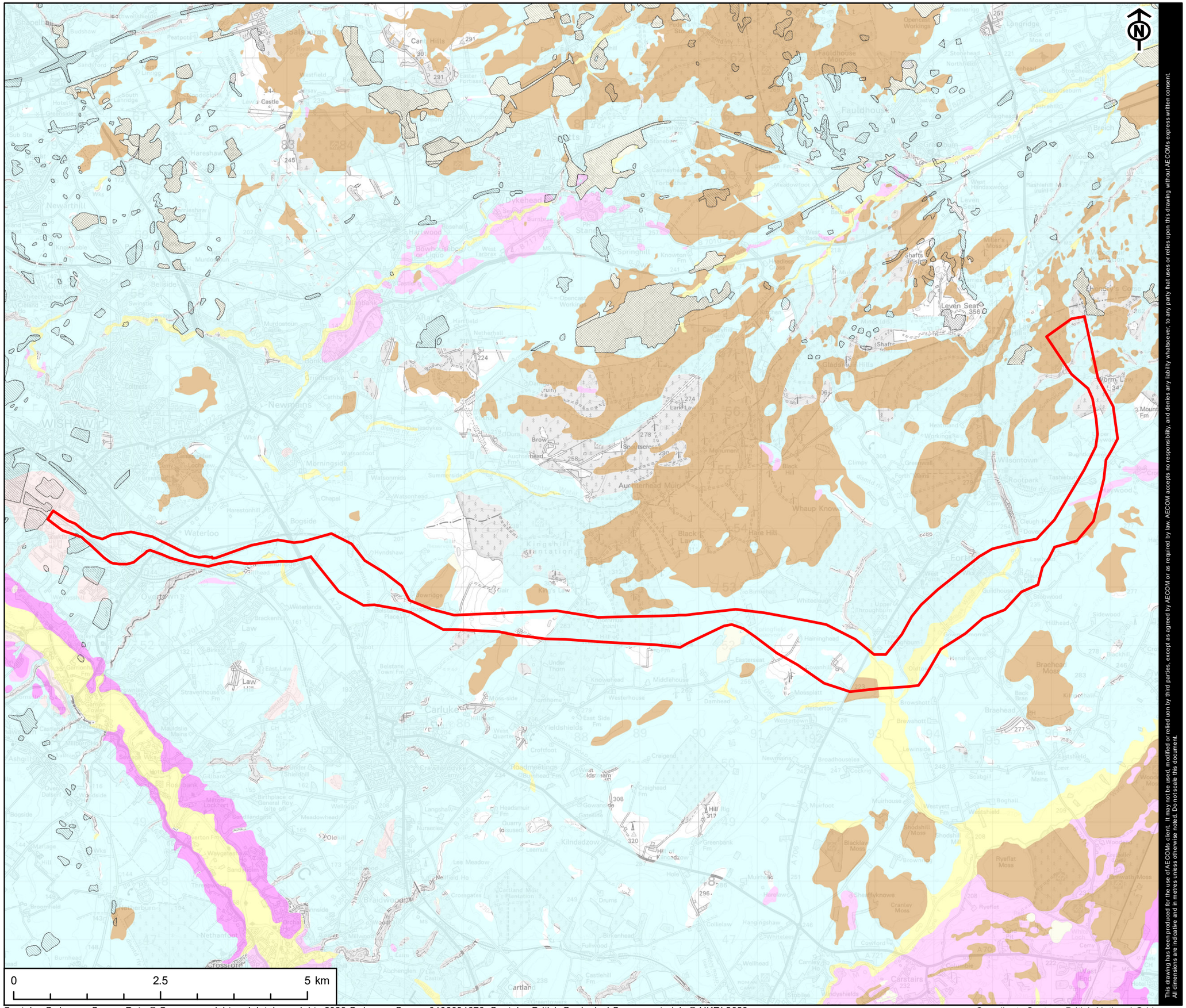
7.3.1 Geology

7.3.1.1 Superficial Geology

The British Geological Survey (BGS) Geoindex indicates that the superficial deposits along the Route Option are dominated by glacial till (Figure 7-1). This material is typically a diamicton type material, consisting of highly variable proportions of clay, silt, sand, gravel, cobbles and boulders of varying shapes and sizes. Alluvium is also locally present within the Route Option in the vicinity of watercourses and is recorded to consist of unconsolidated clay, silt, sand and gravel. Glaciofluvial deposits recorded to consist of sand and gravel with local lenses of silt, clay or organic material are also very locally recorded within the Route Option, along with glaciolacustrine deposits which are recorded to consist of clay, silt and sand.

Made Ground is only locally recorded towards the western extent of the proposed route at Wishaw, however, it is anticipated further Made Ground deposits will be present associated with historical and current activities, developments and infrastructure (e.g. roads, railways, infilled pits etc.) along the Route Option.

Project Management Initials: DR Designer: LC Checked: DF Approved: TC



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PROJECT
Heathland Wind Farm Grid Connection

CLIENT
SP Energy Networks

KEY

- Route Corridor

BGS 1:50k Artificial ground

- Made Ground (Undivided)
- Infilled Ground

BGS 1:50k Superficial deposits

- Alluvium
- Till, Devensian
- Glaciolacustrine Deposits
- Glaciofluvial Deltaic (and/or Subaqueous Fan) Deposits
- Glaciofluvial Deposits
- Peat

TITLE
Figure 7.1
Drift Geology

REFERENCE
HGC_20231113_SR_7.1_v2

SHEET NUMBER
1 of 1

DATE
13/11/23

7.3.1.2 Bedrock Geology

The BGS Geoindex indicates that the bedrock geology across the Route Option is dominated by Carboniferous strata with a very local area comprising of Silurian strata also present. The Route Option passes over many rock formations which belong to the Scottish Coal Measures Group, the Clackmannan Group, the Midland Valley Carboniferous to Early Permian Alkaline Basic Sill Suite and the Strathclyde Group all of which are Carboniferous Strata. The localised Silurian strata comprises of rock formations which belong to the Lanark Group. The rock formations recorded typically comprise of sandstone, siltstone and mudstone in repeated cycles with seatearth, coal, ironstone and limestone bands present within. Locally, the rock formations typically comprise igneous rock of quartz-microgabbro, basaltic rock of Palgioclase-Macrophyric or Olivine Analcime-Microgabbro. Various coal and limestone seams are also recorded to subcrop below the Route Option, this information is shown on Figure 7-2.

7.3.1.3 Structural Geology

Various faults are recorded crossing and within the Route Option.

7.3.2 Soils

The National Soil Map of Scotland was used to determine the soils present across the Route Option. This identified soils relating to mineral gleys, brown soils and peaty gleys present along the Route Option. The mineral gleys are the predominant soil type, with the peaty gleys recorded towards the middle stretch and eastern extent of the Route Option. The brown soils were only very locally recorded to the south of Forth.

NatureScot (formerly Scottish Natural Heritage) has produced a Carbon and Peatland map in 2016 which identifies carbon rich soil, deep peat and priority peatland habitats. This map split the carbon and peatland soil into 6 classes. Class 1 to 5 was used to describe the significance of the peatland/carbon soil with Class 1 being the most significant and important and Class 5 being the least significant. Class 0 was also used to describe mineral soils. Based on this map, the majority of the Route Option falls within Class 0 (mineral soils). However, localised areas of Class 1 (National important carbon-rich soils, deep peat and priority peatland habitat which are likely to be of high conservation value) soils are present within and in close proximity to the middle section of the Route Option. Class 5 (soil information takes precedence over vegetation data. No peatland habitat recorded. May also include areas of bare soil. Soils are carbon-rich and deep peat) deposits are also located locally across the Route Option, particularly in the eastern half. Class 3 (dominant vegetation cover is not priority peatland habitat but is associated with wet and acidic type. Occasional peatland habitats can be found. Most soils are carbon-rich soils, with some areas of deep peat) soils are also very locally recorded within and in close proximity to the Route Option towards the eastern and central sections. Although Class 3 and Class 5 soils are recorded, these are not considered to be nationally important and so pose significantly less of a constraint than the Class 1 areas identified.

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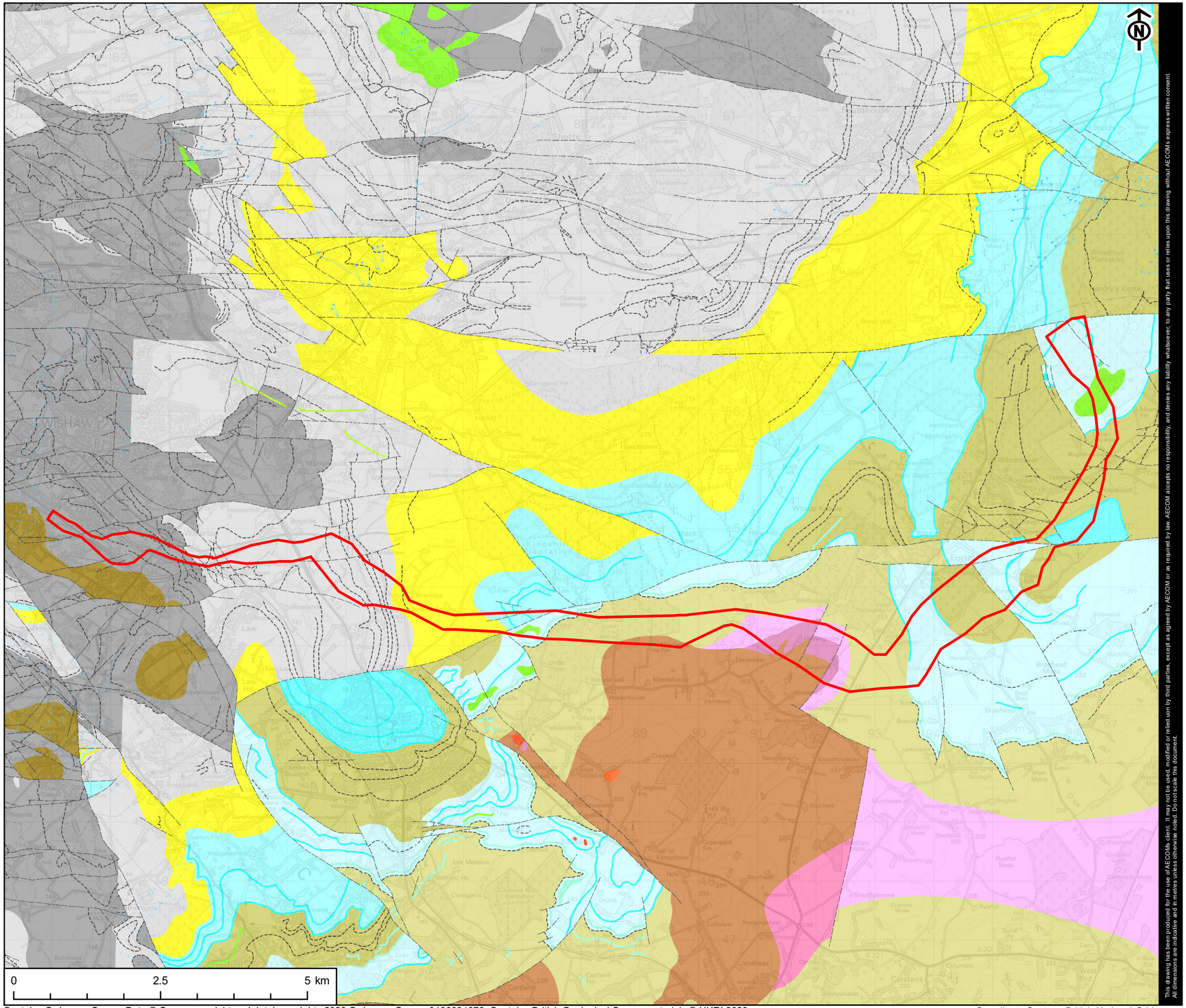

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PROJECT
Heathland Wind Farm Grid Connection

CLIENT
SP Energy Networks

KEY

- Route Corridor

BGS 1:50k Linear features

- Fault_Inferred
- Coal Seam Inferred
- Ironstone Bed Inferred
- Buried Channel Margin

BGS 1:50k Bedrock

- Scottish Upper Coal Measures Formation
- Scottish Middle Coal Measures Formation
- Scottish Lower Coal Measures Formation
- Passage Formation
- Upper Limestone Formation
- Calmy Limestone
- Craigenhill Limestone
- Midland Valley Carboniferous To Early Permian Alkaline Basic Sill Suite
- Limestone Coal Formation
- Lawmuir Formation
- Swanshaw Sandstone Formation
- Clyde Plateau Volcanic Formation
- Clyde Plateau Volcanic Formation
- Hurlet Limestone
- Lower Limestone Formation
- Top Hosie Limestone
- Mid Hosie Limestone
- Index Limestone (Scotland)

NOTE:
Bedrock geology and linear features legend is limited to the route corridor only

TITLE
Figure 7.2
Solid Geology

REFERENCE
HGC_20231113_SR_7.2_v2

SHEET NUMBER
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Coordinate System: British National Grid

7.3.3 Mining

The Coal Authority Interactive Map Viewer was reviewed to understand the mining related risk relating to the Route Option. This source shows the majority of the Route Option is within a Coal Authority Mining Reporting Area. The following additional information was also obtained from the viewer:

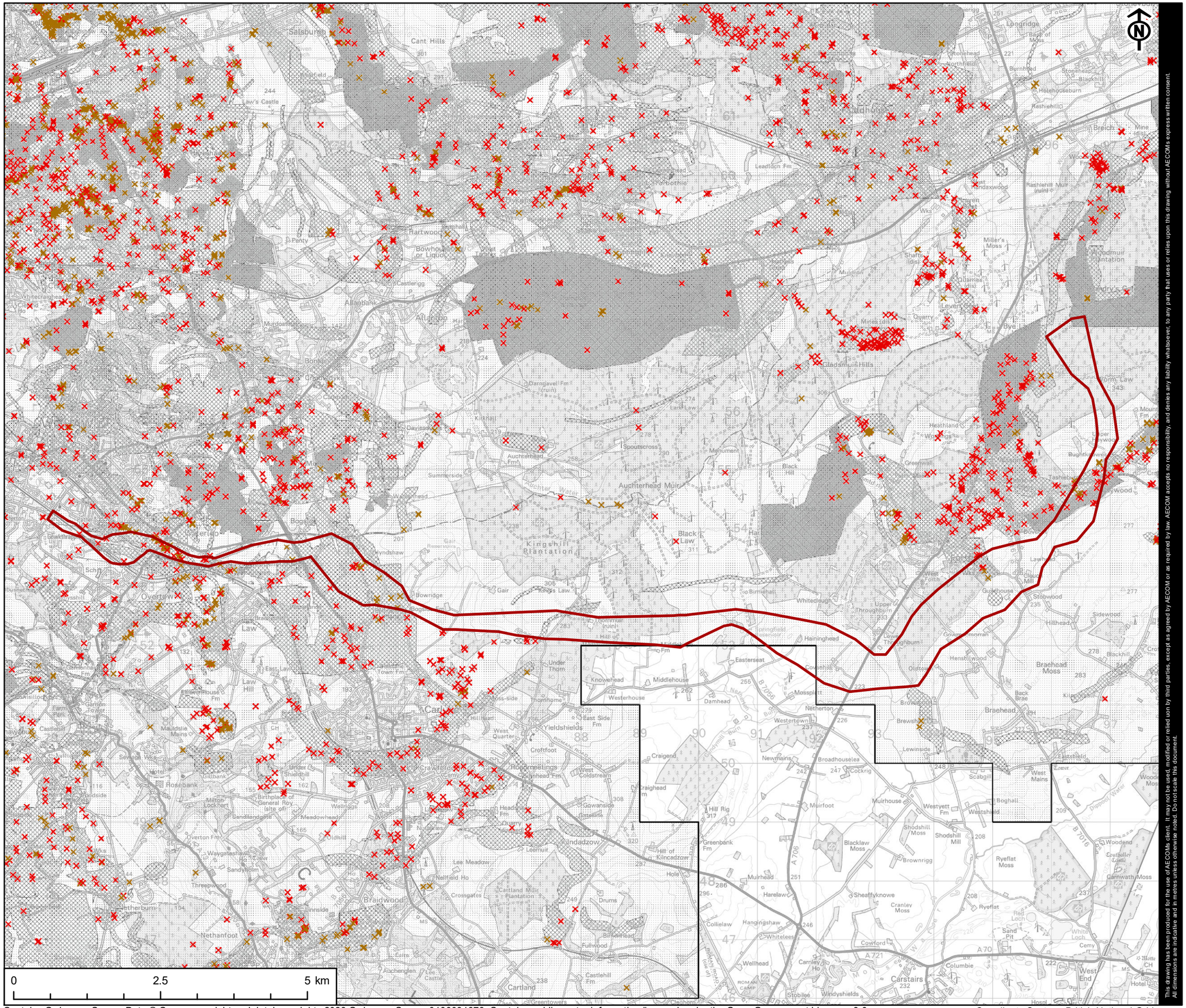
- Much of the Route Option, particularly in the western half and eastern extent are within development high risk areas and/or have development high risk areas within the immediate vicinity;
- Significant numbers of mine entries are present within and in the immediate vicinity of the western half of the Route Option. Numerous mine entries are also present towards the eastern extent towards Wilsontown and Haywood. The mine entries recorded cover both adits and shafts;
- Former surface coal mining (i.e. opencast) within and in the immediate vicinity of the Route Option towards its eastern extent at Haywood and Wilsontown. Former surface mining also present in the immediate surroundings of the western extent at Wishaw and Morningside; and
- Former recorded and probable shallow underground coal mine workings within and in the immediate vicinity of the western half and eastern extent of the Route Option.

Figure 7-3 shows the relevant information relating to coal workings within and in the immediate surroundings of the Grid Connection.

Review of the National Library of Scotland Side-by-Side viewer was undertaken to provide a high-level understanding of the mining related history along the Route Option. This indicated that several collieries were present in the vicinity of the Route Option particularly towards the western extent and included Chapel Colliery, Coltness Colliery and Netherton Collieries to name a few. Several coal pits were also recorded within the western and eastern extents towards Wishaw and Haywood.

Review of the Mine and Quarries layer of the BGS Geoindex was undertaken to understand the potential mining and quarries which may be present along the Route Option. This source indicated numerous mine and quarries are present across the Route Option, however, are particularly focussed around the eastern and western extents. Most of these entries appear to be related to the extraction of coal and so relate to the coal mine entries recorded by the Coal Authority, however, many also appear to be related to the extraction of other mineral resources, such as limestone with some possible related to the extraction of sand and/or gravel. All of the mines and quarries recorded by the BGS are noted to have ceased operations.

Project Management Initials: DR Designer: LC Checked: DF Approved: TC



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Scale @ A3 1:60,000

0 2.5 5 km

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Coordinate System: British National Grid

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KEY

- Route Corridor
- Coal Mining Reporting Area
- Development High Risk Area
- Surface Mining (Past and Current)

Mine Entry

- Adit
- Gutter Pit
- Shaft

NOTE:
Surface mining may be infilled

TITLE
Figure 7.3
Mining

REFERENCE
HGC_20231113_SR_7.3_v2

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1 of 1

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7.3.4 Hydrogeology

The Route Option is predominantly underlain by Glacial Till, which is classed as 'not a significant aquifer'. Alluvial deposits locally present are classed by the BGS as moderate to high productivity aquifers, while glaciofluvial deposits have been assigned a high productivity rating.

BGS mapping indicates that the underlying solid geology of the area predominantly comprises Carboniferous sedimentary rocks. The Carboniferous sedimentary formations underlying majority of the Route Option are classed as moderately productive aquifers with yields to 10 litres per second (l/s).

The Route Option is underlain by the 'Forth' groundwater bodies in the east, classified by Scottish Environment Protection Agency (SEPA) as having a 'poor' chemical and overall status in 2020. The central section is underlain by the 'Carstairs' groundwater body classified by SEPA as having a 'good' chemical and overall status in 2020. The western end is underlain by the 'Glasgow and Motherwell' and 'Whitburn' groundwater body classified by SEPA as having a 'poor' chemical and overall status in 2020.

