Sclenteuch Wind Farm Connection

Routeing and Consultation Document

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Made by	**Sophie Scott**
Checked by	**Scott Jamieson**
Approved by	**Fraser McDermott**

Made by: Sophie Scott

Checked/Approved by: Scott Jamieson / Fraser McDermott

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Glossary

132 KV	132 kilo-volt capacity of an electricity power line
AEP	Annual Exceedance Probability
AWI	Ancient Woodland Inventory Scotland
AOD	Above Ordnance Datum
EA	Environmental Appraisal
EALDP	East Ayrshire Local Development Plan
ENA	Energy Networks Association
EIA	Environmental Impact Assessment
GDL	Gardens and Designed Landscape
GWDTE	Groundwater Dependent Terrestrial Ecosystem
HES	Historic Environment Scotland
Holford Rules	A set of 7 rules, first developed in 1959 by Sir William Holford, which define the principles of route selection and which continue to inform transmission line routeing in the United Kingdom.
kV	Kilovolt
LCT	Landscape Character Type
LDP	Local Development Plan
LLA	Local Landscape Area
MW	Megawatt
NFI	National Forest Inventory
NGET	National Grid Electricity Transmission

NPF 4	National Planning Framework 4
NRHE	National Record of the Historic Environment
NWSS	National Woodland Survey of Scotland
OHL	Overhead line
PAN	Planning Advice Note
Planning application	An application for planning permission under the Town and Country Planning (Scotland) Act 1997, as amended by the Planning etc. (Scotland) Act 2006. It should be noted that consent under Section 37 of the Electricity Act 1989 usually carries with it deemed planning permission from the Scottish Ministers under Section 57 of the Town and Country Planning (Scotland) Act 1997.
Preferred Route	The route option which is considered to represent the optimum balance between the various environmental considerations.
PWS	Private Water Supply
Proposed Route	The final route within which alternative OHL route alignments will be defined and appraised.
Ramsar site	Site protected under The Convention on Wetlands, called the 'Ramsar Convention', which provides the framework for the conservation and use of wetlands and their resources.
RES	Renewable Energy Systems Ltd
Route options	A number of possible routes within the study area, for comparative analysis.
Section 37 (s37) application	An application for development consent under Section 37 of the Electricity Act 1989.
SAC	Special Area of Conservation - designated under Council Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora (known as - The Habitats Directive).
SEPA	Scottish Environment Protection Agency
SPA	Special Protection Area – designated under Directive 2009/147/EC on the conservation of wild birds (the Birds Directive).

SPEN	Scottish Power Energy Networks
SPD	SP Distribution plc
SPP	Scottish Planning Policy
SPT	SP Transmission plc
SSSI	Sites of Special Scientific Interest – designated by SNH under the Nature Conservation (Scotland) Act 2004.
Study area	The area of land which comprises the area within which route options will be identified and evaluated.
WFD	Water Framework Directive
Wood pole OHL	An overhead line design specification comprised of either single poles or an 'H' pole configuration. The nominal height of the wood poles is likely to be c.15 m, with a maximum above-ground height of 22 m and a minimum above-ground height of 10 m. The spacing between the poles will vary but will generally be 100 m, with a maximum span length of 150 m.

Executive Summary

Scottish Power Energy Networks (SPEN) proposes to construct a new 132 kilovolt (kV) overhead line (OHL) to connect the proposed Sclenteuch Wind Farm to the existing Coylton Substation. The OHL will be supported on trident wood poles, with an anticipated average span length of between 70 and 100 metres (m) and a height typically between 11 and 16 m.

This Routeing and Consultation Document outlines the process by which a Preferred Route for the OHL has been identified.

The Preferred Route will be selected based on a balance of environmental, technical, and economic factors. The selection of Preferred Route is undertaken by means of a five-stage process as follows.

- Stage 1: development of route options.
- Stage 2: appraisal of route options and selection of a Preferred Route.
- Stage 3: consultation on Preferred Route.
- Stage 4: modification of Preferred Route following consultation.
- Stage 5: selection of a Proposed Route.

The project has currently reached Stage 3 of the above process.

Stage 1 involved environmental baseline data gathering to identify existing environmental features and sensitivities across a study area, which envelopes an area between the proposed Sclenteuch Wind Farm and existing Coylton Substation.