Further information on hydrogeology including Groundwater Flow/Levels, Private Water Supplies (PWS) and GWDTE assessments are detailed in Chapter 8: Hydrology and Hydrogeology.

7.3.5 Land Contamination

The Route Option is in a predominantly agricultural and forestry in rural setting with built up areas generally in the western section. The historical use of the Route Option and surrounding area has been determined using freely available historical maps (National Library of Scotland Side-by-Side viewer) and internet searches (e.g. Google Earth imagery). The information review has been used to assist with a high-level identification of potential land contamination sources at this stage.

For the purpose of reviewing the historical maps along the Route Option and its surrounding areas, this site was split up into three extents, eastern, central and western. The eastern extent covered east of Springfield Reservoir to Haywood, central segment extends east of Bogside to Springfield Reservoir and the western segment extends from Gowkthrapple to Bogside.

7.3.6 Site History

According to mapping dated 1840 – 1880, the eastern extent of the Route Option comprised multiple wells associated with Mills located 400 m northwest of Stobwood. Several disused coal pits and wells were mapped across the route corridor located within 300 m southwest of Haywood.

For the same period, the central extent of the preferred route corridor consisted of predominantly industrial and mining land including Castlehill Iron Works located within 250 m southwest of the preferred corridor and comprised: several wells, coal pits, a tank, coke ovens and furnaces. A chimney coal pit was mapped within 250 m south of the proposed route adjacent to the Garrion Burn watercourse which ran west to east along the preferred route. Multiple ironstone pits some denoted as disused, were mapped between Thornhill (Back and Under) and Kingshaw Moss. Several shafts, ponds and pits were located within 250 m south of the route, across Kinshaw Moss with several ironstone pits and lime works, some of which were indicated as disused.

According to the earliest available historical maps dated 1840 – 1880, the proposed route corridor (western extent) comprised predominantly agricultural land. During this period the western extent of the preferred route was situated on the Caledonian Railway line including the Wishaw Station with several telegraph and signal posts indicated. Numerous collieries including Pather and Collery with Coltness colliery were mapped within 100 m south and southwest of the preferred corridor. The preferred route

travels through the town of Gillhead and Gillhead Mill where several wells were mapped. The Wishaw and Coltness branch railway was recorded crossing the proposed route corridor south of Gillhead and running along the north of the preferred route corridor, corresponding with its present day location.

Mapping dated 1888 – 1913 indicated various industrial and mining features within Waterloo including: old shafts, old quarries, Waterloo Tank (Motherwell Commissioned Water Water), Waterloo Colliery, Mine and Mineral railway, all within 250 m north of the preferred route. For the same period, maps indicated Springfield reservoir in its current location. Maps dated in the late 1890s and early 1900s indicate an increase in industrialisation with numerous collieries (including mineral railways), pits and steel and iron works present (predominantly in the western and eastern extent). By 1945 – 1965 most of these features were noted as disused with increases in residential expansion (western extent – Pather and Wishaw). Law Hospital and an extensive pit (previously labelled as Hyndshow Colliery) was shown on the 1956 mapping and 1945 Google Earth Pro imagery, within the Route Option between the current A73 and Mid Hyndshaw Cottage, southeast of Bogside (central part of the route). Law Hospital was later demolished in the early 2000s with the site shown as vacant on the 2010 Google Earth Pro imagery.

In the 1950s, a sewage treatment plant was mapped within the eastern extent of the preferred route located approximately 900 m southeast of the town of Forth. The treatment plant comprised three large circular wastewater treatment tanks indicated between 1937 and1961. Google Earth Pro dated 2023 (viewed 08/09/2023) indicated that these features are still present, denoted as Mousewater Treatment Plant and therefore this area remains a potential source of land contamination within the Route Option.

Current maps (2023) identify Wishaw Substation within the Route Option and a large building believed to be a logistics warehouse occupied by a courier service within 100 m south of the Route Option (western extent). The duration of both features presence is unknown prior to circa 2004 is unknown due to a gap within the freely available online mapping resources. Given that the warehouse does not appear to have any active factory history this is considered a low risk of contamination.

Two gas pipes (National Grid) are mapped by SPEN Energy Networks (viewed 08/09/2023) intersecting the eastern extent of the Route Option. The gas pipes run north-south across the Route Option and are mapped 325 m and 1.7 km east of the Springfield Reservoir.

7.3.7 Potential Contamination Sources

The BGS, Geoindex Onshore online viewer indicated that there are localised areas of Made Ground within 100 m of the western extent of the Route Option. The Made Ground was mapped within the area of Gowkthrapple which appeared to be within a logistics yard occupied by courier services. Although the BGS mapper only identified Made Ground within the western extent, given that the proposed route is within a heavily mined area with numerous collieries/quarries/pits, other areas are likely to comprise areas of infilled land. Until the composition of the infill can be verified it is regarded to be a potential source of land contamination.

The presence of Made Ground is also likely in other areas of the Route Option that have undergone development, e.g. Mousewater Treatment plan (western extent), Wishaw Substation (western extent), former Law Hospital (central extent) and historical and present day railways/roads (along and adjacent to the route). Made Ground and activities associated with these developments are all considered likely to represent potential sources of contamination based on the current review of data. No other significant contaminant features were identified along or within 250 m of the Route Option.

According to Groundsure's Enviro Data Viewer (https://www.groundsure.io, accessed 8th September 2023) there are no current or historical landfill sites within 1 km of the Route Option.

Given the Route Option covers a 20 km area, there appears to be multiple sensitive receptors along and surrounding the Route Option. Those that should be considered are the underlying groundwater, the many surface water courses identified including: the Garrion Burn, Bowridge Burn, unnamed ponds and the Springfield Reservoir, as well as any unidentified Local Geological Sites or designated sensitive areas. Within the surrounding area locally there are residential, agricultural, and industrial receptors. The western extent comprised predominantly residential receptors whilst the central and eastern extent are primarily forestry and agricultural. The Caledonian Railway acts as an industrial receptor to the Route Option.

7.4 Designated Sites

There are five designated sites relating to geology, soils and mining within 5 km of the Route Option. These are listed in Table 7-1 below and shown on Figure 7-4.

Table 7-1. Designated Site relating to geology, hydrogeology, and mining

Name & Designation	Features	Approximate Closest Distance from Proposed Route
Braehead Moss Site of Special Scientific Interest (SSSI), Special Area of Conservation (SAC)	Intermediate Bog (raised)	0.4 km southeast
Cranley Moss SSSI, SAC	Raised Bog	3 km south
Carstairs Kames SSSI, Geological Conservation Review Site (GCR)	Quaternary of Scotland – Geology and geomorphology	3.8 km south
Cobbinshaw Moss SSSI	Intermediate Bog (blanket)	4.5 km east
Carnwath Moss SSSI	Raised Bog	4.7 km southeast

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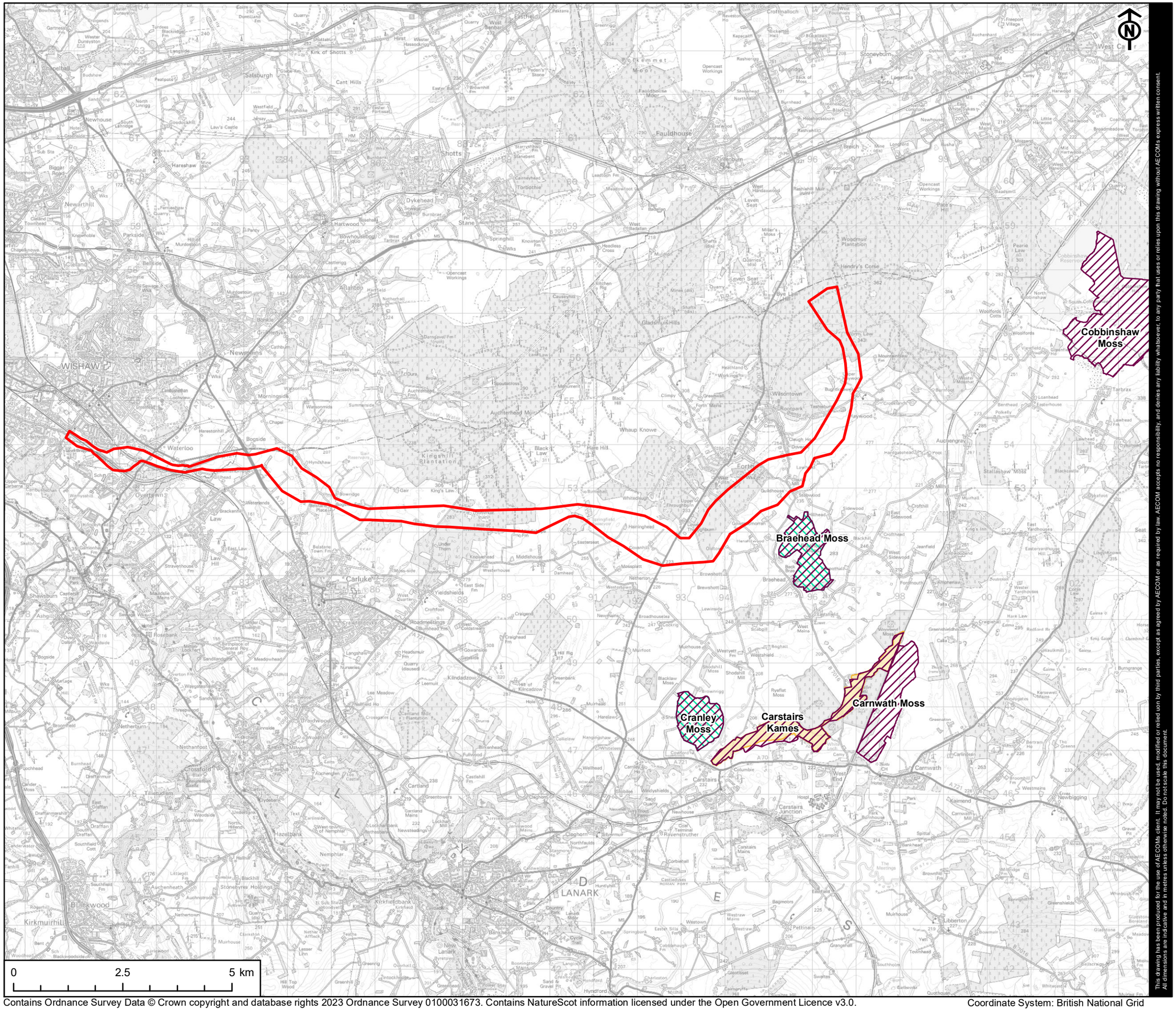

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0 2.5 5 km

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Heathland Wind Farm Grid Connection

CLIENT
SP Energy Networks

KEY
- Route Corridor
- Site of Special Scientific Interest
- Special Area of Conservation
- Geological Conservation Review Site

TITLE
Figure 7.4
Geology Related Designated Sites

REFERENCE
HGC_20231113_SR_7.4_v2

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7.5 Proposed Methodology

Further desk-based research is planned to provide a better understanding of baseline conditions of the site and includes purchasing information from third-party sources (e.g. Groundsure Report or similar). The desk-based assessment will be presented in a standalone Phase 1 Geotechnical and Geo-environmental Report (hereafter referred to as 'desk study') and included as a separate Technical Appendix within the EIAR.

The desk study will be undertaken in line with the UK government guidance presented in Land Contamination: Risk Management. This will comprise a desk-based review of the following:

- Review of available geological, hydrological and hydrogeological information relating to the site;
- Review of current and historical ordnance survey maps and regulatory data presented within the Groundsure Report information;
- Review of available geological borehole data held by the BGS;
- Review of historical reports and / or information relating to the site (including any exploratory drilling), should they be available;
- Review of historical mining information contained within the Coal Authority portal on the BGS website;
- Review of information held by the Local Authority and the SEPA via consultation;
- Review of information held by NatureScot and Royal Commission for the Ancient and Historical Monuments of Scotland (RCAHMS); and
- Review of publicly available information in relation to Unexploded Ordnance.

Following review of the above information a site walkover survey will be undertaken targeting specific areas of the Route Option where the review has identified areas of interest and potentially contaminated areas of concern, to verify the desk-based information and collect further visual features related to the proposed route. Where peat or peatland habitat has been recorded from desk-based research within the proposed route, targeted peat investigation will likely be undertaken to allow estimations of peat depth and extent.

The desk study review and the walkover findings will be used to develop a 'Conceptual Site Model' of the Route Option and a surrounding 100 m buffer zone to identify sensitive features/receptors, contaminant linkages and quantify risks that may exist in this Study Area relating to geology and hydrogeology.

Based on the assessment of the baseline and the identification of any potential impacts, the EIAR will make recommendations for mitigation measures. These may include the recommendation for an initial intrusive investigation, quantitative risk assessment, remediation and validation. It will also make recommendations for possible mitigation measures to be employed by contractors, should any previously unidentified contamination be encountered during the construction phase.

The EIA will be carried out in general accordance with the most recent edition of the Highways England (National Highways) guidance document DMRB. The potential impacts for geology will be assessed based on guidance in the (DMRB) LA109, Geology and Soils. The potential impacts on groundwater will be assessed based on DMRB LA113, Road Drainage and the Water Environment. As there is no specific guidance in relation to transmission infrastructure for assessing soils, geology and hydrogeology, DMRB is considered to be the most appropriate methodology for the Route Option

because it is designed for assessing effects of linear schemes (albeit road schemes). It is also a well-established and tested methodology, familiar to the statutory consultees.

7.6 Likely Significant Effects

The Grid Connection has limited potential to give rise to effects on the geology, soils, hydrogeology (groundwater) and mining due to the nature of the Grid Connection having minimal footprint as an OHL and being positioned on wood pole lines, which is unlikely to cause significant disturbance to the geology, soils and groundwater environments. The potential effects anticipated relate to the localised and temporary construction impacts along the final alignment of the Grid Connection.

The below lists the effects which need to be considered for the Route Option:

- Contamination of shallow groundwater from spills or plant breakdown;
- Disturbance of potentially contaminated soils and perched groundwater and creation of new pathways allowing migration of such contaminants to reach sensitive receptors (including construction workers, site users and the water environment) during construction;
- Excavation, temporary storage, backfilling and compaction of soils during wood pole installation and creation of temporary access tracks and hardstanding areas;
- Careful design of the final route will be required to avoid areas of deep peat. The wood poles will be required to be founded in suitable strata and so the presence of deep peat along the final route may mean conventional pole installation methods cannot be used;
- Disturbance of natural surface and groundwater flow/drainage, including that relating to peatland habitats, due to temporary diversion or obstruction, excavations and construction of temporary access tracks and hardstanding areas;
- Disturbance and damage to peatland habitats relating to installation of the wood poles, and construction of temporary access tracks and hardstanding areas; and
- Careful design of the final route to avoid areas where historic coal mine workings are present will be required. This is particularly relevant where mine entries are recorded. Where, these cannot be avoided further investigation to determine if these have been treated and/or determine exclusion zones will be required. The design of temporary access tracks and hardstanding areas will also need to avoid areas where mine entries are recorded. Where the final route is proposed over former opencast coal mines or other mineral quarries, targeted ground investigation will be required to ensure that the foundations proposed at these locations are sufficient for the ground conditions. It is not considered that the Grid Connection will have a significant effect on shallow underground coal mine workings, although where the final route crosses these, recognition that these may collapse potentially causing surface subsidence and damage to the proposed Grid Connection is required.

7.7 Mitigation Measures

Mitigation for the Grid Connection will generally follow the hierarchy of risk mitigation, with the avoidance of significant risks undertaken where possible as the first course of action. Where risks cannot be avoided further engineering measures will be explored. Indicative mitigation measures have been identified in Section 7.6 and will be further developed and refined to specific locations along the Route Option as needed as the alignment is developed.

7.8 Summary and Conclusions

This chapter has identified the existing baseline and potential impacts associated from the Grid Connection on geological resources and the interface of the Grid Connection with existing ground conditions that may present an impact to other environmental resources. The scoping assessment has

concluded that geology, soils and mining will be scoped into the EIA. The proposed approach to the assessment and impact pathways to be considered in the EIA are identified and include:

- the consideration of contamination of groundwater;
- disturbance of contaminated areas and impacts to perched groundwater;
- impacts to peatland resources during construction; and
- the risk of potential subsidence as result on developing areas of historic coal mining.

7.9 References

- British Geological Survey (BGS) (2023) Onshore Geoindex [online], available: https://mapapps2.bgs.ac.uk/geoindex/home.html [accessed September 2023]
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8. Hydrogeology and Hydrology

8.1 Introduction

This Chapter of the Scoping Report presents a summary of baseline information on surface water, groundwater and flood risk; and for both quantity and quality. It also identifies the likely effects which the construction and operation of this Grid Connection may create. Where effects are significant, then the approach to identifying mitigation to avoid or reduce these effects is outlined.

8.2 Legislation and Policy

8.2.1 National Policy

A summary of the legislation and planning policy relevant to the assessment of impacts of the Grid Connection is provided in this section (for full details please refer to Chapter 1). The relevant European Directives (now incorporated into UK law by the European Union (Withdrawl) Act 2018) are the following:

- Water Framework Directive (WFD) 2000/60/EC (European Community);
- Environmental Liability 2004/35/EC;
- Groundwater Directive 2008/105/EC;
- Groundwater Directive 2006/118/EC;
- Freshwater Fish Directive 2006/44/EC;
- Eel Regulations No 1100/2007; and
- Priority Substances Directive 2008/105/EC.

The European Directives listed before are implemented in Scotland through a number of pieces of legislation (also updated 2018) which will be detailed in Environmental Impact Assessment Report. These refer to the protection and management of the aquatic environments, habitats and species.

8.2.1.1 National Legislation

The Water Environment (Controlled Activities) (Scotland) Regulations 2011 as amended in 2013, and more commonly known as the Controlled Activity Regulations (CAR), apply regulatory controls over activities which may affect Scotland's water environment, including further amendments. The activities relevant to this Grid Connection that need CAR authorisation include those susceptible of causing pollution or adverse impacts to the water environment, abstractions, construction and other activities and engineering works in or in the vicinity of inland water or wetlands.

8.2.1.2 National Planning Framework 4 (NPF4)

The purpose of the NPF4 is to set out national planning policies which reflect Scottish Ministers' priorities for operation of the planning system and for the development and use of land. The relevant Principles to the water environment are embedded within the 'liveable places' arm of the spatial strategy, and specifically the Flood Risk and Water Management policy (Policy 22). The NPF4 seeks to strengthen resilience to flood risk by promoting avoidance as a first principle and reducing the vulnerability of existing and future development to flooding.

8.2.1.3 Planning Policy Guidance

SEPA has published a number of documents and good practice guides to support the implementation of the Water Environment (Controlled Activities) (Scotland) Regulations2013.

8.2.1.4 WFD River Basin Management

The River Basin Management Plan (RBMP) for the Scotland River Basin District: 2015–2027 (as amended, 2017) and additional documents establish the guidelines for compilation of WFD objectives in the Scotland River Basin District.

8.2.2 Local Policy

8.2.2.1 North Lanarkshire Local Plan

The NLLDP sets out the overarching vision statement, spatial strategy and general planning policies for the whole of The North Lanarkshire area. The NLLDP was adopted in July 2022.

The Environment and Design Qualities (EDQ) 3 Policy is relevant to the quality of development and includes a commitment to

> "*Ensuring that water body status is protected and, where possible, enhanced. Status includes physical characteristics, so proposals such as culverting will only be considered where no other practical option exists. Foul water should connect to the public sewer - alternatives to this will only be permitted where no public system exists and the alternative does not pose an environmental risk. Sustainable Urban Drainage Systems should be adopted within site design and appropriate details, including during the construction phase, require to be submitted with any relevant planning application. Buffer strips may be required in respect of the water environment between a development and each watercourse*."