The following environmental features were identified and mapped: sites / features designated at international / European / national level (Special Protection Areas (SPAs); Special Areas of Conservation (SAC); Ramsar sites; Sites of Special Scientific Interest (SSSIs); landscape character types (LCT's); gardens and designed landscapes (GDLs); listed buildings; scheduled monuments; settlements, residential properties and housing allocations; other infrastructure including wind farms (existing and proposed), roads and railways, and existing transmission infrastructure; and recreational amenity features including core paths and tourist accommodation). A sensitivity weighting of high, medium or low sensitivity was defined for each environmental feature identified, with reference to relevant guidance[1] and professional judgement. Based on the relative sensitivity of environmental features, three possible route options were identified.

At Stage 2, a comparative analysis of the route options was carried out, in order to differentiate between these options and identify an overall Preferred Route. For the purposes of this analysis, the study area was divided into three sections, based on the

[1] *Guidance has included SP Energy Networks (May 2020) - Approach to Routeing and Environmental Impact Assessment, as well as guidance pertinent to each environmental topic*

characteristics of land use within each section. Within each section, the route options are divided into additional options where appropriate, to provide alternative courses through environmentally constrained areas. Each route option was assessed separately in respect of the high and medium sensitivity environmental factors within and adjacent to it, within each section of the study area. The route option containing fewest high and medium sensitivity constraints was identified as preferred.

Consultation on the Preferred Route (Stage 3) will be undertaken over winter 2024/25. The design of the project will be informed by responses received from this consultation exercise and by continuing detailed surveys, which may identify any as yet unknown engineering, environmental or land use constraints and give rise to further modifications to the route.

All comments received will inform further consideration of the Preferred Route (Stage 4) and the selection of a Proposed Route (Stage 5), which will be taken forward for more detailed environmental assessment prior to submission of an application for Section 37 consent under the Electricity Act 1989 (for the OHL). These applications will be developed for submission in 2025.

Comments on this document should be sent to:

Email: sclenteuchconnection@spenergynetworks.co.uk

Post: Sclenteuch Wind Farm Connection

Land and Planning Team

SP Energy Networks
55 Fullarton Drive
Glasgow
G32 8FA

Copies of this document can be found online at:

www.spenergynetworks.co.uk/pages/sclenteuch_wind_farm_connection.aspx

Public consultation events detailing the proposals within this document will be held at the following locations:

Tuesday 22nd April 2025 between 2:30pm – 7pm

Miners Suite, Dalmellington Community Centre

38 Ayr Rd, Dalmellington, Ayr. KA6 7SJ

Wednesday 23rd April 2025 between 11:30am - 5pm

The Young Farmers Room, Stair Community Centre

Trabboch, Mauchline. KA5 5HT

SPEN request that all consultation responses are received by **midnight 16th May 2025**.

01. Introduction

1 Introduction

1.1 Background

1.1.1. SPEN owns, operates and maintains the transmission and distribution networks in central and southern Scotland on behalf of the licence holders, SP Transmission plc (SPT) and SP Distribution plc (SPD). Under Section 9(2) of the Electricity Act 1989, SPEN is obligated to:

- to develop and maintain an efficient, coordinated, and economical system of electricity transmission; and
- to facilitate competition in the generation and supply of electricity.

1.1.2. This requires SPEN, on behalf of SPT, to provide connections for new electricity generators seeking to connect to the transmission system in its licence area; to make its transmission system available for these purposes and to ensure that the system is fit for purpose through appropriate reinforcements to accommodate the contracted capacity. Schedule 9 of the 1989 Act imposes a further statutory duty on SPEN to take account of the following factors in formulating proposals for the installation of overhead transmission lines, as follows:

(a) "*to have regard to the desirability of preserving natural beauty, of conserving flora, fauna and geological or physiographical features or special interest and of protecting sites, buildings and objects of architectural, historic or archaeological interest; and*

(b) *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*."

1.1.3. As a result of the above SPEN is required to identify electrical connections that meet the technical requirements of the electricity system, are economically viable; and cause on balance, the least disturbance to both the environment and the people who live, work and enjoy recreation within it.

1.1.4. SPEN is responsible for the delivery of the transmission network on behalf of SPT. Under Section 37 of the Electricity Act 1989, SPEN is required to seek consent from the Scottish Ministers for the construction of any non-exempted OHL operating at a voltage greater than 20 kV.