The EDQ 2 Policy is relevant to hazard consultation zones including for flood risk. Specifically, it states that "*For flood-risk areas, development will be managed to allow implementation of the Water Framework Directive and the Flood Risk Framework set out in Scottish Planning Policy, the Clyde and Loch Lomond Local Plan District Local Flood Risk Management Plan and the Forth Estuary Local Flood Risk Management Plan (alongside the Flood Risk Management Strategies). Scottish Environmental Protection Agency's Flood Maps can be used to identify areas of functional floodplain to help ensure a precautionary approach is taken to flood-risk from all sources taking account of the effects of climate change. SEPA is a statutory consultee in the planning process and applicants will always be advised to consult with SEPA on matters pertinent to flood-risk*."

8.2.2.2 South Lanarkshire Council Local Plan

The SLLDP2 (2021) promotes the continued growth and regeneration of South Lanarkshire, whilst at the same time protecting and enhancing the environment. Policy 16 within the SLCLDP2 is relevant to the development of the Grid Connection and states

> "*Any development proposals which will have an unacceptable impact on the water environment will not be permitted… In determining proposals consideration shall be given to water levels, flows, quality, features, flood risk, and biodiversity within the water environment. The use of buffer and no development zones will be introduced to protect the riparian zone. These measures have been identified as having a key role to play in ensuring that protection and improvement of the*

water environment accords with the Water Framework Directive and the underlying aims of the River Basins Management Plans."

8.3 Baseline Conditions

8.3.1 Study Area

For the assessment of the water environment, a recommended area of study is up to 1 km either side of grid connection route.

8.3.2 Geology Superficial Deposits

The Preferred Route Option runs roughly east-west between Heathland and Wishaw, is underlain almost entirely by glacial till. This material is typically a diamicton type material, comprising highly variable proportions cobbles, boulder, gravel, sand, silt and clay. There is an extensive outcrop area for recharge to sandy/gravelly parts of the deposit if present. There are also quite areas of peats at the eastern end of the grid connection route. Some smaller area of glacio-lacustrine deposits occurs at the western end of the route within Wishaw, comprising of sand, silt and clay.

There is no aquifer classification for the superficial till overlying the bedrock and therefore significant groundwater resources are not likely to be present. Groundwater may be encountered in these deposits but is not likely to be laterally extensive or be of significant volumes.

8.3.3 Geology Bedrock

The till is underlain by numerous bedrock formations in fault-bounded unit comprising limestone, sandstone, mudstone, coal and some small areas of volcanics and potentially basaltic of the Clyde Plateau Volcanic Formation.

Where the Carboniferous (also the Devonian/Silurian) rocks are present, these form moderately productive aquifers with yields to 10 litres per second (l/s.or 864 m3/d). The volcanic rocks are regarded as being low productivity aquifers.

8.3.4 Watercourses

The River Clyde lies southwest of Wishaw and at its nearest point is approximately 2 km away from the Preferred Route Option. There are numerous small watercourses, unnamed which run of ridge to the north of the Preferred Route Option. These watercourses cross the alignment and do eventually flow down to the Clyde. The nature of wood poles as proposed for the Grid Connection, will mean relatively shallow penetration of the ground and little interference with the baseflow to any of the streams. There will be liaison with biodiversity specialists regarding the importance of groundwater to any water dependent habitats.

8.3.5 Protected Sites

Braehead Moss SSSI and SAC is situated approximately 0.4 km away to the southeast. This site is noted for the presence of Intermediate Bog (raised). Any other protected sites lie well beyond the 1 km study area and no interference with these sites are expected.

The Braehead Moss site is at 270 m above ordnance datum (AOD), which is well above the 240 m AOD of the Grid Connection route in that area. The origin of the site is complex, with two areas of peat fusing together. Nonetheless, their location above the route of the poles will mean that any effects on this site

are unlikely. An assessment of the potential effects on the Braehead Moss SSSI and SAC is therefore proposed to be scoped out of the EIA.

8.3.5.1 Groundwater dependant terrestrial ecosystems

GWDTE along the route will be identified by the Biodiversity specialist's Phase 1 habitat review. The hydrogeological linkage between the habitat and the working areas of the Grid Connection will be assessed for any potential impact pathways associated with disruption of supply and/or quality within the hydrology and ground water assessment, any secondary impacts to the habitat will be considered within the ecology and biodiversity assessment.

8.3.6 Users of Groundwater (Private Water Supplies)

The Grid Connection is situated in a rural location with very limited residential receptors. Properties in these remote locations tend to be reliant on local PWS, either from groundwater or surface water. At this stage, data on these sources in the local area have not yet been obtained from North or South Lanarkshire Councils. Pending the identification of the properties that are reliant on a PWS, the source of the supply may require a further review of the Study Area specific for these receptors.

8.3.7 Water Framework Directive Groundwater Bodies

The underlying groundwater is defined by SEPA as being across the 'Forth', 'Carstairs', 'Glasgow and Motherwell' and 'Whitburn' groundwater bodies, from east to west respectively (with 'Glasgow and Motherwell' and 'Whitburn' groundwater bodies both being in the west). With the exception of 'Carstairs' which is classed by SEPA as being 'good' status (chemical and overall in 2020), all the others have 'poor' status (chemical and overall 2020). This status may reflect the legacy coal mining that has been feature of this area in past. It is likely that poor status generally of the groundwater will also play a part in influencing the status of watercourses in the local area, within the River Clyde catchment.

8.3.8 Flood Risk Zones

The Grid Connection lies outside the flood risk zones of the River Clyde. Smaller watercourses may have some risks associated with flooding but are generally limited in extent. and will be easily crossed by the OHL.

8.4 Likely Significant Effects and Mitigation Measures

The Grid Connection has the potential to affect groundwater quality, both during construction and operation, in the following ways:

- Potential impacts include contamination from suspended solids or other chemical contaminants that may find their way into site runoff, infiltrate to groundwater, or be spilt directly into groundwater bodies when there are works within or adjacent to them;
- The effects of diffuse urban pollutants in surface water runoff (that may contain metals, hydrocarbons, and inert solids etc.) entering the ground and moving towards a receptor; the risk of pollution from chemical spillages or fire on the road; and
- There will be no effects on protected sites, either directly or indirectly through the surface water systems, meaning that a wider WFD assessment is unlikely to be required.

Given the nature of the Grid Connection, it is proposed that a WFD assessment is not undertaken.

The potential secondary receptors are GWDTEs and PWS (if close by to the works). Biodiversity specialists will identify sensitive water habitats along the route. The PWS provided by North Lanarkshire

Council (NLC) and South Lanarkshire Council (SLC) will initially guide a review of those most at risk. At this stage, neither of these can be scope out until further data collection has taken place.

The Grid Connection, on wood pole lines will follow the land surface without the need for any large-scale re-grading. This will avoid an important risk to both GWDTEs and PWS which could be affected otherwise by the deeper excavations. Any change from this type of support may require further groundwater assessments.

The only larger sub-surface works will be the stretch though the outskirts of Wishaw, around 3 km at the western end. In this area, there may be some encountering of industrial activities, which will be reviewed in more detail within the Soils and Geology chapter.

Operational impacts on the water environment are expected to be minimal as the installation will require only above ground maintenance of connection.

Not overlapping with Flood Risk zones means that these risks can be largely descoped. Some consideration of the smaller watercourses near to the final Grid Connection alignment will need to be protected against the risk of runoff from working area. Maintaining safe distances from these watercourses will be the best method of protecting the water environment.

8.5 Proposed Methodology

Potential impacts on the water environment resulting from both the construction and operation of the Grid Connection will be assessed following the principles in relevant guidance outlined in LA113, an appendix to DMRB Volume 4.

The approach outlined above is applicable to all linear infrastructure projects, using as it does a source-pathway-receptor approach. This firstly identifies receptors and their value. Secondly, evaluates the potential impacts to these features and finally gives an overall significance of effect. Any significant effects identified will be mitigated through additional measures to be applied. An Environmental Management Plan (EMP) will be prepared covering standard mitigation measures in each of phases of the project. Any measures beyond the EMP will be included in the EIA Report.

8.5.1 Construction

Construction impacts will be assessed qualitatively, using the methodology outlined in Appendix A of LA113, with following stages being followed;

- Step1 –Establish regional water environment status
- Step 2 – Develop a conceptual model of the surrounding area
- Step 3 – Identify all potential features which are susceptible to water environmental impacts

In the case of GWDTEs, the approach outlined in Appendix B of LA113 will be followed for these impacts. This assessment takes into account the GWDTE importance based on Ecological NVC Scores, dependence on groundwater, being separated into their groups (3=low, 2=moderate and 1=high) UKTAG 2009.

For any PWS, these will be advised by distance from any works and the type of activity. Appendix C of LA113 takes into account a number of factors around the ‘source-pathway-receptor’, before coming up with groundwater risk assessment matrix of <150=low risk, 150-250=moderate risk and >250 high risk.

8.5.2 Operation

Operational impacts will be assessed using LA113 – focussing on both surface and groundwater if appropriate.

8.6 Summary and Conclusions

This chapter has identified the existing baseline and potential impacts associated from the Grid Connection on surface water and groundwater resources and has concluded that surface water and groundwater will be scoped into the EIA. This is principally due to the unknown factor of impacts to GWDTEs and PWS adjacent to the Grid Connection. A simple assessment using the DMRB methodology will be undertaken for both the construction and operational phase. The operational phase is expected to be generally less impactful than during construction.

Flood risk will be scoped out of the EIA, because there is no overlap with any extensive Flood Risk zones.

A WFD assessment is unlikely to be required as the impacts on protected sites, either directly or indirectly are not expected.

8.7 References

- European Parliament and of the Council, 2000. Water Framework Directive (WFD) 2000/60/EC (European Community). Available Online: https://www.legislation.gov.uk/eudr/2000/60/contents (accessed October 2023).
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9. Noise and Vibration

9.1 Introduction

This chapter provides an initial overview of the policy context, baseline context, potential for noise and vibration effects, scope and methodology of assessment, and scope for mitigation.

9.2 Legislation, Policy and Guidance

The following national, regional and local planning legislation and guidance related to noise and vibration will be referenced and considered in the assessment:

9.2.1 Legislation

- Control of Pollution Act 1974 (UK Government, 1974)
- Environmental Protection Act 1990 (UK Government, 1990)

9.2.2 Policy

- National Planning Framework 4 (NPF4) (Scottish Government, 2023)
- Planning Advice Note PAN 1/2011 (Scottish Government, 2011a)
- Technical Advice Note TAN 2011 (Scottish Government, 2011b)
- North Lanarkshire Local Development Plan (North Lanarkshire Council, 2022)
- South Lanarkshire Local Development Plan 2 (South Lanarkshire Council, 2021)

9.2.3 Standards and Guidance

- BS 7445-1:2003 – Description and Measurement of Environmental Noise (British Standards Institute, 2003).
- BS 5228-1:2009+A1:2014 – Code of practice for noise and vibration control on construction and open sites (British Standards Institute, 2014a).
- BS 5228-2: 2009+A1:2014 – Code of practice for Noise and Vibration control on construction and open sites. Vibration (British Standards Institute, 2014b).
- BS 6472 – Guide to Evaluation of Human Exposure to Vibration in Buildings. (British Standards Institute, 2008).
- Calculation of Road Traffic Noise (CRTN) (Department of Transport, 1998).
- Design Manual for Road and Bridges Sustainability & Environment Appraisal LA 111 Noise and Vibration (DMRB) (Highways England, 2020).
- BS 4142:2014+A1:2019 – Methods for rating and assessing industrial and commercial sound (British Standards Institute, 2019).
- BS 8233:2014 ‘Guidance on sound insulation and noise reduction for buildings’ (British Standards Institute, 2014c).
- TR(T)94 – A Method for Assessing the Community Response to Overhead Line Noise (National Grid, 1993).
- World Health Organization’s (WHO) ‘Environmental Noise Guidelines for the European Region’ (WHO, 2018).
- WHO ‘Night Noise Guidelines for Europe’ (WHO, 2009).

9.3 Baseline Conditions

Existing noise sources within the vicinity of the Grid Connection vary between the wind farm and the point of connection. The surrounding environment in the east (as the Heathland Wind Farm) can generally be regarded to be rural, and urban in the west at Wishaw Substation. The upland areas at the east of the Study Area are largely defined by dense conifer plantations with operational wind farms (Blacklaw, Blacklaw Extension and Tormywheel). Smaller settlements such as Forth and Fauldhouse are also present adjacent to the Grid Connection in the east. The west is dominated by larger settlement areas of Wishaw, Carluke and Newmains and associated infrastructure, including the A71, A73 and A706 as well as a rail corridor (Great Coast Main Line).

9.4 Proposed Methodology

9.4.1 Baseline Noise Monitoring

Baseline noise monitoring will be undertaken to establish baseline conditions. Monitoring locations and the monitoring regime to be employed will be discussed in advance with the environmental health departments from both North and South Lanarkshire Councils. The monitoring procedures will conform to the requirements of British Standard (BS) 7445.

It is anticipated that various locations will be required along the route due to the acoustic environment varying, depending on location. The main areas of sensitive receptors include:

- Residential properties in and surrounding Haywood, south of Heathland wind farm;
- Residential properties in Wilsontown;
- Residential properties in Forth;
- Springfield Reservoir;
- Isolated residential properties including: Underthorn Cottage, Hill of Westerhouse, Middlehope Farm, Springfield, Easterseat, Birniehall, Haininhead, Covanhill, Throughburn Bridge, Lower Throughburn, Upper Throughburn, Lower Oldtown, Gowmacmorran, Guildhouse, Cleugh Mill, Lawhead;
- Residential properties north of Carluke;
- Hyndshaw Cottage, Bowridge Bridge, Bogside Farm;
- Residential properties on the north-eastern end of Wildman Road;
- Residential properties around Bogside / Junction of Wishaw Road (A721) and A73;
- Gillhead Farm, Wildman Road;
- Duncan Caravan and Camping;
- Residential properties along Wishaw Road, east of Dimsdale;
- Residential properties in Overtown;
- Clyde Valley High School;
- Thronlie Primary School, St Thomas' Primary School;
- St Thomas Catholic Church; and
- Residential properties around Wishaw Substation (in the area of Pather).

The monitoring will be undertaken on dates that are considered likely to be representative of the typical baseline noise climate at the receptors, this may require avoidance of school holidays.

Towards the east side of the Grid Connection the baseline is likely to include sounds from the existing wind farm near the Heathland Wind Farm site. In the central part of the development baseline sound sources are likely to include local agricultural activities and local road traffic. Baseline noise levels near Wishaw on the west side of the Grid Connection are likely to include road traffic from A73, and sound from the railway.

Noise-sensitive ecological receptors within the vicinity of the Grid Connection will be identified in conjunction with the ecology assessment.

It is assumed that there are no existing sources of vibration and therefore a baseline vibration survey is scoped out.

9.4.2 Construction Noise and Vibration Assessment

The assessment of construction impacts will be based on the available information on the likely construction programme and activities. A quantitative assessment including predicted construction noise and vibration levels at selected noise sensitive receptors will be completed following the methodology presented in BS 5228 (both parts).

Noise due to construction works will be calculated and assessed using the data and procedures given in BS 5228-1. The ABC method will be used as a basis to define criteria that constitutes a potential significant effect at noise sensitive receptors. The ABC thresholds are reproduced in Table 9-1.

Table 9-1. BS 5228-1 ABC thresholds

Assessment Category and Threshold Value Period	Threshold Value $L_{Aeq,T}$ dB - Freefield		
	Category A (a)	Category B (b)	Category C (c)
Night-time (23:00-07:00)	45	50	55
Evenings and Weekends (d)	55	60	65
Daytime (07:00-19:00) and Saturdays (07:00-13:00)	65	70	75

NOTE 1: A potential significant effect is indicated if the $L_{Aeq,T}$ noise level arising from the site exceeds the threshold level for the category appropriate to the ambient noise level.

NOTE 2 If the ambient noise level exceeds the Category C threshold values given in the table (i.e. the ambient noise level is higher than the above values), then a potential significant effect is indicated if the total $L_{Aeq,T}$ noise level for the period increases by more than 3 dB due to site noise.

NOTE 3: Applies to residential receptors only.

(a) Category A: Threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are less than these values.

(b) Category B: Threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are the same as Category A values.

(c) Category C: Threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are higher than Category A values.
(d) 19:00 – 23:00 weekdays, 13:00 – 23:00 Saturdays, 07:00 – 23:00 Sundays.

BS 5228-2 provides specific methods for calculating and assessing vibration from construction activities. The assessment will make reference to Table B.1 of BS 5228-2, which provides information on the human response to Peak Particle Velocity vibration levels. Table B.1 of BS 5228-2 is reproduced in Table 9-2.

Table 9-2. BS 5228-2 guidance on vibration effects

Vibration Level	Effect
0.14 mm/s	Vibration might be just perceptible in the most sensitive situations for most vibration frequencies associated with construction. At lower frequencies, people are less sensitive to vibration.
0.3 mm/s	Vibration might just be perceptible in residential environments.
1.0 mm/s	It is likely that vibration of this level in residential environments will cause complaint but can be tolerated if prior warning and explanation has been given to residents.
10.0 mm/s	Vibration is likely to be intolerable for any more than a very brief exposure to this level.

Additionally, noise increases at sensitive receptors due to any construction traffic on public roads will be calculated according to the methods given in CRTN. The significance of the effect of these changes will be assessed based on a range of relevant guidance including the DMRB.

Table 9-3. Comparison of Short-Term Noise Change and Corresponding Magnitude of Impact

Magnitude of Impact	Short-term noise change (dB, $L_{A10, 18hr}$)
Major	Greater than or equal to 5.0
Moderate	3.0 to 4.9
Minor	1.0 to 2.9
Negligible	Less than 1.0

9.4.3 Operational Airbourne Noise Assessment

Previous studies have demonstrated that the noise directly under a 132 kV trident wood pole OHL is imperceptible in normal conditions. Noise generated in wet conditions may be greater, but it is likely that no impact will be predicted at distances greater than 50 m from the overhead line. However, the threshold distance for scoping out potential sensitive receptors from the assessment may be determined based on the inherent sound power level of the operational equipment being installed or representative data provided by the developer.

Whilst the development and refinement of the alignment of the Grid Connection is ongoing an assessment of operational noise will be undertaken. However this will be reviewed and discussed with the relevant environmental health officers at South and North Lanarkshire Councils once an alignment has been identified.

The potential impact of the Grid Connection will be assessed following guidance from BS 4142 and TR(T)94, based on information on the operating conditions and the levels of noise generated by the plant. If a schedule of plant is not yet available, suitable criteria for operational noise limits will be defined based on baseline noise measurements.

Criteria will be defined from BS 4142, which states that plant noise emissions with a rating level that does not exceed the background noise level at sensitive receptors is an indication of a low impact and a rating level exceeding the background noise level by 10 dB is an indication of a significant effect. It is proposed to adopt a minimum rating noise limit for plant noise of 30 dB LAr,Tr where measured background noise levels are very low. For night-time noise, context will be provided through consideration of internal noise levels in properties.

It is assumed that once operational, the Grid Connection would not produce significant road traffic on local public roads and therefore an operational road traffic noise assessment is scoped out.

9.4.4 Embedded and Good Practice Measures

The Grid Connection has the potential to give rise to noise and vibration impacts during construction and operational phases. Where appropriate, mitigation measures will be proposed to minimise the impact of the Grid Connection. The residual noise and vibration impacts, after the implementation of the mitigation measures, will be identified and their significance established.

BS 5228-1 and BS 5228-2 provides practical information on construction noise and vibration reduction measures and promotes a ''Best Practicable Mean'' approach to noise control. Mitigation measures will help to further reduce the scale of construction phase noise effects at surrounding noise-sensitive receptors. BS 5228-1 does not state absolute limits for construction noise; therefore, the preferred approach is to reduce noise levels (where possible), but with due regard to practicality. Sometimes, a greater noise level may be acceptable if the overall construction time and therefore length of disruption is reduced.

In order to control plant and activity noise emissions, proposed installations will be subject to meeting suitable operational noise limits. Details on outline mitigation measures to achieve noise limits will be defined as part of the EIA and submitted with the application for s37 consent; however, specific plant noise assessments and mitigation requirements will be undertaken pre-construction.

9.5 Likely Significant Effects

Likely significant effects that will be assessed in the noise and vibration chapter are set out in Table 9- 4. Operational effects include maintenance and repair activities, and potential effects during decommissioning are likely to be similar to the construction phase.

Table 9-4. Assessed Topics

Topic	Project Phase	Scoped In/Out	Rationale
Construction / decommissioning noise emissions	Construction / Decommissioning	✓	Noise emissions from proposed construction activities and construction traffic.
Construction / decommissioning vibration emissions	Construction/ Decommissioning	✓	Vibration emissions from proposed construction activities.
Operational traffic	Operation	X	No significant levels of operational traffic are expected so an assessment of operational road traffic noise impacts is scoped out.
Cable noise Emissions (corona discharge)	Operation	✓	As most of the cables will be overhead, any noise emissions from cables may be perceptible.
Operational vibration emissions	Operation	X	There are no sources of operational vibration associated with the infrastructure of the Grid Connection.

9.6 Summary and Conclusions

This chapter of the scoping report sets out the policy context and the baseline context, outlines the proposed assessment methodology, potential likely significant effects, and discusses the good practice measures to reduce the significant effects of the Grid Connection.

The assessment topics scoped into the noise and vibration assessment are summarised below:

- Noise and vibration impacts during the construction phase which could affect existing nearby noise sensitive receptors;
- Changes in road traffic noise levels at noise sensitive receptors in proximity to routes used by construction traffic; and
- Operational noise impacts from the proposed OHL at nearby sensitive receptors.

9.7 References

- British Standards Institute. (2003). BS 7445 ‘Description and Measurement of Environmental Noise. Part 2: Guide to the Acquisition of Data Pertinent to Land Use’.
- British Standards Institute. (2008). BS 6472 ‘Guide to Evaluation of Human Exposure to Vibration in Buildings’.
- British Standards Institute. (2014a). BS 5228-1:2009 + A1 2014 ‘Code of Practice for noise and vibration control on construction and open sites: Part 1: Noise’.
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10. Transport

10.1 Introduction

This section presents the scope and approach to the assessment of the potential traffic effects resulting from the Grid Connection.

This chapter provides an initial overview of the policy context, baseline context, potential for noise and vibration effects, scope and methodology of assessment, and scope for mitigation.

The grid connection will be assessed for the construction stage only. Other stages of development (operational stage, decommissioning stage) are not likely to generate sufficient traffic to meet the tests for assessment in the IEMA Guidelines, and we will seek to scope them out of the traffic assessment.

10.2 Legislation, Policy and Guidance

Legislation and policy relevant to the Grid Connection are set out in Chapter 1, section 1.5. The transport assessment will consider relevant national and local policies and spatial plans as necessary.

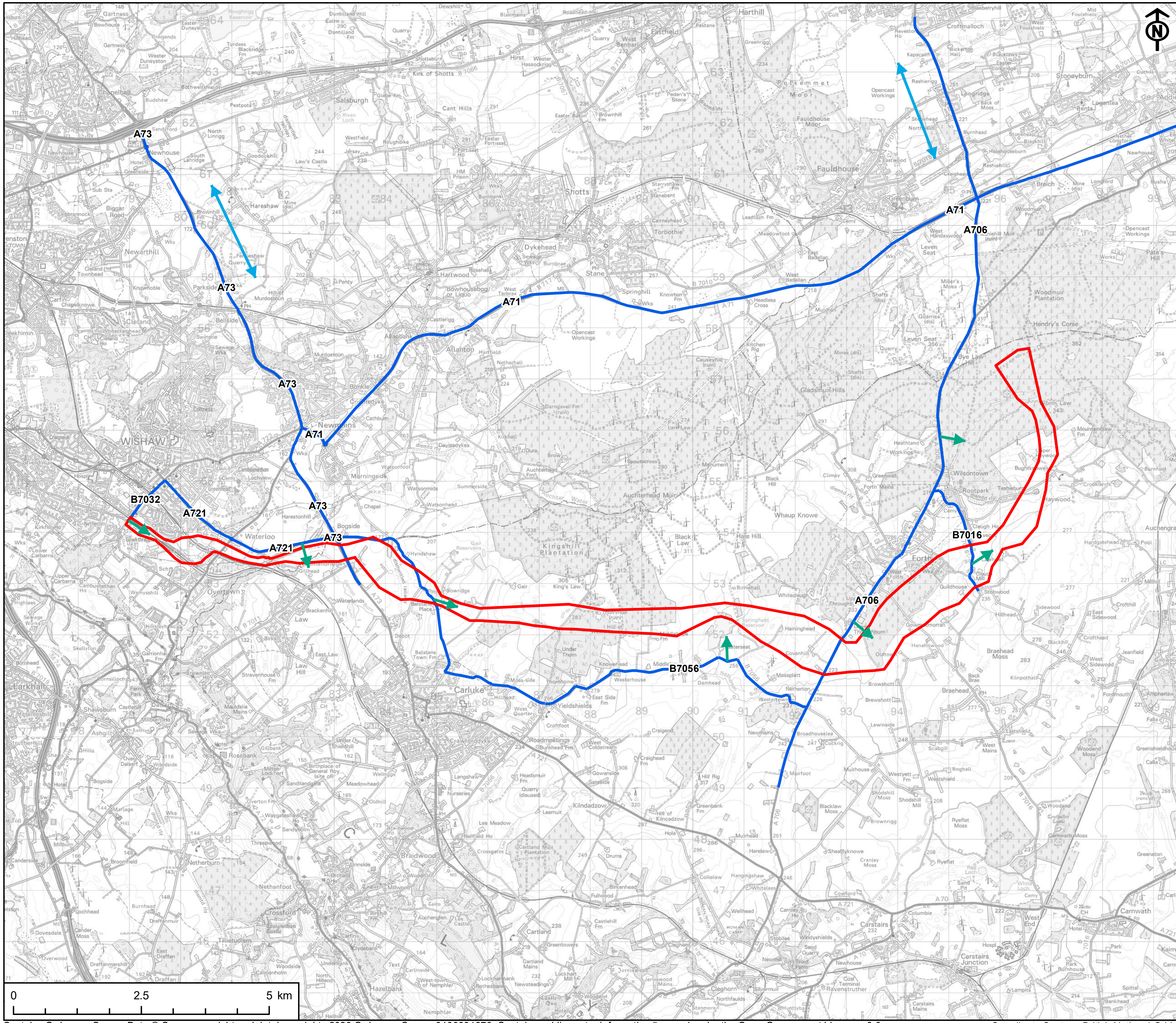
10.3 Baseline Conditions

10.3.1 Study Area Roads

A Preferred Route Option has been identified following a routeing exercise and assessment of alternatives. Based on this, and potential requirements for construction vehicle access to it, public roads have been identified to define a Study Area for road traffic effects. Figure 10-1 illustrates the proposed extents of Study Area roads. These are public roads construction traffic is likely to use to access the working areas for the Grid Connection. It is presumed construction traffic will enter and leave the Study Area to and from the direction of the M8 Motorway corridor.

The principal roads within the Study Area are expected to be the A71 and A706. Construction traffic will use B-roads and unclassified roads to reach site access points – where they will leave the public road network. A desktop review will identify any key constraints on Study Area roads (such as weight and width restrictions) and routes for construction traffic would be amended accordingly. Specific locations for construction traffic to access the Preferred Route Option have not yet been identified, nor have locations for construction compounds and or material storage – these will be identified as part of the design development in line with further environmental and technical surveys and assessment.

Project Management Initials: DR Designer: LC Checked: DF Approved: TC



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PROJECT
Heathland Wind Farm Grid Connection

CLIENT
SP Energy Networks

KEY
- Route Corridor
- Public Roads used by Construction Traffic
- Construction Traffic Access from Public Road (Indicative)
- Route to/from Strategic Road Network

TITLE
Figure 10.1
Possible Extent of Study Area Roads

REFERENCE
HGC_20231113_SR_10.1_v2

SHEET NUMBER	DATE
1 of 1	13/11/23

10.3.2 Baseline Traffic Data

No new traffic surveys are proposed for Study Area roads. Baseline traffic data will be collated from public data sources, such as Department for Transport (DfT) count sites. Baseline traffic data will be growthed to an appropriate assessment year using TEMPro growth factors. Accident data for Study Area roads will also be taken from public sources such as Crashmap.

10.3.3 Construction Traffic Forecast

A construction traffic forecast will be provided for the proposed construction programme. This will include a monthly and daily traffic forecast for LGV and HGV construction traffic. The busiest daily construction traffic forecast will be identified for assessment, and that traffic assigned to the Study Area road network.

10.4 Proposed Methodology

IEMA 2023 Rule 1 and Rule 2 will be applied. For Study Area roads if the percentage increase in forecast construction traffic above base traffic does not meet Rule 1 (+30% increase) or Rule 2 (+10% in sensitive areas) the roads will not be assessed further. Any Study Area road meeting or exceeding the required IEMA threshold will be assessed.

IEMA 2023 will be used to establish the sensitivity of Study Area roads as receptors (negligible to very high) and magnitude of change thresholds will be similarly established (negligible to high). Significance of effects will be established on a basis similar to Table 10-1. Any effect assessed as ‘moderate’ or ‘major’ (i.e. bold in Table 10-1) will be deemed significant.

Table 10-1. Significance of Effects

Value	Magnitude of Impact				
	Very High	**High**	**Medium**	**Low**	**Negligible**
High	**Major**	**Moderate**	**Moderate**	**Minor**	Neutral
Medium	**Moderate**	**Moderate**	**Minor**	Negligible	Neutral
Low	**Moderate**	**Minor**	Negligible	Negligible	Neutral
Negligible	Minor	Negligible	Negligible	Negligible	Neutral

Environmental effects will be assessed prior to mitigation for Study Area roads in accordance with IEMA Guidelines, and given a significance of effect from Table 10-1.

10.4.1 Cumulative Assessment

A qualitative assessment of potential cumulative effects associated with other developments will be undertaken regarding road traffic. The assessment will be based on publicly available information at the time of assessment to understand vehicle movements, roads utilised and the programme of works. Where no information is available professional judgement will be utilised to best assess the likelihood of significant cumulative effects.

10.5 Likely Significant Effects

The following environmental effects will be assessed for Study Area roads as identified in section 10.3.1.

- Severance of communities;
- Fear and intimidation on and by road users;
- Road user and pedestrian safety;
- Non-motorised user delay;
- Non-motorised user amenity;
- Hazardous / large loads; and
- Road vehicle delay.

Regarding the above environmental effects a detailed assessment of recorded injury accidents, or detailed capacity testing of road links and junctions, is not proposed for establishing magnitude of change for 'Road user and pedestrian safety' and 'Road vehicle delay' effects respectively. A simpler methodology more akin to that used for 'Severance' or 'Fear and intimidation' will be adopted. This reflects the voluntary nature of the EIA and the likely vehicle movements anticipated to be generated during the construction of the Grid Connection.

10.6 Mitigation Measures

For the Grid Connection mitigation measures would most likely be a Construction Traffic Management Plan (CTMP). The CTMP is a binding agreement to manage construction traffic to reduce potential impacts on Study Area roads and receptors. Typically, a CTMP will cover construction traffic routes to site, time of operation, site access and egress arrangements, wheel washing and road cleaning. The assessment of effects on Study Area roads and receptors will identify specific measures to avoid or reduce potential effects as necessary that will be incorporated in to the CTMP.

Consideration will be given to the beneficial effects of any potential mitigation and residual effects will be presented. The objective will be for potential mitigation measures to reduce the significance of effect from significant (the bold text in Table 10-1) to not significant.

A table summarising the significance of environmental effects prior to mitigation and residual effects (post mitigation) will be provided.

10.7 References

- Institute of Environmental Management and Assessment (IEMA) Guidelines: Environmental Assessment of Traffic and Movement, July 2023.

11. Recreation, Tourism, and Socio-Economics

11.1 Introduction

This Chapter considers the potential effects the Grid Connection could have on the recreation, amenity and tourism receptors during construction and operation of the OHL. A Study Area for this assessment has been defined by a 1 km buffer around the Route Option.

11.2 Baseline Conditions

11.2.1 Recreation

There are numerous core paths in the central and western sections of the Study Area. These link Wishaw, Newmains, and Forth and pass through areas of plantation and forestry at several locations. Law Bowling Club is located approximately 955 m south of route option B1/B2 and further west, approximately 300 m south of the Route Option is Wishaw Sports Centre. Other recreational features located in the Study Area are: Overtown Bowling Club, Lanarkshire Indoor Bowling Club, Forth Wanderers Football Club, and Forth and Wilsontown Bowling Club. The recreation features in the Study Area are shown on Figure 11-1.

11.2.2 Tourism

Tourist facilities within the Study Area include:

- Wilsontown Ironworks;
- Overtown Bowling Club;
- Wishaw Sports Centre;
- Cairn of the Cambusnethan Bog Body;
- Section 8 Airsoft; and
- Covenanter Memorial - Auchterhead Muir.

11.3 Likely Significant Effects

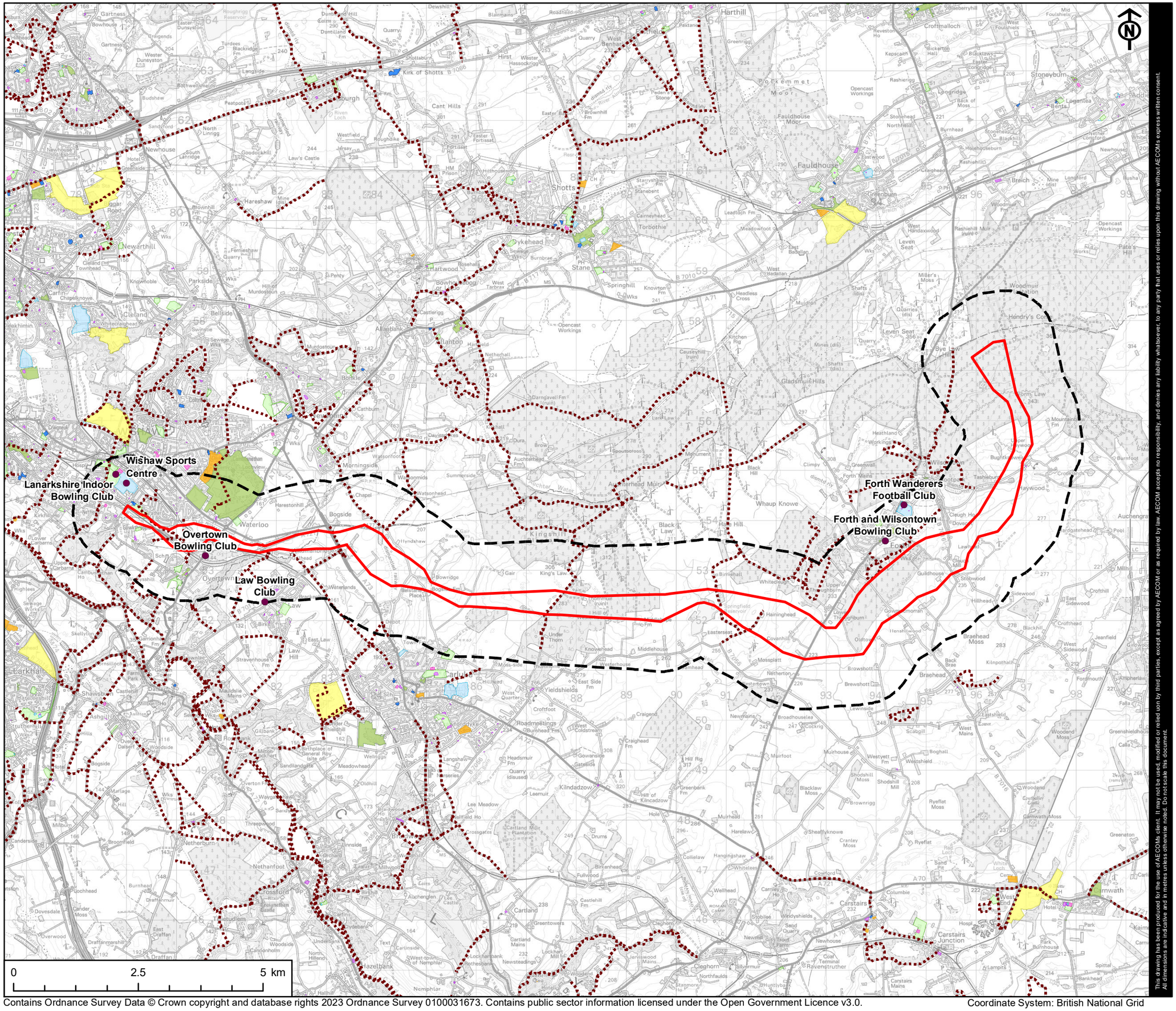
The potential for significant effects on the visual amenity of recreational and tourist receptors will be considered through the LVIA – see Chapter 6. The nature of the Grid Connection is such that, with the exception of very localised and short-term events during the construction phase, there would be no direct effects of potential significance to recreation or tourism receptors identified. Therefore, no further assessment is proposed as part of the EIA.

The Grid Connection would result in minimal local revenue generation through demand for accommodation providers, spend in local shops and material supplies. There will be no disruption to the operation of local businesses during construction or operation. These socio-economic effects are likely to be negligible to minor on a local and regional scale so not considered to be significant. As such there are not considered to be any significant effects on socio-economic conditions and these will not be considered further within the EIA.

11.4 Issues Scopes Out

For the reasons outlines above, it is proposed that recreation, tourism and socioeconomics are scoped out of the EIA.

Project Management Initials: DR Designer: LC Checked: DF Approved: TC



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Coordinate System: British National Grid

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AECOM

PROJECT
Heathland Wind Farm Grid Connection

CLIENT
SP Energy Networks

KEY

- Route Corridor
- 1km Study Area
- Recreation Facility
- Corepath
- National Cycle Network
- Bowling Green
- Cemetery
- Golf Course
- Other Sports Facility
- Play Space
- Playing Field
- Public Park Or Garden
- Religious Grounds

TITLE
Figure 11.1
Tourism and Recreation Considerations

REFERENCE
HGC_20231113_SR_11.1_v2

SHEET NUMBER
1 of 1

DATE
13/11/23

12. Land Use, Agriculture and Forestry

12.1 Introduction

This chapter considers the potential effects the Grid Connection could have on land use and infrastructure receptors during construction and operation. A Study Area for this assessment has been defined by a 1 km buffer around the preferred route.

12.2 Baseline Conditions

12.2.1 Agricultural Land Use

In terms of its agricultural classification, the Study Area comprises:

- 4.2 - Land capable of producing a narrow range of crops, primarily on grassland with short arable breaks of forage crops.
- 5.1 - Land capable of use as improved grassland. Few problems with pasture establishment and maintenance and potential high yields.
- 5.2 - Land capable of use as improved grassland. Few problems with pasture establishment but may be difficult to maintain.
- 5.3 - Land capable of use as improved grassland. Pasture deteriorates quickly.

Figure 12-1 shows the land capability classification for agriculture (published by the Scottish Government) across the Study Area.

12.2.2 Wind Farms

There is one operational wind farm within the Study Area; Blacklaw Wind Farm, and the Blacklaw Extension located in the centre of the Study Area, as well as several single turbines. There is also one consented wind farm located in the northeast of the Study Area.

12.2.3 Cables and Overhead Lines

There are several OHLs present within the Study Area, one being a 400 kV OHL running through the western section of the Study Area towards Wishaw. There is also one 275 kV OHL and two 132 kV present within the Study Area as well as several 11 kV and 33 kV OHLs.

12.2.4 Roads

There are three primary used A-roads within the Study Area; the A71 runs horizontally through the western section of the Study Area through Waterloo and Overtown intersecting the route corridor. The A73 runs from north to south through the western side of the Study Area intersecting the route corridor and the A706 runs from north to south through Forth in the eastern side of the Study Area. There is a network of B-roads, C-roads and tracks that provide access through Forth, Kingsmill Plantation, and Woodmuir Plantation. The network of roads and tracks located throughout the Study Area are shown on Figure 10-1.