1.1.5. A need has been identified to connect the proposed Sclenteuch Wind Farm to the electricity grid; under its licence, SPEN is obliged to provide this connection. The proposed connection will comprise an OHL which will run from the proposed Sclenteuch Wind Farm to Coylton Substation, approximately 16 km in length.

1.1.6. The locations of the different elements of existing electrical infrastructure within the routeing study area, are illustrated on **Figure 1.1**.

1.1.7. This Routeing and Consultation Document is intended to inform the consultation process on the location of the Preferred Route for the OHL.

1.2 Project Need

1.1.8. SPEN has received a Grid Connection Application via the National Grid Electricity System Operator (NGESO)[2] from Renewable Energy Systems Ltd (RES) for the connection of a 54-megawatt (MW) energy park comprising both wind turbines and a battery storage facility (hereafter 'Sclenteuch Wind Farm'). As the transmission licence holder, SPT, represented by SPEN, is legally obliged under the Electricity Act 1989 ('the 1989 Act') to provide a grid connection.

1.1.9. Sclenteuch Wind Farm is located approximately 5 km west of Dalmellington and around 10 km west of New Cumnock substation. However, due to limited capacity and space at the New Cumnock substation, it is proposed install a new 132 kV OHL between the Wind Farm and the 132 kV Coylton substation, which would be approximately 16 km in length.

1.3 Planning Policy Context

Overarching Legislation

1.3.1 The overarching legislation applicable to the planned Sclenteuch Wind Farm to Coylton Substation (OHL) connection is the Electricity Act 1989. SPT licensed businesses are authorised to transmit and distribute electricity within its network areas under the Electricity Act 1989. As such, SPEN has a statutory obligation to carry out the duties outlined within the Electricity Act 1989.

Renewable Energy Policy Framework

1.3.2 The Scottish Government is legally committed to achieve net zero by 2045. The net zero target for Scotland is set out and defined in the Climate Change (Scotland) Act 2009 as amended by the Climate Change (Emissions Reductions Targets) (Scotland) Act 2019.

1.3.3 Both the UK and Scottish Governments have produced energy policy documents which include detail on the renewable energy and greenhouse gas emission reduction targets and how they plan to achieve them. Furthermore, a large increase in the deployment renewable energy technology is supported through a number of UK level policy documents including the UK Energy White Paper (2020) and Net Zero Strategy (2021). Scottish Government policy commitments are also clear – most recently expressed in National Planning Framework 4 (NPF4).

1.3.4 In the absence of the proposed connection, a new renewable generation project would be unable to contribute to the achievement of these targets.

[2] Note as of 1st October 2024 NGESO is now known as National Energy Systems Operator (NESO).

National Planning Policy

1.3.5 Section 37 of the Electricity Act 1989 provides that an application to install or keep installed an above-ground electricity line shall be made to the Scottish Ministers who may direct that planning permission for the development and any ancillary development shall be deemed to be granted under Section 57 (2) of the Town & Country Planning (Scotland) Act 1997.

1.3.6 NPF4 was adopted on 13th February 2023 and supersedes NPF3 and Scottish Planning Policy (SPP). Section 13 of the Planning (Scotland) Act 2019 amends Section 24 of the Town and Country Planning (Scotland) Act 1997 Act (the '1997 Act') regarding the meaning of 'development plan' and elevates the status of the NPF from material consideration to being part of the development plan.

1.3.7 Part 1 (page 53) of NPF4 sets out an overarching spatial strategy for Scotland to 2045. Page 3 states that, "*the global climate emergency means that we need to reduce greenhouse gas emissions and adapt to the future impacts of climate change*". The NPF4 Policy on Energy (Policy 11) emphasises the Scottish Government's commitment, "*to encourage, promote and facilitate all forms of renewable energy development onshore and offshore. This includes energy generation, storage, new and replacement transmission and distribution infrastructure*".

1.3.8 Policy 11(a)(ii) further notes that grid transmission and distribution infrastructure will be supported.

1.3.9 Policy 11(e) provides details of which impacts are expected to be considered through project design and mitigation, including impacts on residential amenity, landscape and visual impacts, public access, and historic environment, etc. Furthermore, Policy 11(e) notes that "in the case of proposals for grid infrastructure, consideration should be given to underground connections where possible".

1.3.10 NPF4 continues the approach set out in NPF3 of identifying national developments. Proposed National Development 3 (ND3) is entitled 'Strategic Renewable Electricity Generation and Transmission Infrastructure'. Strategic Renewable Electricity Generation and Transmission Infrastructure includes new high voltage electricity transmission lines of 132 kV or more. The proposed connection would therefore have national development status.