12.2.5 Housing Allocations, Planning Designations and Settlement Distribution

Residential properties are concentrated around Wishaw in the west, Forth in the south east and Carluke in the south. Further properties are located along the minor roads and tracks located throughout the Study Area.

A review of SLLDP2 (adopted in 2021) identified the following within the Study Area:

- A Development Framework Site located at the area surrounding Law Hospital, Law.
- A Residential Masterplan Site located on Manse Road, Forth.
- A Community Growth Area in the town of Carluke.

A review of NLLDP2 (adopted July 2022) identified the following within the Study Area:

- Wishaw has been identified as a Strategic Town Centre.

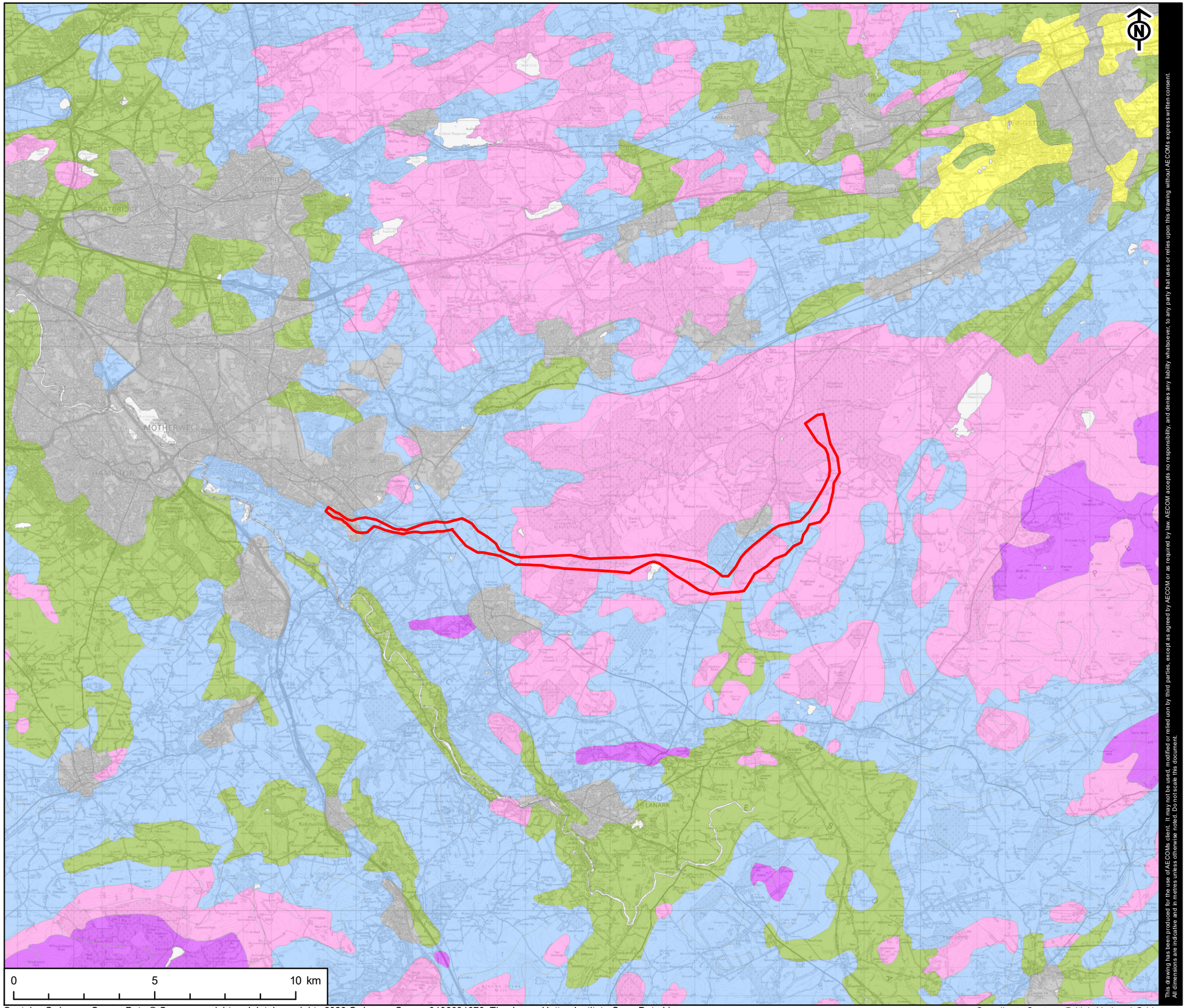
12.3 Likely Significant Effects

The proposed route crosses areas of rough grazing and some areas of forestry and woodland to the south of Forth and to the northeast of Carluke. The proposed wood pole line would have a small footprint is not anticipated to have a significant effect on land use or agriculture. It is noted that there is a need to provide further detail with the application on tree felling proposals. Woodland impacts will be considered through the provision of a technical report to detail areas of proposed woodland removal, and the potential effects on existing forest design plans. The information provided will take account of The Scottish Government's Policy on Control of Woodland Removal.

12.4 Issues Scoped Out

Overall, the Grid Connection would not impinge on land owner choice over the type or intensity level of land operations, and would not require any significant management changes. As such, no further assessment of land use or infrastructure is proposed as part of the EIA. The assessment of effects on ecological and ornithological receptors as a result of woodland removal will be considered in the EIA as part of the Ecology and Ornithology assessments (see Chapter 4). Likely effects on landscape resource or visual amenity as a result of woodland removal will be considered as part of the LVIA (see Chapter 6).

Project Management Initials: DR Designer: LC Checked: DF Approved: TC



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AECOM

PROJECT
Heathland Wind Farm Grid Connection

CLIENT
SP Energy Networks

KEY

- Route Corridor

National Scale Land Capability for Agriculture

- Class 2 - Land capable of producing a wide range of crops with yields less high than Class 1
- Class 3 - Land capable of producing good yields from a moderate range of crops
- Class 4 - Land capable of producing a narrow range of crops
- Class 5 - Land suited only to improved grassland and rough grazing
- Class 6 - Land capable only of use as rough grazing
- Urban

TITLE
Figure 12.1
Land Capability Classification for Agriculture

REFERENCE
HGC_20231113_SR_12.1_v2

SHEET NUMBER
1 of 1

DATE
13/11/23

13. Air Quality and Climate Change

13.1 Introduction

This chapter considers the potential effects the Grid Connection could have on air quality and climate change during construction and operation. A Study Area for this assessment has been defined by a 1 km buffer around the preferred route.

13.2 Baseline Conditions

There are no Air Quality Management Areas (AQMAs) in the Study Area. Residential properties within the Study Area represent air quality receptors. The majority of residential properties are concentrated within the towns of Wishaw and Carluke and the villages of Forth, Newmains, Overtown, Allanton and Law. However, there are also isolated dwellings and farm buildings within the Study Area.

13.3 Potentially Significant Effects

13.3.1 Air Quality

The Grid Connection has limited potential to impact the Air Quality; there is a potential to give rise to some localised and temporary construction related air quality impacts associated with dust (e.g. passage of vehicles along access tracks) and construction plant and traffic exhaust emissions. However, the nature of the construction activities is that impacts on air quality would be relatively short term (i.e. limited to the construction period) and intermittent, and unlikely to give rise to potentially significant adverse effects.

The potential for nuisance effects on residential or recreational amenity would be limited and would be controlled in through implementation of a Construction Environmental Management Plan (CEMP). There is no potential for significant operational air quality impacts. It is unlikely that the impacts described above would have a significant effect on local air quality.

13.3.2 Climate Change

In the context of the EIA process climate change is considered both in relation to the contribution of the Grid Connection to increasing or decreasing gaseous emissions with global warming potential (GWP), and in relation to climate change adaptation.

Adverse impacts associated with the Grid Connection will be limited to temporary and short-term emissions of exhaust gases from vehicles, the potential for the release of carbon dioxide as a result of dewatering and exposing peat and peat soils during the construction stage, and the reduced absorption of carbon dioxide from the atmosphere due to tree felling. None of these sources are considered likely to be significant in terms of GWP.

With regard to climate adaptation, consideration will be given to the potential implications of climate change on the OHL design and the design of support structures (e.g. design for increased extreme adverse weather); however, no potential significant effects have been identified.

13.4 Issues Scoped Out

The Grid Connection would not result in significant adverse effects on air quality or climate change during the construction or operational phases. The Grid Connection would contribute to connecting

renewable electricity generation capacity to the transmission network and potentially enhancing electricity security, in turn displacing emissions associated with fossil fuel-based electricity generation elsewhere. As such, this issue is scoped out of the EIA and no assessment of air quality and climate change is proposed as part of the EIA Report.

14. Accidents and Disasters

14.1 Introduction

The EIA Regulations require the consideration of the potential risks to human health, cultural heritage or the environment associated with the vulnerability of the Grid Connection to accidents and disasters. This requirement is interpreted as requiring the consideration of low likelihood/ high consequence events which would result in serious harm or damage to environmental receptors.

14.2 Baseline Conditions

Given the nature of the Grid Connection, the potential for effects related to the vulnerability to accidents and disasters are likely to be limited to those associated with unplanned power outages, due to extreme weather or structural damage.

Crisis management and continuity plans are in place across SP Energy Networks. These are tested regularly and are designed for the management of, and recovery from, significant energy infrastructure failure events. Where there are material changes in infrastructure (or the management of it) additional plans are developed.

14.3 Likely Significant Effects

Relevant types of accident/disaster, given the predominantly rural context of the Grid Connection, include:

- severe weather events, including high winds, high rainfall leading to flooding, or extreme cold leading to heavy snow and ice loading;
- wild fire;
- traffic related accidents; and
- mass movement associated with ground instability.

Severe weather resilience is a core component to the network design, and includes consideration of flooding resilience, overhead line design and vegetation management to reduce the risk of unplanned power cuts.

In the event of an unplanned power cut, significant effects are considered unlikely. Effects are likely to be short term and essential services e.g. medical facilities, are likely to have some form of backup generation.

14.4 Issues Scoped Out

Vulnerability of the development to risks of major accidents and/or disasters will be scoped out of the EIA on the basis that there are no associated potential significant effects to human health, cultural heritage and the environment.

15. Summary of EIA Scope

This Scoping Report has considered the potential for likely significant effects with reference to the factors set out in Regulation 4(3) and Schedule 4 of the EIA Regulations. Based on a review of the baseline environmental sensitivity and the nature /scale of the Grid Connection, there are several topics that are considered to be not significant and will be scoped out from further consideration within the EIA process. Table 15-1 lists each topic and the elements scoped in and out from further assessment.

Table 15-1. Scoping Summary

Topic	In	Out	Comments
Ecology and Ornithology			-
Archaeology and Cultural Heritage			-
Landscape and Visual Amenity			-
Geology, Soils and Mining			-
Hydrogeology and Hydrology			-
Noise			-
Transport			Construction phase impacts to be assessed only; operational vehicle movements will be inconsequential.
Recreation, Tourism and Socio-Economics			-
Land Use and Agriculture			-
Air Quality and Climate Change			-
Amenity and Health			-
Accidents and Disasters			-

16. Next Steps

SPEN invites consultees to comment on the content and the conclusions drawn within this Scoping Report, particularly the approach to and scope of the assessments proposed. Where consultees have relevant data or information that would further support the assessment this should be identified.

Reponses to this document, and from ECU, will be used to finalise the terms of the EIA and the specific approach to the individual assessments.

All responses should be addressed to:

Energy Consents Unit
Scottish Government
4th Floor
5 Atlantic Quay
150 Broomielaw
Glasgow
G2 8LU
Econsents_Admin@gov.scot

All comments received will be placed on public record unless consultees request otherwise.

Appendix A Consultation Summary Report

Heathland Wind Farm Grid Consultation

Report on Consultation

September 2023

Land & Planning

Prepared for:

SP Energy Networks

Prepared by:

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Figures

Images

Glossary

BNG	Biodiversity Net Gain
CEGB	Central Electricity Generating Board
EIA	Environmental Impact Assessment
EMF	Electro and Magnetic Fields
km	Kilometre
kV	Kilovolt
NGC	National Grid Company
NGET	National Grid Electricity Transmission
Ofgem	Office of Gas and Electricity Markets
OHL	Overhead line
SAC	Special Area of Conservation
SHETL	Scottish Hydro Electric Transmission Limited
SPEN	Scottish Power Energy Networks
SPT	Scottish Power Transmission Plc
SSSI	Sites of Special Scientific Interest
UGC	Underground cable

1. Introduction

Document Purpose

Scottish Power Energy Networks (SPEN) proposes to construct a new wood pole 132 kilovolt (kV) overhead line (OHL) supported by wood poles to connect Heathland Wind Farm to the electricity transmission system at Wishaw Substation. Heathland Wind Farm is located approximately 10 km southwest of West Calder, West Lothian and approximately 15 km east of Wishaw, North Lanarkshire with the grid connection extending to the east to Wishaw Substation located within Wishaw.

This Report on Consultation includes a summary of the Round One consultation activities undertaken to engage with local communities, as well as responses taken to this consultation. The consultation period ran from 22nd May to the 19th June 2023, and included several public consultation events and as well as a virtual consultation. Round One consultation related to the process of routeing and the identification of a preferred route option. This Report on Consultation should be read in conjunction with the Routeing and Consultation Document[1] which sets out the approach to routeing and the findings of the options appraisal work undertaken. A subsequent round of consultation, Round Two, will take place to engage the community on the detailed route alignment.

Project Background and Need

SPEN are legally obliged under the Electricity Act 1989 to provide grid connections to new electricity generating developments and have been approached by the developer for Heathland Wind Farm to provide a grid connection to the wider electricity transmission network.

ScottishPower Transmission Plc (SPT) is required under the Electricity Act 1989 and under the terms of its Electricity Supply Licence "*to develop and maintain an efficient, co-ordinated and economical system of electricity transmission*". SPEN, acting on behalf of SPT, stated view is that wherever practical, an OHL approach is taken when planning and designing new lines.

As a result, SPEN are proposing to construct a new 132 kV OHL between Heathland Wind Farm and Wishaw Substation.

Structure of the Report

The remaining sections of this report are structured as follows:

- Section 2 describes the overall SPEN approach to routeing; and
- Section 3 describes the comments made by the public during the preferred route option consultation period between May and June 2023 and the responses to those comments by SPEN.

[1] Routeing and Consultation Document is available on the project website: https://www.spenergynetworks.co.uk/pages/heathlands_wind_farm_connection.aspx

2. SPEN Approach to Routeing

Overview of Routeing Process

In 2015, as part of a wider industry review involving Government and the Office of Gas and Electricity Markets (Ofgem), SPEN reviewed its approach to routeing. This review concluded that the requirement to balance statutory duties and licence obligations comprising economic, technical and environmental factors continues to support the development of an OHL in most circumstances. However, SPEN also concluded that there are certain circumstances in which development of an underground cable (UGC) should be considered.

SPEN undertook a further review of their approach in 2020 as part of preparing their RIIO-T2[2] Business Plan which reaffirmed these conclusions. As part of the review SPEN consulted on and published an updated version of 'Approach to Routeing and Environmental Impact Assessment'[3] which describes their general approach to routeing new electricity transmission infrastructure.

The basic premise of the approach set out by SPEN is that the main effect of an OHL is visual and that the degree of visual impact can be reduced by careful routeing; for example by using topography and trees to provide screening and/or background to the OHL and by routeing the OHL at a distance from settlements and roads. In addition, OHL routeing takes into account other environmental and technical considerations and will avoid, wherever possible, the most sensitive and valued natural and man-made features.

Routeing Strategy Methodology

Overview

The approach to identifying and assessing alternative route options for the grid connection is illustrated below in **Figure 1**. It follows SPEN's approach and draws upon established practice ensuring that it is robust and transparent. It is a systematic and iterative approach in which an increasing level of detail is applied at each step concluding with the identification of a preferred route option to be subject to consultation.

There are broadly three key activities, firstly informed by Steps 1 to 3, the definition of a routeing strategy specific to the grid connection, secondly in Steps 4 to 6 the identification and assessment of route options based on the strategy concluding with a preferred route option and finally consultation on the preferred route option through Steps 7 to 9. Steps 4 to 7 ensure that route options are tested and

[2] RIIO-T2 is the current price control and runs from April 2021 to March 2026. RIIO stands for 'Revenue = Incentives + Innovation + Outputs'. It's a framework used by Ofgem to ensure that network companies, like SPEN, provide a safe and reliable service, value for money, maximise performance, operate efficiently, innovate and ensure the resilience of their networks for current and future customers.

[3] https://www.spenergynetworks.co.uk/userfiles/file/SPEN_Approach_to_Routeing_Document_2nd_version.pdf

refined taking into account the routeing strategy as well as feedback received from consultation with key statutory stakeholders.

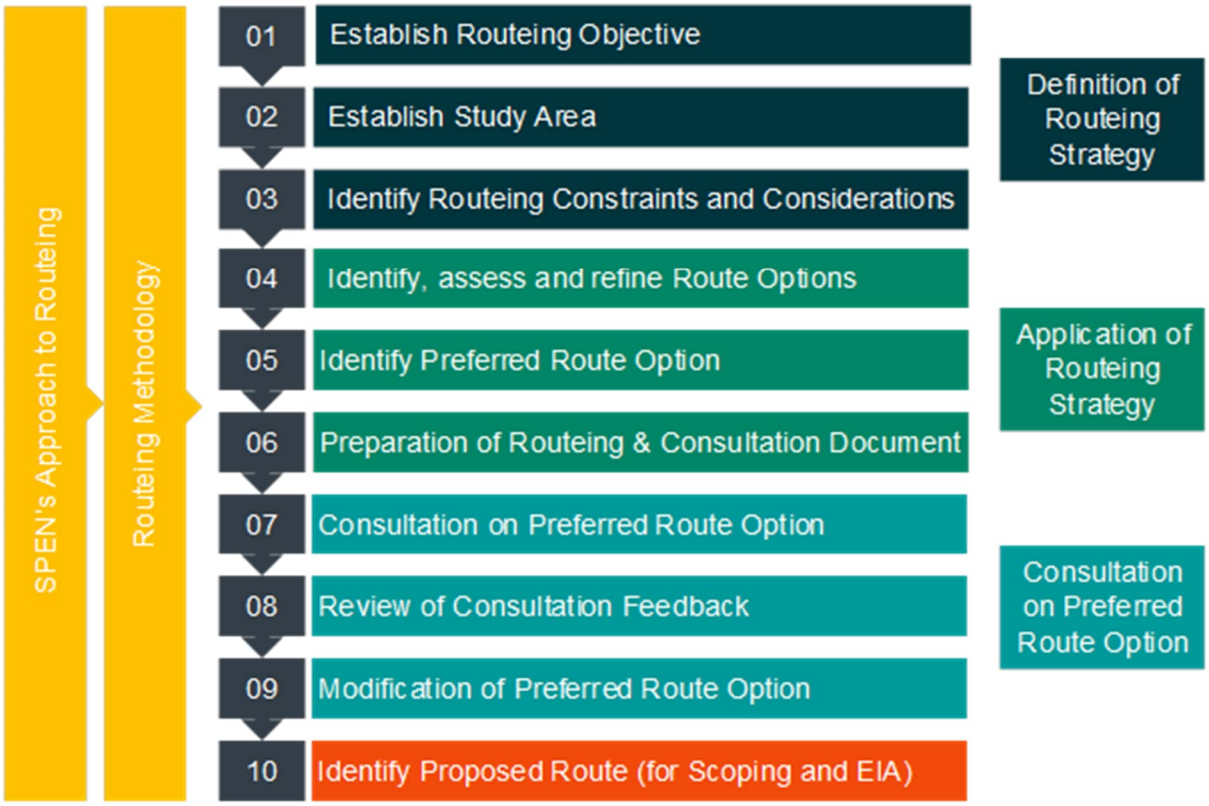


Figure 1. Routeing Methodology

Routeing Objective

The objective of the route selection process is to identify a technically feasible and economically viable single circuit 132 kV overhead line route, supported on wood poles, between the consented Heathland Wind Farm and the Wishaw 400 kV Substation which causes, on balance, least disturbance to the environment of the study area and the people who live, work and enjoy recreation within it.

Established Practice for Overhead Line Routeing

In 1959, Lord Holford, then advisor to the Central Electricity Generating Board, developed a series of guidelines with regard to the routeing of high voltage OHLs which have subsequently become known as the “Holford Rules” (‘the Rules’). It is generally accepted across the industry that the Rules should continue to inform the routeing of high voltage OHLs.

The basic premise of SPEN’s general approach draws on the Rules including avoidance of areas of highest or high amenity value where possible as well as consideration of landform, topography, and vegetation in order to reduce landscape and visual effects.

Routeing Considerations

OHLs are linear elements in the landscape. They are likely to affect, to varying degrees, visual and other environmental aspects of the area through which they run. This part of the process predominantly comprises information gathering and consideration of the potential for effects.

The initial stage is to determine a study area and gather baseline information within this area through desk-based studies, site visits, and consultations in order to identify potential constraints to, and opportunities for routeing.

To define a route that meets the requirements of the Electricity Act 1989, a balance must be struck between three sets of considerations:

- Economic;
- Technical; and
- Environmental.

In compliance with Schedule 9 of the Electricity Act 1989 the routeing objective requires the proposed connection to be economical. It is understood that this is interpreted by SPEN as meaning that as far as possible, and all other things being equal, the connections should be as direct as possible and the route should avoid areas where technical difficulty, such as altitude, slope angle, existing infrastructure and large water bodies, or compensatory schemes would render the connection uneconomical. The technical considerations mentioned above are not considered as being absolute constraints but are a guide to routeing.

Environment Considerations

Statutory duties imposed by Schedule 9 of the Electricity Act 1989 require licence holders to seek to preserve features of natural and cultural heritage interest and mitigate where possible, any adverse effects which a development may have. Experience across the electricity industry shows that an overhead transmission line is likely to affect to varying degrees the following:

- Landscape and visual amenity;
- Ecology, ornithology and nature conservation;
- Geology, hydrogeology and hydrology;
- Cultural heritage; and
- Forestry and woodland.

Other considerations which may affect routeing to a greater or lesser degree include:

- Planning allocations and major applications;
- Noise;
- Traffic (including access for construction);
- Land Use; and
- Socio-economics (tourism and recreation).

Study Area and Routeing Considerations

Study Area

The extents of the Study Area have been informed by a combination of desk and field-based analysis coupled with an understanding of the need to balance potential adverse environmental effects with technical feasibility and economic viability.

The Study Area has largely been defined by the location of Heathland Wind Farm in the east and an approximate 20 km long section to Wishaw 400 kV Substation to the west. The Study Area lies within North Lanarkshire, South Lanarkshire and West Lothian. The highest elevations across the route reach around 350 m.

Key Routeing Considerations

Key routeing considerations are those that have been that have informed the development of Route Options. These typically comprise large designated sites of international or national importance as well as larger settlements or areas of existing development which are considered to be areas of the highest or high environmental value within the Study Area, or areas where routeing is not technically feasible.

Within the Heathland Study Area this includes:

- The Clyde Valley Woods SAC and Garrion Gill SSSI are to the east of the A71 at Overtown in the west of the Study Area. The Clyde Valley Woods, and some adjacent pockets of woodland, are on the Ancient Woodland inventory.
- Settlements to the west including Wishaw, Carluke and surrounding villages such as Newmains, and the village of Forth to the east. The settlements of Wishaw and Forth contain a number of listed buildings.
- The extensive coverage of existing wind farms present to the centre and east of the Study Area, including Tormywheel Wind Farm, Blacklaw Wind Farm and its Blacklaw Extension Wind Farm. The Study Area also has applications in place for additional wind farms which are in various stages of the application process.

In addition to the above, there are a number of other designated sites which are considered to be of highest or high environmental value within the Study Area, however, these tend to be smaller in size and more widely dispersed. This does not diminish their importance within the routeing study but does mean when developing larger route options, they may be avoidable. Further details regarding key routeing considerations can be found in the Routeing and Consultation Document.

3. Route Consultation

Public Consultations

SPEN is embracing best practice as promoted by Scottish Government Energy Consents and Deployment Unit's and which encourages applicants to engage with stakeholders and the public in order to develop their proposals in advance of the application being made. SPEN has also embraced Scottish Government Planning Advice Note 3/2010 on Community Engagement. This guidance describes engagement as:

> *"…giving people a genuine opportunity to have a say on a development plan or proposal which affects them; listening to what they say and reaching a decision in an open and transparent way taking account of all views expressed."*

SPEN propose to carry out two rounds of consultation with stakeholders and the public prior to submitting any future planning application. For the first round of consultation, events were held in Netherton and Forth in May and June 2023 to present and consult on the preferred route option for the proposed grid connection. Prior to these events SPEN sent a letter to landowners within the preferred route option notifying them of the development and inviting them to comment. The events were advertised in the following local newspapers:

- Wishaw Press on the 31st May and on their website for 28 days;
- East Kilbride News on the 31st May and on their website for 28 days; and
- Carluke & Lanark Gazette and on their website on the 24th May.

Notice of Public Consultation Event –Heathland Wind Farm Connection

SP Transmission is holding public consultation events to invite members of the local community and other interested parties to find out more about its proposal to construct an overhead line for a length of approximately 22 km from the consented Heathland Wind Farm to Wishaw substation.

Public consultation events will be held on the following dates and times:
30th May at Netherton Community Centre, between 12.00 and 20.00
31st May at Netherton Community Centre, between 09.30 and 18.30
8th June at Forth and Wilsontown Bowling Club, Forth, between 13.00 and 18.00

At the events interested parties will have the opportunity to learn more about the Project and provide feedback to SP Transmission. Interested parties wishing to make a comment can do so from 22nd May until the 19th June by the following:

- Email: heathlandprojectmanager@spenergynetworks.co.uk
- Web address: spenergynetworks.co.uk/pages/heathlands_wind_farm_connection
- Post: Heathland Wind Farm Connection Project, Land and Planning Team, SP Energy Networks, 55 Fullarton Drive, Glasgow, G32 8FA
- Telephone: 07516 461129

Please be aware that comments made to SP Transmission are not representations to the Energy Consents Unit (ECU). When the application is submitted there will be an opportunity to make representation to the Energy Consents Unit as part of the planning process.

Image 1. Newspaper advert text

Image 1 shows the advertisement that was published in the Carluke & Lanark Gazette. An email was also sent to local community councils to notify them of the preferred route option, where community councils were established, known and contact information could be obtained. This included Central Wishaw, Newmains and District and Overtown and Waterloo Community Councils.

Image 2. Article as included in the Carluke & Lanark Gazette

3.1 The public consultation events were held in the following locations on the following dates:

3.2 Netherton Community Centre

- 30th May 12.00 – 20.00
- 31st May 09.30 – 18.30

3.3

3.4 Forth and Wilsontown Bowling Club

- 8th June 13.00 – 18.00

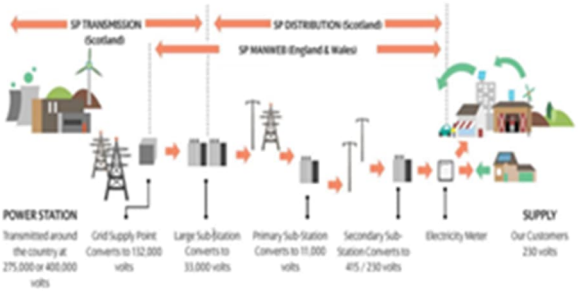
At these events there were a number of information boards providing details on the development, the approach to routeing and the rationale behind the preferred route option. **Image 3** shows two of the boards presented at the consultation events. The events were also attended by members of the grid connection team who introduced the grid connection and answered questions relating to the routeing approach and the preferred route option, see **Image 4**. Attendees were able to provide their opinions on the grid connection using the feedback forms available at the consultation events or directed to the project website and email address to submit their opinions and feedback in their own time.

About SP Energy Networks

SP Energy Networks is part of the Scottish Power group of companies. It owns three regulated electricity network businesses in the UK including SP Transmission (SPT), SP Distribution and SP Manweb.

These businesses are 'asset-owner' companies holding the regulated assets and Electricity Transmission and Distribution licenses of Scottish Power. As part of this, SP Energy Networks operates, maintains, and develops the network of cables, overhead lines and substations which transport electricity to connected homes and businesses in Southern and Central Scotland.

Under Section 9 of the Electricity At 1989 SP Energy Networks has a legal duty to safeguard electricity supplies by keeping its network up to date and to enable new connections for the generation and supply of electricity.



SP ENERGY NETWORKS

About the Project

Need for the Project

SP Energy Networks received a request to provide a grid connection for the consented Heathland Wind Farm. The connection is required to allow the consented Heathland Wind Farm to input to the electricity network. To comply with its statutory and license obligations SP Energy Networks must provide the consented Heathland Wind Farm with a connection to the transmission system.

Our Proposals

The proposal involves an overhead line supported on wood poles located between the consented Heathland Wind Farm and Wishaw Substation, situated across the unitary authority boundaries of South Lanarkshire, North Lanarkshire, and West Lothian. The grid connection would be approximately 22km in length, subject to final routeing.

Wood Pole Structure

The wood poles overhead line is proposed to be supported with galvanised steelwork cross arms supporting aluminium conductors on insulators. These are suitable for supporting single circuit lines operating at 132kV.

Whilst wood poles have a standard height above ground of 15m, these can be extended or reduced in height, as required. Pole heights may require to be increased where circumstances dictate, e.g. over elevated land, structures or features.

The distance between wood poles will average between 80m to 120m but can be increased if there is a requirement to span a larger distance due to the presence of a feature in the landscape such as a river or loch.

The precise pole configuration, height and span will be determined after a detailed line design. This overhead line design has been determined following a detailed review of the engineering and technical requirements for the connection.

The photographs below show a trident 'H' pole and typical trident wood pole structure.

SP ENERGY NETWORKS

Image 3. Example consultation boards from public consultation events

Image 4. Photos from the public consultation events (Forth and Wilsontown Bowling Club, left; Netherton Community Centre, right)

Virtual Consultation

A virtual consultation room was set up for members of the public who were unable to attend the public consultation events. The virtual consultation room displayed an online version of the in-person consultation boards, see **Image 5** and **Image** 6. Access to the Routeing and Consultation Document and associated figures was also available via the virtual consultation room, along with a link to the online feedback form.

Furthermore, people could also comment on the grid connection via phone to the SPEN Project Consultation Contact Centre, by email and by post. The deadline for all feedback was at 17.00 on the 19th June 2023.

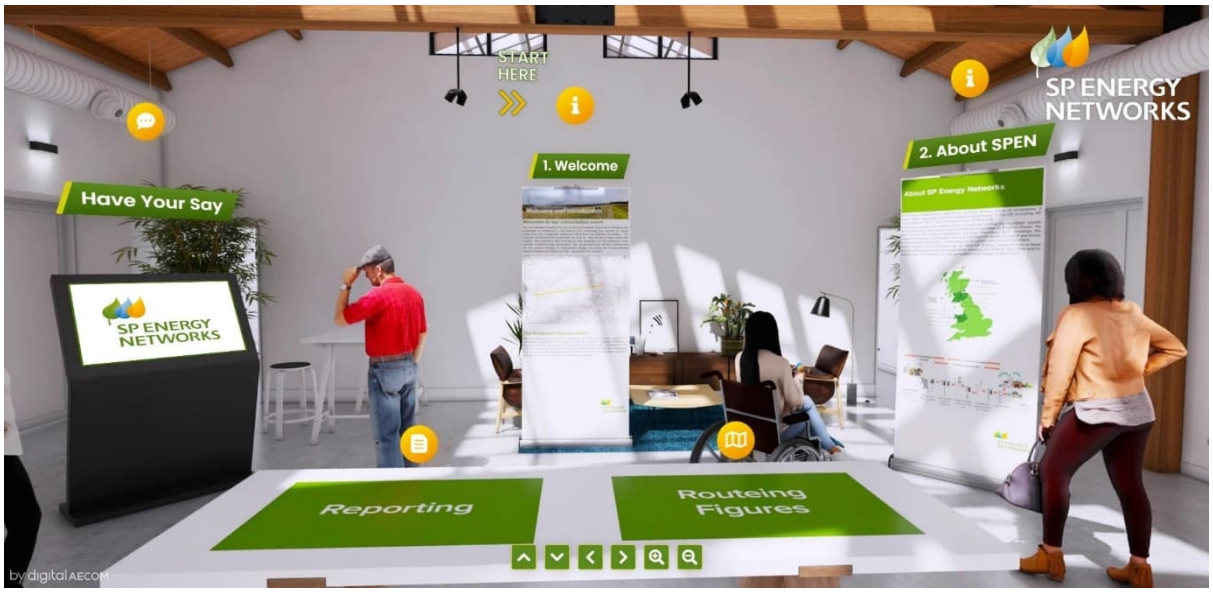


Image 5. Virtual consultation room

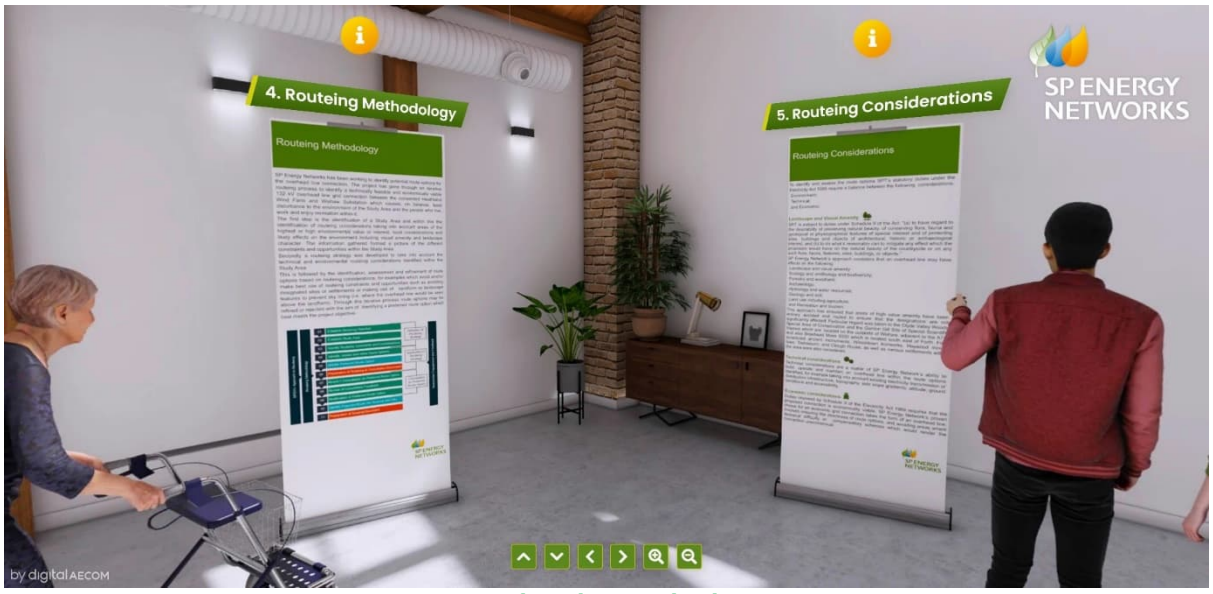


Image 6. Virtual consultation room

Public Consultation Comments

Feedback form

All attendees to the exhibitions were encouraged to complete a feedback form. This form was available as a hard copy at the public consultation events, and via the project website and the vestural consultation website for completing online. Below is an overview of the questions that were raised and a summary of the responses received.

Question 1 on feedback form:

'If you would like us to keep in touch regarding this project, please provide your contact details below. If you would rather remain anonymous, please move to the next question.'

Everyone that submitted a feedback form provided contact details.

Question 2 on feedback form:

'Do you have any comments regarding the rationale for the project?'

A summary of the main comments received is provided below:

- One respondent stated that they understood the need for the grid connection; and
- One respondent raised concerns regarding the rational for the project stating there was some 'poor thinking' behind it; and
- One respondent raised concerns regarding the preferred route option.

Question 3 on feedback form:

'Do you have any other comments regarding our proposed preferred route?'

A summary of the main comments received is provided below:

- Two respondents objected to the preferred route option; and
- One respondent said it would have a 'huge impact on wildlife and the local village'.

Question 4 on feedback form:

'How did you hear about the exhibition?'

Responses were as follows:

- Neighbour;
- Informal Facebook alert; and
- Accidentally.

Question 5 on feedback form:

'How effective was the exhibition in helping you gain an understanding of the selection of the preferred route?'

A summary of the main comments received is provided below:

- Two respondents thought the consultation was informative;
- One respondent stated that the consultation was poor and there was not enough information provided; and
- One respondent thought the consultation was moderately informative.

Question 6 on feedback form:

'Is there any other information that you would find helpful?'

One respondent requested a hard copy of the Routeing and Consultation Document as well as further information regarding environmental survey methods. Another respondent requested ongoing project updates to be sent by post.

Email Responses

In total there were 40 responses sent via email in regard to the grid connection. The majority of responses received through email were complaints that the consultation process could have been more effective, as many felt that there was a lack of direct communication with residents and landowners residing within the preferred route option. A large proportion of people are worried that the OHL may have detrimental effects on local wildlife and existing woodlands. 13% of the responses were concerns that an OHL would have visual impacts on the surrounding landscape.

Online Responses

In total there were 6 online responses in regard to the grid connection consultation. The majority of the responses received included opinions that an alternative route option was favoured over the identified preferred route option. 18% of the responses were complaints about the consultation process with many feeling that there was a lack of direct contact with residents living within or in proximity to the preferred route option, who may be impacted by the OHL.

Overview of all Responses

Every response received during the first round of consultations was reviewed. There were 82 responses in total and **Figure 2** indicates that the majority of concerns were about the consultation events as people felt that they there was a lack of communication with local residents regarding the grid connection. Another concern was that the grid connection would impact local wildlife. A summary of the main issues raised, and the response provided by SPEN is presented in **Appendix A**.