1.3.11 NPF4 acknowledges that *"the electricity transmission grid will need substantial reinforcement including the addition of new infrastructure to connect and transmit the output from new on and offshore capacity to customers in Scotland, the rest of the UK and beyond"*, such as the proposed connection that will enable a new generation project.

1.3.12 In terms of national planning guidance, reference will be made to relevant Planning Advice Notes (PANs).

Local Planning Policy

1.3.13 The Local Development Plan (LDP) covering the study area is the East Ayrshire Local Development Plan (EALDP) (adopted April 2017).

1.4 Project Scope

Overview

1.4.1 In response to the Grid Connection Application from the developers of Sclenteuch Wind Farm, SPEN proposes to discharge its obligation based on a balance of technical, economic and environmental considerations. To achieve this, SPEN proposes a single circuit OHL supported on trident 'H' poles[3] , typically between 11 and 16 m in height, with span lengths of approximately 70 to 100 m. The proposed OHL would be constructed at 132 kV to facilitate the proposed capacity of Sclenteuch Wind Farm only.

OHL Design

1.4.2 The Energy Networks Association (ENA) Specification 43-50 OHL design specification[4] (commonly referred as to a 'trident' OHL design) is a UK Electricity Industry Design Standard and the final designation of pole type is generally dependant on three main factors: altitude, weather and the topography of the route. The size of poles and span lengths will also vary depending on these factors, with poles being closer together at high altitudes to withstand the effects of greater exposure to high winds, ice and other weather events. The pole configuration, height and the distance between poles will therefore only be fully determined after a detailed line survey.

1.4.3 With an OHL, conductors (or wires) are suspended at a specified height above ground and supported by wooden poles, spaced at intervals. Conductors can be made of aluminium or steel strands.

1.4.4 The height of the wood poles reflects the statutory clearances required for the conductor, which is determined by the voltage of the OHL (the higher the voltage, the greater the safety clearance that will be required) and the span length required between poles. Wood poles will have nominal lengths ranging from 8.5 m to 24 m and will be installed at a minimum excavation depth of 2 m. Taking this excavation depth into account, together with topography and span lengths, it is anticipated that the wood poles for the Sclenteuch Wind Farm connection will have a height between 13 m and 15 m above ground. However, there may also be circumstances where pole heights can increase to between 18 m and 20 m if there is a requirement to navigate specific pinch points on the route.

[3] The OHL will consist of wooden trident H-poles for the entire route due to altitude >200m and therefore deemed an "extreme environment".
[4] Energy Networks Association (1984) Technical Specification 43-50 132kV Single Circuit Overhead Lines on Wood Poles; Issue 1

1.4.5 The section of OHL between poles is known as the 'span', with the distance between poles known as the 'span length'. The average span length between wood poles is between 70 m and 120 m, with trident 'H' poles typically having a maximum span of 130 m at the altitudes found within the study area. Span lengths can be increased if there is a requirement to span a larger distance. In typical use at low altitude, 120 m is the usual span length. At higher altitude, where more extreme weather is prevalent, the span length is reduced to take account of greater ice and wind loading factors. It is anticipated that the span length for the proposed connection, which will cross elevated ground above 350 m Above Ordnance Datum (AOD), will be 70 m to- 100 m depending on terrain.

1.4.6 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 over time. In terms of appearance, there are three types of structure:

- 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. Deviations of up to 75 degrees are permitted but the likely maximum deviation is 60 degrees. All angle structures require to be back stayed, with three stays required up to 50 degrees and four up to 60 degrees.
- 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.

1.4.7 Following identification of the Proposed Route for the proposed connection, a detailed topographical survey will be carried out. This is required to identify the proposed positions and heights of each individual wood pole. Site surveys to examine the subsoil conditions will also be carried out at proposed wood pole positions where required. These will inform the wood pole foundation designs. Typical wood pole design is shown on **Figure 1.2**. Additionally, the topographic survey will help to identify an appropriate temporary access track construction method.

OHL Construction and Maintenance

1.4.8 OHL construction typically follows a standard sequence of events, which sequentially includes:

- preparation of access to the pole locations;
- installation of pole foundations, where necessary;
- erection of wood poles;
- erection of string conductors; then
- reinstatement of pole sites and removal of temporary accesses.