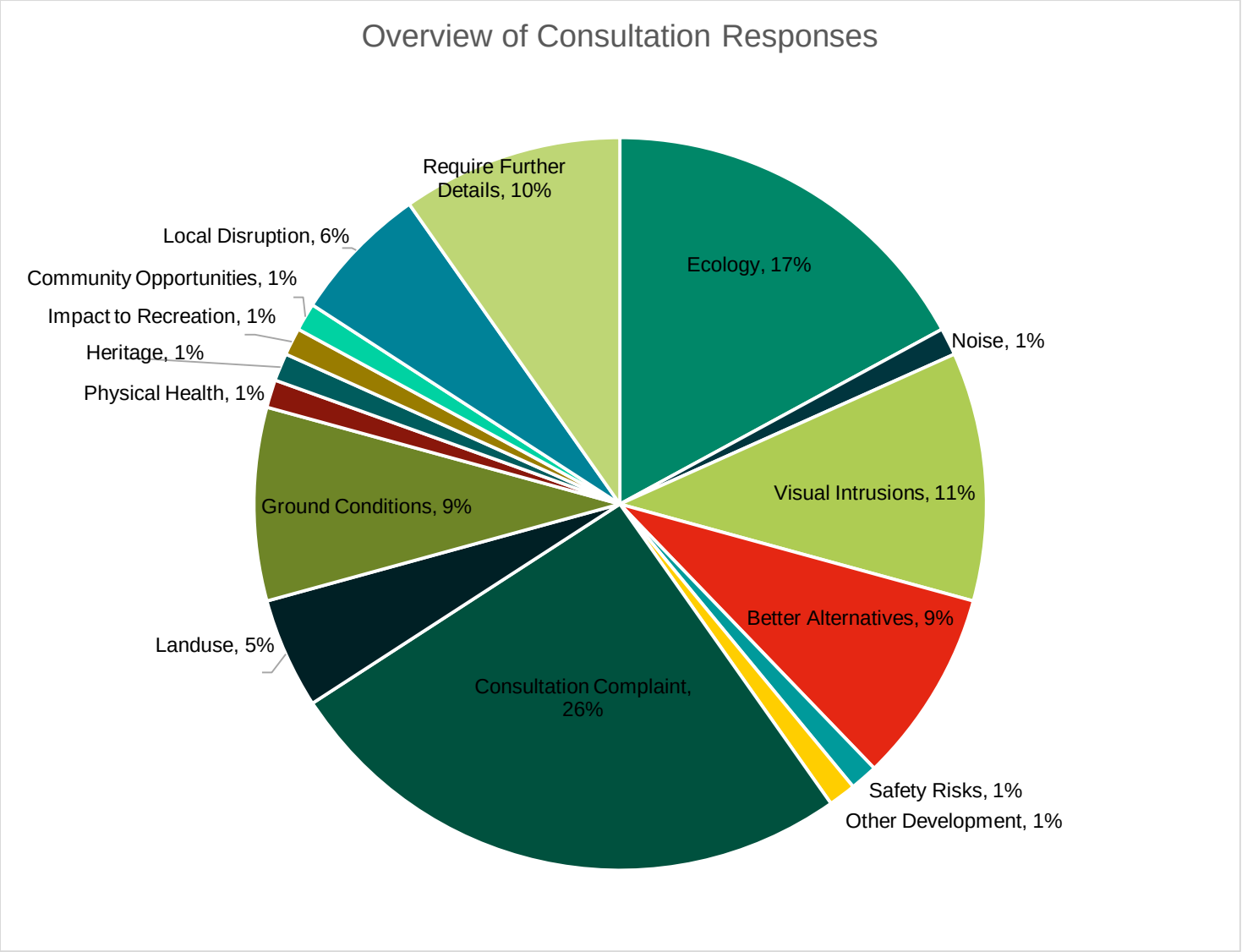


Figure 2. Chart showing all response comments

4. Project Development and Next Steps

Overview of Development to Date

In line with their statutory duties and obligations, following receipt of a request to connect the proposed Heathland Wind Farm to the electricity transmission system, SPEN (on behalf of SPT) have identified and assessed a number of possible route options for the grid connection to Wishaw Substation. This process has aligned with SPEN's Approach to Routeing and Environmental Impact Assessment and follows industry 'Rules' to best avoid of areas of highest or high amenity value where possible as well as consider existing landform, topography and vegetation in order to reduce landscape and visual effects.

Through this identification and assessment process a preferred route option has been identified and presented to members of the public requesting feedback on the process and the outcomes. The feedback as reported within this Report on Consultation, will be fed back into the ongoing design development process. This design development will be informed by further surveys, assessment and consultation.

Scoping & EIA

The next step for the grid connection is to undertake Scoping for the Environmental Impact Assessment (EIA) which is a process of agreeing the extent and method of surveys and assessments to identify and assess the potential effect of the grid connection on the surrounding natural, physical and built environment. This process includes the engagement of statutory consultees, such as local councils, SEPA, Historic Environment Scotland and NatureScot. Discussions with landowners will also continue so that a more detailed route can be defined and is agreed by all parties.

Surveys that will be undertaken to help inform the EIA will include, but not be limited to ecology (flora and fauna) surveys, heritage surveys, as well as visual, noise, ground condition and transport assessments to better understand the potential impacts the OHL may have on the surrounding area. These surveys, along with technical assessments, engagement with landowners and statutory bodies will feed into the refinement of the preferred route option to a preliminary route alignment.

Round Two Consultation & Section 37 Application

After the identification of a preliminary route alignment Round Two of public consultation will be undertaken to present the preliminary route alignment to the wider public to seek comments on the surveys and assessments undertaken and the route identified, similar to Round One consultation. As above these will be held both virtually and in person and will be advertised through similar approaches as Round One taking on feedback received to ensure groups and individuals are informed as far as in advance as reasonably possible.

Feedback from the Round Two consultation events will be reviewed by the project team and revisions to the preliminary alignment made where applicable. This will be done in line with the finalisation of the EIA before submission of the consent application.

SPEN will be applying to the Scottish Ministers for consent under Section 37 of the Electricity Act 1989, as amended, to install, and keep installed, the grid connection. The EIA Report will accompany the application for Section 37 consent, including a Report on Consultation which will include an outline of consultee responses to Rounds One and Two of consultation and also Scoping. At the same time, SPEN will also apply to Scottish Ministers for deemed planning permission under Section 57(2) of the Town and Country Planning (Scotland) Act 1997, as amended, for the grid connection including ancillary development. While the Scottish Ministers will be responsible for the decision to approve the grid connection or not, in reaching their decision they will consult with statutory stakeholders and members of the public.

Appendix A Consultee Responses

Issue	Response
Ecology	
Will the development have a negative impact on birds and local wildlife within the area?	Extensive environmental surveys including bird surveys will be undertaken within the area and will form part of the EIA. Within the EIA Report there will be an ecology chapter that will use the surveys to form a decision as to whether mitigation is necessary to prevent any negative impacts to the local wildlife.
The preferred route option runs close to Braehead Moss SSSI, have you considered the potential implications the grid connection may have upon the protected site?	During the routeing process all statutory and non statutory environmental sites are taken into consideration so that they can be avoided by potential route options. We are aware of Braehead Moss SSSI, which is also a Special Area for Conservation (SAC), and has been reported in the Routeing and Consultation Document. Route options avoid the site and therefore no direct impacts will result from any future OHL however the EIA, as informed by further surveys, will need to assess the potential indirect, secondary and cumulative effects on this site where these are regarded to be applicable.
Will areas of woodland need to be cleared?	Some areas of woodland may need to be cleared, however with further routeing still to be undertaken following further technical and environmental surveys and assessment, the preferred route option will aim to find a route that minimises the amount of woodland clearance needed. Where areas of woodland cannot be avoided these impacts will need to be mitigated, and accounted for in the Biodiversity Net Gain (BNG) assessment to ensure that there is no net loss in biodiversity as a result of the grid connection.

Issue	Response
Noise	
Will the development emit any noises once it is operational?	Operating OHLs generate audible noise often heard as crackling sounds, the level of which depends upon the operating voltage and the choice of conductor system. For a single circuit 132 kV routed on wooden poles, as per the proposed grid connection, audible noise would only be perceptible to an observer standing directly beneath the line, therefore there are no significant effects anticipated associated with operational noise.
Visual Intrusion	
Will the development negatively affect the value of properties in the area?	We recognise that the presence of an OHL near communities can impact the visual amenity of the area and our approach is to maximise the distance of the final route from properties wherever possible, including the principal views from properties.
There are concerns that the OHL will negatively impact the surrounding landscape, how do you plan to mitigate these impacts?	Through detailed routeing and 'pole-spotting' (i.e. planning out the location of each wood pole along the route) consideration will be given to the surrounding landscape and how the OHL will be viewed within the landscape. Routeing will utilise the existing landform and features within the landscape to mask or screen the OHL and reduce its prominence. This may be by siting poles on utilising lower elevations to reduce their height and prevent them dominating a skyline, or by routeing along woodland edges to provide a backcloth or screen the OHL from some viewpoints. Routeing will follow industry guidelines, namely the 'Holford Rules' which set out principles for protecting the amenity of local communities.

Issue	Response
Better Alternative	
What is the rationale behind choosing Route option A4 as the preferred route option?	The preferred route option is deemed to present the best on-balance option for the Heathland Wind Farm grid connection based on the constraints identified within the Study Area. This option, utilising route options A4, A3/A4, B1/B2 and B1 which is technically feasible and economically viable and, relative to other route options, avoids or reduces impacts on the environment and people who live, work and undertake recreational activities in the area as far as possible. Route options A4 and A3/A4 offer the opportunity to reduce environmental impacts from reduced woodland removal, avoided technical constraints associated with interfaces with existing wind turbines and other existing utilities, including 400 kV and 132 kV and allowed for the avoidance of key routeing considerations identified within the Study Area. Whilst there are likely to be visual impacts on some receptors, these are balanced against the impacts to other receptors along or adjacent to the other route options and consideration given to the opportunities to minimise these impacts during the detailed routeing phase. Route options B1/B2 and B1 were identified as the preferred option as these also limit the potential for native woodland tree removal and increases the separation distance between the OHL and the Garrion Gill SSSI which is immediately adjacent to route option B2.
Why have you not chosen a more direct route as the preferred option?	Whilst a direct alignment between the wind farm and the point of connection to the existing electricity transmission system would likely present the most economic option, routeing must account for environmental sensitivities and technical constraints to meet SPEN's statutory duties and the routeing objective. The preferred route option is the best on-balance option and therefore may not always be the most direct option.

Issue	Response
Safety Risks	
There are very strong winds in the area, are the poles able to withstand more extreme weather conditions?	The foundations of the wood pole lines will be designed to take account of existing ground conditions and will consider the current environment as well as future predicted changes as a result of climate change, this includes pressure from stronger winds, increased rainfall intensity and larger ranges in maximum and minimum temperatures. Different aspects of the OHL design, such as the wood pole, the conductors (cables), and insulator discs all have different susceptibility to changing weather patterns and the operational management and maintenance of these assets will account of this to ensure that, where necessary, inspections and repairs take place in advance of any potential damage or failing.
Other Developments	
Will the development be constructed through other proposed development sites?	The grid connection will not impact any of the other proposed developments in the area.
Land use	
The preferred route option runs across my farm land, will the OHL impact my livestock?	During construction livestock will likely need to be moved or held in smaller sections of existing field boundaries to allow for wood pole installation and conductor stringing (i.e. installation of the overhead cables). This is for the safety of the livestock and the construction workers. This will only be temporary whilst works are undertaken in a given area and landowners will be consulted pre-construction on phasing and the best approach for access and maintaining operations where possible on a field-by-field basis.

Issue	Response
	During operation of the OHL there will be no impact to livestock, with all land other than the areas required for the wood poles being reinstated to their former use.
Ground Conditions	
The community are concerned that the preferred route option passes through areas of geologically unstable mining land, have you taken this into consideration?	Historic shallow and surface mining areas are present throughout the Study Area, and due to the spread of mining activity in the region this cannot be avoided. During the design development process ground investigations will occur if we deem it necessary, to better understand the ground conditions and inform the appropriate 'pole-spotting' along the detailed design alignment. There will also be a chapter on the geology and hydrogeology of the area within the EIA Report which will discuss the potential impact of the project to local conditions and the risks of the ground conditions to the project, as well as identifying whether mitigation is needed.
Health	
It is known that electric cables produce electro and magnetic fields (EMF) that may impact human health. Can you provide more details on the matter?	EMFs are present wherever electricity is used and this is inherent in the laws of physics. EMFs can be harmful at high levels, however the fields required to start interfering with the body's nervous system are much greater than those produced by the UK electrical network. EMF measurements recorded during surveys of the electrical network are well within the UK governments guidelines which are set based on the advice provided by the Health Protection Agency.

Issue	Response
Heritage	
Will this development effect the historically important mining village of Haywood and Wilsontown Iron works? And if so, how do you plan to mitigate these effects?	The project acknowledges the importance of the industrial past that influences the area around Forth village, and the scheduled monuments of Wilsontown iron works, the Haywood mining village, the bell pits at Cleugh House and the horse engine platform at Tashieburn all in proximity of the preferred route option. Each of these sites however is located outside of the preferred route option and therefore no direct impacts to these sites will be realised. Indirect effects on the setting of these sites will be considered during the EIA and will be considered in the detailed design of the grid connection to best avoid or minimise potentially negative impacts. It is expected that with appropriate routeing of the OHL no further mitigation will be necessary.
Consultation Complaint	
A number of landowners and residents located within the preferred route option were not notified of the grid connection proposals and the consultation events. Going forward, how do you propose to consult with local residents?	The public consultation events were advertised in paper and online in the Wishaw Press, East Kilbride News, and the Carluke & Lanark Gazette. A letter was sent to landowners within the area as well as community and local councils notifying them of the grid connection and inviting them to the public consultation events. We are aware that some landowners and residents situated within the preferred route option did not receive a letter. Our landowner information is based on the information held by the Scottish Land Registry which may be out of date or not fully accurate, and we have advised our external consultants who conduct the land search of this. Through this first round of public consultation our project mailing list has also been updated with the feedback received to ensure that those that project updates can be issued via letter or email. Going

Issue	Response
	forward we will continue to utilise various means of advertisement for round two consultation events, including lettering, email, project website updates, and local newspaper adverts.
Why was the consultation period so short and will there be another chance for me to express my views?	The consultation period started on the 22nd of May and ran to the 19th of June 2023. During this time there were three public consultation events that were advertised in three newspapers and online. There was also a virtual consultation room that people could access and provide feedback. Yes, there will be another chance for you to express your views in the second round of public consultation events which we will inform you about in due course. Following the second round of consultation the application for consent will be made to the Energy Consent Unit where formal responses the application can be lodged.
Local Disruption	
Will the construction of the development cause disruption to the local communities?	Any disruption during construction is considered to be temporary. It is anticipated that construction works will be complete within an 18 month period. Construction of a wood pole takes place in one single operation, i.e., the hole is dug and the pole erected within the same day depending on ground conditions and location. Angle poles can take longer due to the need for “stay wires” to stabilise the pole in the ground, but these will likely be at in-frequent locations along the route. We would anticipate activities during construction to included 4x4 traffic for general access, crew vans for transporting personnel, with occasional HGV movements for transporting plant and materials to site and fuel deliveries for plant.

Issue	Response
Other	
Can you explain the residential dwelling buffer and its significance?	The 150m residential dwelling buffer is used as an informative tool during the routeing process to develop and assess route options around residential areas and isolated properties. There is however no technical reason that would restrict the development of a wood pole line closer. Guidance within the industry's Holford Rule's places no specific rule on distance but Rule 7 advises to '*Avoid routeing close to residential areas as far as possible on grounds of general amenity*'.
Why can't you connect Heathland Wind Farm to the electricity transmission system at Wishaw Substation via existing OHLs?	The existing OHLs present in the area cannot accommodate further circuits and are also rated at a different voltage. This route is a single circuit 132kV which will be routed on wooden poles.
Community Opportunities	
Are there any plans for landscaping/community enhancement within the effected communities?	There are no plans for landscaping or community enhancements as part of this project. Landscape mitigation will be addressed within the EIA as well as the requirement to provide biodiversity enhancement.

Appendix B The Heritage Gazetteer

Heritage Assets within 250m of the Scoping Route Option

ID	Name/Description	Grid Reference	Distance from Route Option (m)
SM11234	Cleugh House, bell pits and inclined plane 130m SSW of. **Scheduled Monument.**	NS 95365 54040	219.70617
SM9700	Tashieburn, horse engine platform 50m NE of. **Scheduled Monument.**	NS 96123 54725	224.288475
SM9679	Brewshott, limestone quarry. **Scheduled Monument.**	NS 93856 50454	232.933972
LB45577	Thornlie Parish Church Manse, 6 West Thornlie Street, Wishaw. **Category B listed building.**	NS 95472 53982	219.300976
47725	UPPER HAYWOOD	NS 9662 5654	Within Route Option
47739	CLEUCH MILL	NS 95347 53426	Within Route Option
47744	COVANHILL	NS 923 516	Within Route Option
47745	COVANHILL	NS 947 532	Within Route Option
89178	UPPER HAYWOOD, LIMEWORKS	NS 9690 5570	Within Route Option
85785	KING'S LAW, QUARRY	NS 8677 5245	Within Route Option
85782	KING'S LAW, QUARRY	NS 8666 5251	Within Route Option
85737	BOGSIDE	NS 8600 5230	Within Route Option
85740	BASHAW	NS 8706 5236	Within Route Option
85741	BASHAW	NS 8726 5225	Within Route Option
79626	LAW HOSPITAL	NS 8359 5329	Within Route Option
85744	MIDDLEHOPE FARM	NS 8915 5222	Within Route Option
85742	BASHAW, QUARRY	NS 8742 5235	Within Route Option
85790	KING'S LAW	NS 8722 5220	Within Route Option
85736	BOGSIDE	NS 8552 5239	Within Route Option
85738	KINGSHAW MOSS, RIFLE RANGE	NS 8651 5230	Within Route Option

ID	Name/Description	Grid Reference	Distance from Route Option (m)
85783	KING'S LAW, QUARRIES AND CLAMPS	NS 8715 5246	Within Route Option
85787	THORNMUIR	NS 8817 5243	Within Route Option
85789	KING'S LAW	NS 8715 5224	Within Route Option
93921	TASHIEBURN	NS 96497 54504	Within Route Option
93931	PARKHOUSE, TASHIEBURN	NS 9657 5482	Within Route Option
93933	HAYWOOD	NS 9679 5493	Within Route Option
93934	HAYWOOD SCHOOL	NS 9682 5496	Within Route Option
93700	HAYWOOD COLLIERY, PIT NO.4	NS 9675 5442	Within Route Option
93976	SCHOOL ROW, HAYWOOD	NS 96884 55001	Within Route Option
100605	WILSONTOWN, THE GLEN	NS 96 54	Within Route Option
133381	EAST FORTH	NS 9460 5306	Within Route Option
133382	FORTH	NS 944 528	Within Route Option
133389	LOWER THROUGHBURN	NS 934 520	Within Route Option
133391	COVANHILL	NS 9245 5160	Within Route Option
143177	HAYWOOD	NS 9655 5447	Within Route Option
141765	LAWHEAD	NS 9630 5405	Within Route Option
179812	BURNFOOT	NS 9547 5366	Within Route Option
200882	WATERLOO, PATHER FARM	NS 80219 53781	Within Route Option
219347	CLEUCH MILL, COTTAGE	NS 95358 53242	Within Route Option
283906	YIELDSHIELDS TO FORTH	NS 872 522	Within Route Option
304553	WILSONTOWN OPEN CAST COAL SCHEME	NS 9680 5454	Within Route Option
362433	DUMBARTON, LEVENGROVE PARK	NS 9311 5134	Within Route Option

ID	Name/Description	Grid Reference	Distance from Route Option (m)
85743	HILL OF WESTERHOUSE	NS 8855 5205	2.981585
47727	MOUNTAINBLAW	NS 970 562	13.373327
85748	HOWMUIR	NS 8779 5258	18.437797
93883	TASHIEBURN	NS 963 546	27.795639
82668	STONE ROW	NS 9695 5503	29.512722
47736	LAWHEAD	NS 960 535	29.77777
133394	LOWER THROUGHBURN	NS 9291 5195	29.982289
85798	BOGSIDE	NS 8559 5226	38.360429
93977	HAYWOOD	NS 9692 5476	39.097174
85774	BOWRIDGE	NS 8511 5281	43.773389
85725	KINGSHAW MOSS	NS 8708 5211	47.338938
142911	WILSONTOWN BRANCH	NS 9695 5486	49.651656
120374	BROWSHOTT	NS 9345 5124	52.568455
85728	KINGSHAW MOSS, QUARRY	NS 87258 52082	53.897502
133390	LOWER THROUGHBURN	NS 934 522	55.896076
93911	TASHIEBURN	NS 96376 54794	60.658999
82661	BUGHTKNOWES	NS 9706 5524	68.380707
85816	HILL OF WESTERHOUSE	NS 8861 5198	69.653321
360011	BOWRIDGE	NS 8521 5280	77.272759
85796	BOGSIDE	NS 8573 5263	78.982612
241929	BELSTANE - CASTLECARY	NS 8499 5251	84.040046
46700	HYNDSHAW	NS 844 535	86.746804