1.4.9 For wood pole OHL construction, the 'poles' are erected using normal agricultural machinery such as a digger with a lifting arm. A tracked excavator and low ground-pressure vehicles, (e.g. tractor, argocat, quad bikes) are used to deliver, assemble and erect each wood pole structure at each location. The erection of the wood poles requires an excavation to allow the pole brace block and/or steel foundation braces to be positioned in place. The excavated material is then sorted into appropriate layers and used for backfilling. It would be rare for concrete to be used in the foundations of wood poles, limited for circumstances where ground conditions are particularly unstable. The excavator(s) then hoists the assembled structure into position and once the structure has been braced in position the trench is backfilled.

1.4.10 Prior to stringing the conductors, roads and railways that are to be crossed by the OHL have to be protected by building a scaffold tunnel through which vehicles / trains can pass. Other obstacles such as existing power lines must be either switched off, deviated or protected using 'live line' scaffolds.

1.4.11 In all cases, every effort is made to cause the least disturbance to landowners and local residents during construction, and ground disturbance during construction of the new line is reinstated.

1.4.12 The majority of components of OHLs are maintenance free. Weather conditions and exposure to environmental elements during operation do give rise to corrosion, wear, deterioration and fatigue after many years in service. Regular inspection identifies any unacceptable deterioration at an early stage, so action can be taken to maintain a high level of security and safety on all components in accordance with the Electricity Supply Regulations. Access arrangements for maintenance and fault repairs will be arranged with the relevant landowners and undertaken within the agreed wayleave.

1.4.13 There is also an ongoing requirement to ensure that any trees within the wayleave corridor are managed to maintain required safety clearances whilst the connection is in service. Walkover surveys or flyovers will identify where there is a requirement to clear wayleaves of new growth. The typical wayleave corridor for a 132 kV OHL through woodland is 30 m to either side of the route.

1.5 The Development and Consenting Process

Phase 1: Routeing and Consultation

1.5.1 Applying SPEN's approach to routeing the objective of the route selection process is to identify a technically feasible and economically viable OHL route, between specified points, which causes the least disturbance to people and the environment. This involves the collation and analysis of existing environmental and technical information to identify a 'Preferred Route' for the proposed OHL.

1.5.2 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 broader range of consultees and stakeholders as possible. Whilst there is no statutory

requirement to consult on the routeing elements, SPEN nonetheless considers it good practice to consult at this early stage. This Routeing and Consultation Document sets out the steps taken in identifying the 'Preferred Route' for the proposed OHL and is provided for issue to interested stakeholders, giving them the information required to engage and comment on the project at an early stage.

1.5.3 Following this consultation, it is possible that some changes to the route will be suggested from the emergence of new information. The suggested changes would be evaluated and, if necessary, subjected to additional consultation. Consultation on the Preferred Route will inform the identification of a 'Proposed Route' which will be taken forward for further environmental assessment and consultation as part of the application process.

Phase 2: Detailed Route Design and EIA

1.5.4 The EIA Process is set out in full within the *Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017* (hereafter 'the EIA Regulations'). EIA is required for developments falling within Schedule 2 to the EIA Regulations that are likely to have significant effects on the environment by virtue of factors such as nature, size or location. In determining whether the proposed connection is likely to have significant effects on the environment, regard should be had to the selection criteria detailed at Schedule 3 of the EIA Regulations.

1.5.5 Following confirmation of the Proposed Route, SPEN will submit a request for an EIA Screening Opinion to the Scottish Ministers in accordance with Regulation 8(1) of the EIA Regulations. The request will be accompanied by the relevant information in accordance with Regulation 8(2) and 8(3) and will take into account the selection criteria in Schedule 3 and the findings of the work undertaken as part of the routeing process.

1.5.6 Where EIA is required, environmental information must be provided by the developer in an, the content of which is set out within Schedule 4 of the EIA Regulations. Should the Scottish Ministers determine that the Sclenteuch 132 kV Grid Connection is EIA development and that subsequent provisions of the EIA Regulations apply, SPEN will follow the EIA process, with the topics requiring further consideration to be agreed with consultees through the EIA Scoping process. SPEN will then prepare an 'EIA Report'.

1.5.7 Should the Scottish Ministers determine that EIA is not required, then an 'Environmental Appraisal (EA)' will be undertaken.

1.5.8 **Diagram 1.1** illustrates the main stages in identifying a Proposed Route and carrying out the EIA and highlights the stages at which consultation will occur.

Phase 3: Application for Consent

1.5.9 Following completion of the Environmental Report, SPEN will apply to the Scottish Ministers for consent under Section 37 of the 1989 Act, to install and keep installed, the grid connection. In conjunction, SPEN will apply to the 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 and associated works. The

EA (or EIA Report if the Ministers deem the project to be EIA development) will accompany the application for consent. The Scottish Ministers will consult with statutory stakeholders and members of the public in determining the application for consent.

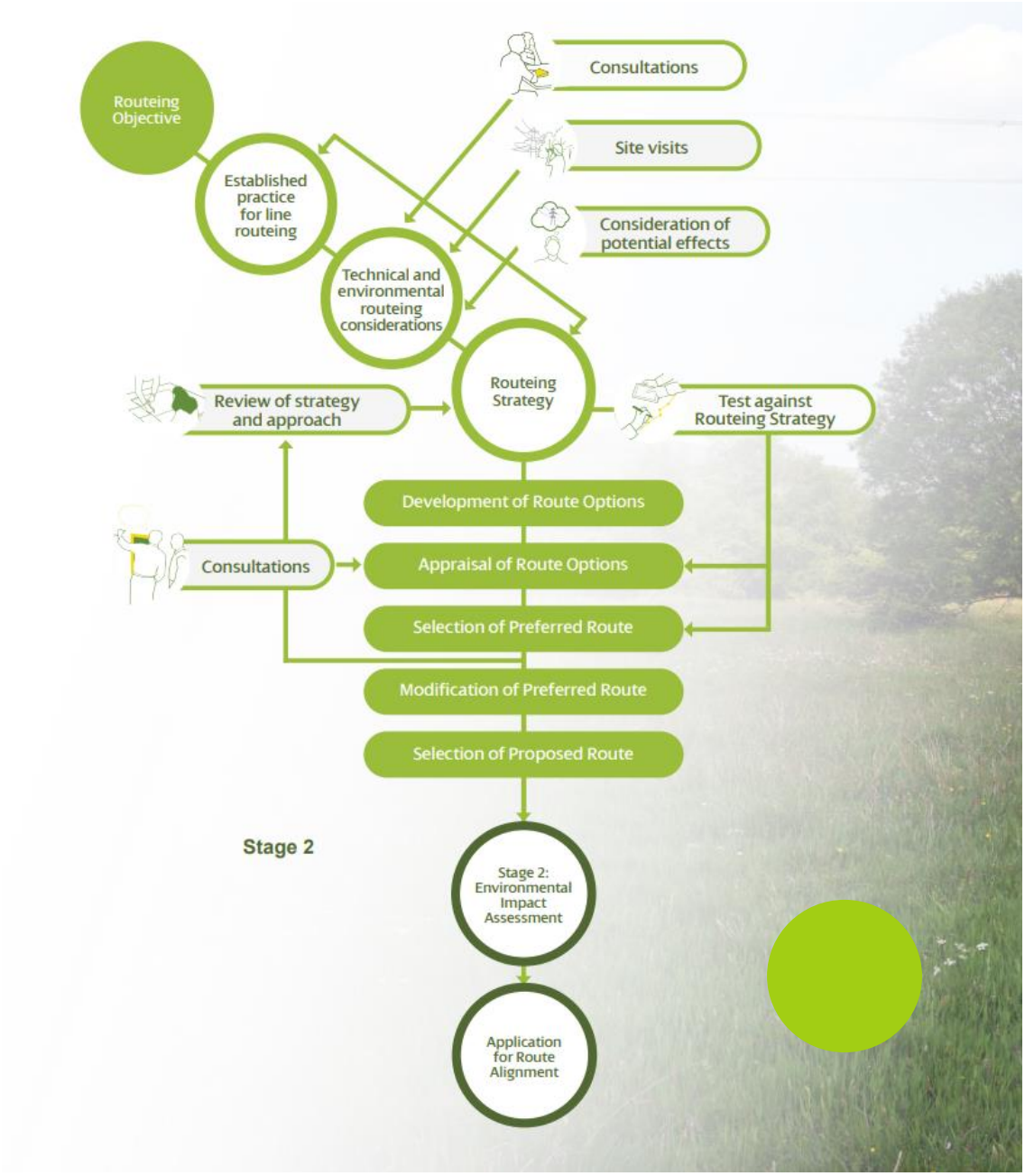

Diagram 1.1: Stages of route identification.

1.6 Structure of this Document

1.6.1 This Routeing and Consultation Document is structured with the following sections.

- section 2 outlines the methodology adopted for the routeing process.

- section 3 summarises the environmental and technical features and sensitivities which have informed this study.
- section 4 presents the route options and the analysis of each route option and provides a description the Preferred Route that has been identified as a result of the analysis.
- section 5 provides an overview of the proposed consultation process, highlighting the timescale and the key questions to consider when responding. It also describes the next steps in the routeing and environmental assessment process.

1.6.2 This document is supported by the following appendices.

- appendix 1 presents the figures accompanying this report.
- appendix 2 provides a list of sources of the environmental data used in this report.
- appendix 3 provides a list of the environmental features within the study area and details their relative sensitivity.
- appendix 4 describes the detailed environmental analysis of the route options.

02.
Routeing Strategy Methodology

2 Routeing Strategy Methodology

2.1 Overview

2.1.1 As set out in Chapter 1, the objective of the routeing strategy is to identify a technically feasible and economically viable OHL route, between specified points, which causes the least disturbance to people and the environment.

2.1.2 The methodology used for developing and assessing route options is consistent with SPEN guidance[5]. The guidance recommends that every project should broadly follow a set process, which sequentially includes:

- recognition of established practice for OHL routeing;
- consideration of potential effects;
- technical and environmental routeing considerations and collection of background information;
- development of route options;
- appraisal of route options;
- selection of a Preferred Route;
- consultation and potential modification of the Preferred Route; and
- selection of the Proposed Route.

2.1.3 The sections below describe the way in which we have applied this process to the proposed connection.

2.2 Routeing Objective

2.2.1 In line with SPEN's overall approach to routeing, the objective for the grid connection is:

2.2.2 "*To identify a technically feasible and economically viable route for a 132 kV overhead line connection supported on wood poles between the proposed Sclenteuch Wind Farm and the existing substation at Coylton. This route should, on balance, cause the least disturbance to the environment and the people who live, work and enjoy recreation within it.*"

2.3 Established Practice for OHL Routeing

2.3.1 The approach adopted in developing and assessing route options is consistent with relevant SPEN guidance[5] This guidance recommends appropriate application of the

[5] *SP Energy Networks (2020) Approach to Routeing and Environmental Impact Assessment, available here: https://www.spenergynetworks.co.uk/userfiles/file/SPEN_Approach_to_Routeing_Document_2nd_version.pdf*

'Holford Rules' to inform routeing. -The Holford Rules were first developed in 1959 by Sir William Holford and continue to inform transmission line routeing in the UK[6]. These rules advocate the application of a hierarchical approach to routeing which first avoids major areas of highest amenity, then smaller areas of high amenity, and finally considers factors such as backdrop, woodland and orientation.

2.3.2 It should be noted that the Holford Rules apply the term 'highest / high amenity' to refer to environmental designations and classifications such as Natura 2000 sites, SSSI, Scheduled Monuments, and Listed Buildings. The Holford rules are reproduced in **Box 2.1** below.

Box 2.1: The Holford Rules

Rule 1: Avoid altogether, if possible, the major areas of highest amenity value, by so planning the general route of the line in the first place, even if the total mileage is somewhat increased in consequence.
Rule 2: Avoid smaller areas of high amenity value or scientific interest, by deviation; provided that this can be done without using too many angle towers (i.e. the more massive structures which are used when line change direction).
Rule 3: Other things being equal, choose the most direct line, with no sharp changes of direction and thus fewer angle towers.
Rule 4: Choose tree and hill backgrounds in preference to sky background wherever possible and when the line has to cross a ridge, secure this opaque background as long as possible and cross obliquely when a dip in the ridge provides an opportunity. Where it does not, cross directly, preferably between belts of trees.
Rule 5: Prefer moderately open valleys with woods, where the apparent height of the towers will be reduced and the views of the line will be broken by trees.
Rule 6: In country which is flat and sparsely planted, keep the higher voltage lines as far as possible independent of smaller lines, converging routes, distribution lines and other masts, wires and cables so as to avoid a concatenation or 'wirescape'.
Rule 7: Approach urban areas through industrial zones where they exist and where pleasant residential and recreational land intervenes between the approach line and substation, go carefully into the costs of undergrounding, for lines other than those of the highest voltage.

2.3