ID	Name/Description	Grid Reference	Distance from Route Option (m)
85812	MIDDLEHOPE FARM	NS 8930 5192	89.919805
94027	HAYWOOD	NS 9699 5484	91.739275
179837	WORM LAW	NS 9695 5647	95.745022
85729	KINGSHAW MOSS	NS 8709 5206	96.031355
93901	TASHIEBURN	NS 96196 54571	102.730019
85797	BOGSIDE	NS 8567 5267	102.864731
82660	UPPER HAYWOOD	NS 9666 5544	104.968119
179823	HYNDSHAW	NS 8441 5352	109.034833
85749	HOWMUIR	NS 8802 5264	114.802896
141768	LAWHEAD	NS 9667 5387	120.729249
200893	WISHAW, SOUTH STATION	NS 78885 54321	123.382766
85757	KINGSHILL PLANTATION	NS 842 538	126.15933
85781	KING'S LAW	NS 869 527	133.770034
85732	KINGSHAW MOSS	NS 8627 5211	140.892952
141772	LAWHEAD VIEW	NS 9703 5478	141.2135
93926	TASHIEBURN	NS 96212 54685	146.743738
98769	EAST FORTH ROAD	NS 9474 5368	157.62433
132460	GILLHEAD COLLIERY	NS 8205 5326	168.47793
340635	WATERLOO, OVERTOWN ROAD, WATERLOO WAR MEMORIAL	NS 81015 53888	170.640639
93579	CLEUGH	NS 9540 5392	171.7658
133395	LOWER THROUGHBURN	NS 9267 5230	172.501913
340634	WATERLOO, WISHAW ROAD, WATERLOO MEMORIAL HALL	NS 80920 53939	174.504243

ID	Name/Description	Grid Reference	Distance from Route Option (m)
95769	SKYLAW, UPPER HAYWOOD	NS 9657 5593	179.185791
289830	WILSONTOWN	NS 960 544	184.958542
94028	HAYWOOD STATION	NS 9709 5489	185.11189
85723	KINGSHAW MOSS, HEATHERBELL PIT	NS 8652 5205	188.267214
93673	CLEUGH	NS 95919 54289	198.49036
94030	HAYWOOD	NS 9712 5496	206.608137
85776	BOWRIDGE, MILL POND	NS 8522 5296	211.569401
85734	BELSTONEPLACE	NS 8506 5234	218.46102
47737	CLEUGH HOUSE	NS 95472 53982	219.300976
272987	WILSONTOWN OPEN CAST COAL SCHEME	NS 959 543	220.444325
179817	MOSSPLATT	NS 9158 5147	226.369025
82659	LAMBCATCH RESERVOIR	NS 9650 5678	229.523174
93534	UPPER GUILDHOUSE	NS 9547 5254	236.392521
85727	KINGSHAW MOSS, CURLING POND	NS 8637 5200	245.734225
93891	TASHIEBURN	NS 96115 54720	248.09628
179874	WATERLOO, BURNHALL PACE	NS 8077 5409	249.003481
95776	BUGHTKNOWES	NS 9734 5536	258.879059
85733	BELSTANE BURN	NS 8576 5200	271.5864
47742	MOSSPLATT	NS 916 514	272.499583
320568	HYNDSHAW FARM	NS 84585 53627	291.188788
85775	BOWRIDGE COTTAGE	NS 8520 5317	293.735892
70182	WISHAW, GOWKTHRAPPLE, GENERAL	NS 79130 53658	298.213852

ID	Name/Description	Grid Reference	Distance from Route Option (m)
74165	WISHAW, GARRION C E CENTRE	NS 7970 5324	314.208689
179818	BIRNIEHALL	NS 9080 5292	316.741938
85739	GAIR ROAD	NS 8530 5209	325.274819
99851	CLEUGH BRIDGE	NS 9534 5407	330.919172
85724	KINGSHAW MOSS	NS 8604 5193	332.212083
264287	CLEUCH HOUSE, WALLED GARDEN	NS 95449 54098	337.554632
100021	GREENBANK	NS 9712 5430	342.504555
179880	WEST FORTH CROFT	NS 9351 5290	344.278766
85807	BACK THORNHILL	NS 8715 5180	347.737389
46713	CARLUKE, OLD TOLL HOUSE	NS 841 524	348.905474
94035	HAYWOOD	NS 9726 5489	353.914803
179816	BROWSHOTT	NS 9400 5108	358.506131
94037	HAYWOOD	NS 9726 5481	363.391948
85791	KING'S LAW	NS 8753 5297	375.592734
200068	LAW JUNCTION STATION	NS 82287 53018	378.847805
82662	MOUNTAINBLAW FARM	NS 9745 5600	382.060871
85778	GAIR	NS 8646 5293	383.038402
73886	WISHAW, OVERTOWN, GENERAL	NS 80252 53076	387.020618
46696	CASTLEHILL	NS 843 523	387.345867
217783	FORTH, MANSE ROAD, MANSE	NS 9428 5362	389.214934
228107	WISHAW, STEWARTON STREET, STEWARTON PARK, MARKER POST	NS 80334 54333	396.220247
47738	CLEUCH HOUSE	NS 95416 54155	399.695556

ID	Name/Description	Grid Reference	Distance from Route Option (m)
179820	TANHILL	NS 8958 5158	399.739576
298474	WISHAW, GOWKTHRAPPLE, CASTLEHILL ROAD	NS 7947 5333	404.375106
85745	KING'S LAW	NS 8921 5292	415.817399
85752	KING'S LAW	NS 8775 5299	416.591846
85722	KINGSHAW MOSS, LOCHKNOWE PIT	NS 8630 5183	419.033908
364025	MUIRHEAD DRIVE, LAW, CARLUKE	NS 82125 52985	430.717502
95782	LOAN STREET, HAYWOOD	NS 9743 5516	431.554652
85809	UNDER THORN	NS 8738 5168	438.117014
133386	FORTH	NS 9466 5396	441.014285
95773	HAYWOOD	NS 9758 5548	451.09486
133388	WHITECLEUCH	NS 927 526	453.076168
85808	THORN	NS 8717 5168	464.020996
85780	GAIR	NS 8655 5302	468.962573
179819	WHITECLEUCH	NS 9231 5281	469.50575
315274	WATERLANDS FARM	NS 8275 5295	474.555271
94106	HAYWOOD	NS 9725 5427	475.91045
85795	KING'S LAW	NS 8757 5308	483.919733
85735	BELSTANE TOWN FARM	NS 8512 5200	489.686437
95771	MOUNTAINBLAW	NS 9759 5580	493.582722
95770	MOUNTAINBLAW, QUARRY	NS 9757 5595	494.152788
340636	WISHAW, ALEXANDER STREET, WISHAW SPORTS CENTRE, WAR MEMORIAL	NS 78976 54786	494.700575
74430	FORTH, GENERAL	NS 94102 53621	501.614464

ID	Name/Description	Grid Reference	Distance from Route Option (m)
85794	KING'S LAW	NS 8759 5310	504.025313
85793	KING'S LAW	NS 8760 5310	504.376667
340072	HAYWOOD, WAR MEMORIAL	NS 97425 54908	515.620566
200719	WISHAW, CALEDONIAN ROAD, GENERAL	NS 79352 54690	515.737399
85784	KING'S LAW	NS 8740 5311	521.214916
47740	CLEUGH BRIDGE	NS 9531 5426	522.766571
360130	OVERTOWN	NS 80500 52964	524.835814
133385	FORTH	NS 9485 5415	527.72583
96930	BIRNIEHALL, QUARRY AND CLAMPS	NS 9110 5310	532.562281
120378	BROWSHOTT	NS 9433 5122	543.057265
340071	FORTH, MAIN ROAD, ST PAUL'S CHURCH	NS 94208 53763	545.755157
333038	WISHAW, DIMSDALE ROAD, DRILL HALL	NS 80160 54460	547.786789
93568	CLEUGH BRIDGE	NS 9531 5429	552.116544
95786	HAYWOOD	NS 9762 5526	553.266779
94045	HAYWOOD	NS 97435 54691	555.765862
85765	KING'S LAW	NS 8751 5315	556.302083
132829	GAIR	NS 8590 5308	557.075477
85714	KINGSHAW MOSS	NS 860 517	563.930105
94096	HAYWOOD	NS 9744 5467	565.604521
94098	GREENBANK, HAYWOOD	NS 97433 54616	571.61353
47743	MOSSPLATT	NS 915 511	576.017314
82667	BUGHTKNOWES, OLD MANSE	NS 9763 5523	576.069502

ID	Name/Description	Grid Reference	Distance from Route Option (m)
96156	HAYWOOD, CHURCH	NS 9763 5523	576.069502
133393	BREWSHOTT	NS 932 507	576.508996
85747	KING'S LAW	NS 8945 5310	589.346036
85779	GAIR	NS 8628 5314	600.8071
93570	CLEUGH BRIDGE	NS 9510 5429	602.559082
199535	FORTH, RAVENSWOOD, SSHA HOUSING	NS 9377 5349	607.762765
47735	HAYWOOD	NS 975 547	617.110563
200720	WISHAW, CENTRAL STATION	NS 79258 54875	630.625577
85770	BOWRIDGE	NS 8530 5355	637.081301
132071	CASTLEHILL NO. 6 COLLIERY	NS 8395 5215	640.372271
139889	CHAPEL	NS 8400 5450	641.97113
85813	MIDDLEHOUSE	NS 8913 5137	650.803546
154572	FORTH, CLIMPY ROAD, SSHA HOUSING	NS 937 535	659.44803
85721	KINGSHAW MOSS	NS 8616 5159	665.759357
124475	KING'S LAW	NS 8718 5325	670.824551
138051	WATSONHEAD	NS 8396 5455	675.199841
133373	MOUSE WATER, RIFLE RANGE	NS 9587 5657	680.786521
199534	FORTH, WHAUPHILL, SSHA HOUSING	NS 9376 5359	691.928917
132396	OVERTOWN COLLIERY	NS 7990 5278	703.668062
98941	BIRNIEHALL	NS 9126 5326	712.362332
312452	WISHAW, GAS HOLDER STATION	NS 78459 54742	715.101858
228042	OVERTOWN, MAIN STREET, OVERTOWN PARISH CHURCH	NS 80117 52745	717.54988

ID	Name/Description	Grid Reference	Distance from Route Option (m)
317073	CHAPEL, 324 MORNINGSIDE ROAD, SCHOOL	NS 83424 54567	725.480695
200863	WISHAW, WEST THORNLIE STREET, THORNLIE PARISH CHURCH	NS 79492 54853	728.427539
199532	FORTH, MERLINDALE, SSHA HOUSING	NS 9378 5367	741.703546
228055	OVERTOWN, 148 MAIN STREET. OVERTOWN PARISH CHURCH MANSE	NS 80106 52718	744.511523
98919	WHITECLEUCH	NS 9191 5317	745.688462
264096	WISHAW, WEST THORNLIE STREET, THORNLIE PARISH CHURCH, HALL	NS 79509 54867	749.368082
133511	MOUSE WATER	NS 958 566	751.925916
199537	FORTH, CLOGLANDS, SSHA HOUSING	NS 9356 5351	756.650462
94101	CLARK'S WALLS, HAYWOOD	NS 9764 5467	760.287575
85241	KINGSHAW MOSS	NS 8563 5151	761.836994
333041	FORTH, DRILL HALL	NS 94272 54095	764.234424
85815	KNOWEHEAD	NS 8817 5131	766.177082
200864	WISHAW, 6 WEST THORNLIE STREET, THORNLIE PARISH CHURCH MANSE	NS 79507 54889	766.850136
340070	FORTH, WAR MEMORIAL	NS 94462 54225	768.971846
120375	BREWSHOTT, QUARRY AND CLAMPS	NS 9376 5055	771.220708
283904	BRACKEN HILL FARM	NS 8239 5262	778.699699
72161	CASTLEDYKES - BOTHWELLHAUGH - BALMUILDY (?)	NS 7999 5467	779.694802
95801	HAYWOOD COLLIERY, PIT NO.8	NS 9790 5539	780.053382
72155	CASTLEDYKES - BOTHWELLHAUGH - BALMUILDY (?)	NS 8499 5173	789.06601
73855	WISHAW, NETHERTON, GENERAL	NS 78208 54474	789.350947
94104	HAYWOOD	NS 9759 5434	789.601939
46711	CHAPEL	NS 833 546	791.247734

ID	Name/Description	Grid Reference	Distance from Route Option (m)
45722	WISHAW	NS 7972 5480	791.295638
241928	BELSTANE - CASTLECARY	NS 8520 5161	795.513511
93548	WILSONTOWN	NS 9514 5450	796.587577
199536	FORTH, THE NEUK, SSHA HOUSING	NS 9374 5371	797.944956
95836	MOSSHAT BURN	NS 9790 5578	797.988913
286991	WISHAW, CALEDONIAN ROAD, UNITED PRESBYTERIAN CHURCH	NS 79548 54901	798.995865
139885	CHAPEL	NS 8307 5455	799.350377
133520	ABBEY BURN	NS 927 530	808.902991
85814	WESTERHOUSE	NS 8850 5124	814.498376
46693	CRAWFORD WALLS	NS 857 534	815.402008
120377	BROWSHOTT	NS 9444 5090	817.781977
94108	HAYWOOD COLLIERY, PIT NO.10	NS 9773 5473	839.5595
85769	GAIR RESERVOIRS, LOWER RESERVOIR	NS 8580 5340	842.309033
139884	CHAPEL	NS 8367 5475	847.358135
320567	BELSTANE TOWN FARM	NS 84900 51700	858.054415
333028	WISHAW, MARSHALL STREET, DRILL HALL	NS 78991 55151	858.472316
85720	KINGSHAW MOSS	NS 8607 5140	860.037831
200816	WISHAW, EAST ACADEMY STREET, CHAMBERS PARISH CHURCH	NS 79719 54879	863.750546
133392	NETHERTON	NS 923 504	863.856613
264092	WISHAW, EAST ACADEMY STREET, CHAMBERS PARISH CHURCH, HALL	NS 79694 54889	864.215604
98765	FORTH	NS 9440 5430	864.703206
98766	FORTH	NS 9428 5424	874.662904

ID	Name/Description	Grid Reference	Distance from Route Option (m)
139886	CHAPEL	NS 8338 5471	875.065558
200730	WISHAW, STEWARTON STREET, GENERAL	NS 79882 54808	876.27242
333039	LAW, 46 STATION ROAD, DRILL HALL	NS 82060 52539	878.357767
200862	WISHAW, 147 STEWARTON STREET, COLTNESS MASONIC LODGE	NS 79972 54771	882.153343
85746	KING'S LAW	NS 8855 5337	883.276829
191852	MORNINGSIDE, NEWMAINS BRICKWORKS	NS 8401 5477	900.18629
139891	CHAPEL	NS 8329 5472	909.383892
133376	MOUSE WATER	NS 9564 5647	914.70976
100391	FORTH	NS 9449 5442	925.429626
200689	WISHAW, BRICK AND TILE WORKS	NS 78794 55192	925.997832
85792	KING'S LAW	NS 8838 5341	927.801011
133387	UPPER THROUGHBURN	NS 930 532	929.024764
139887	CHAPEL	NS 8405 5479	931.293394
151169	LAW, TILE WORKS	NS 8318 5231	932.102415
45638	WISHAW, GASWORKS	NS 7929 5519	938.188334
254961	CHAPEL NOS. 1 AND 2 COLLIERY	NS 8405 5480	940.781713
95846	MOSSHAT BURN	NS 9807 5561	944.010961
73880	WISHAW, GENERAL	NS 7962 5503	946.48023
94103	DROVELOAN COTTAGE, HAYWOOD	NS 9783 5467	947.024083
200831	WISHAW, 7 - 13 MAIN STREET	NS 79652 55028	961.982792
240232	WISHAW, 3, 5 MAIN STREET	NS 79662 55023	963.13715
72162	CASTLEDYKES - BOTHWELLHAUGH - BALMUILDY (?)	NS 7970 5500	964.733804

ID	Name/Description	Grid Reference	Distance from Route Option (m)
98751	BACKSHOT, MINE AND QUARRIES	NS 9366 5386	964.954507
240233	WISHAW, 15, 17, 19 MAIN STREET	NS 79644 55038	966.120142
85726	KINGSHAW MOSS	NS 857 513	971.5864
85804	GAIR RESERVOIR	NS 86102 53506	974.334003
97965	ABBEY BURN, QUARRY AND CLAMPS	NS 9245 5330	979.089945
200832	WISHAW, 57-59 MAIN STREET	NS 79589 55089	979.59278
194210	WISHAW, 5 STEWARTON STREET, COMMERCIAL BANK	NS 79726 55001	980.413725
200725	WISHAW, BELHAVEN TERRACE, ST ANDREW'S EPISCOPAL CHURCH	NS 79428 55185	982.886271
200830	WISHAW, 2 KIRK ROAD	NS 79712 55015	983.893201
85764	BENTYHILLOCKS	NS 8706 5356	985.836751
46690	BELSTANE	NS 850 515	987.004688
46691	BELSTANE	NS 850 515	987.004688
167041	WISHAW, 10-16 KING STREET, CONFECTIONERY WORKS	NS 7984 5496	987.206654
331376	LAW	NS 81806 52363	996.699943
191740	CARLUKE, LAW JUNCTION, CARLUKE TILE WORKS	NS 831 523	999.791799

Appendix C Air Quality Construction Mitigation

Table C- 1 sets out industry standard measures that can be readily adopted during construction to prevent and minimise the generation of dust and reduce emissions to air. A combination of these measures will be adopted by the appointed contractor and will be embedded within the Construction Environmental Management Plan.

Table C- 1. Industry Standard Air Quality Construction Mitigation Measures

Mitigation Area	Mitigation Measure to be Incorporated
Communication	• Display the name and contact details of person(s) accountable for air quality and dust issues on the Site boundary. This may be the environment manager/engineer or the Project Manager. • Display the head or regional office contact information of the construction company. • Develop and implement a stakeholder communications plan that includes community engagement before work commences on-site.
Site Management	• Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken. • Make the complaints log available to the local authority when asked. • Record any exceptional incidents that cause dust and/or emissions, either on or off-site and the action taken to resolve the situation in the log book. • Hold regular liaison meetings with other high risk construction sites within 500m of the Site boundary, to ensure plans are coordinated and dust and particulate matter emissions are minimised. It is important to understand the interactions of the off-site transport/ deliveries which might be using the same strategic road network routes.
Monitoring	• Undertake daily on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to the local authority when asked.
Preparing and Maintaining Site	• Plan site layout so that machinery and dust causing activities are located away from receptors, as far as possible. • Erect solid screens or barriers around dusty activities or the Site boundary that are at least as high as any stockpiles on-site. • Avoid site runoff of water or mud. • Fully enclose Site or specific operations where there is a high potential for dust production and the Site is active for an extensive period. • Keep site fencing, barriers and scaffolding clean using wet methods. • Remove materials that have a potential to produce dust from Site as soon as possible, unless being re-used on-site. • Cover, seed or fence stockpiles to prevent wind whipping.
Operating Vehicle/Machinery	• Ensure all vehicles switch off engines when stationary – no idling vehicles.

Mitigation Area	Mitigation Measure to be Incorporated
	• Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable. • Produce a Construction Logistics Plan to manage sustainable delivery of goods and materials. • Impose and signpost a maximum-speed-limit of 15 mph on surfaced and 10 mph on un-surfaced haul roads and work areas. • Implement a Travel Plan that supports and encourages sustainable travel by workers (public transport, cycling, walking and car-sharing).
Operations	• Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction e.g. suitable local exhaust ventilation systems. • Ensure an adequate water supply on the Site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate. • Use enclosed chutes and conveyors, and covered skips. • Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate. • Ensure equipment readily available on-site to clean any dry spillages, and clean up spillages as soon as reasonably practicable after the event, using wet cleaning methods.
Waste Management	• Avoid bonfires and burning of waste materials.
Earthworks	• Re-vegetate earthworks and exposed areas/ soil stockpiles to stabilise surfaces as soon as practicable. • Use hessian, mulches or trackifiers where it is not possible to re-vegetate, as soon as practicable. • Only remove the cover in small areas and not all at once.
Construction	• Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place. • Avoid scabbling if possible. • Ensure bulk cement and other fine powder materials are delivered in enclose tankers and stored in silos with suitable emission control systems to prevent the escape of material and overfilling during delivery.
Trackout	• Access gates to be located at least 10m from receptors where possible. • Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary any material tracked out of the Site. This may require the sweeper being continuously in use. • Avoid dry sweeping of large areas. • Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport. • Record all inspections of haul routes and any subsequent action in a site log book. • Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the Site where reasonably practicable).

Mitigation Area	Mitigation Measure to be Incorporated
	• Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable. • Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned. • Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits.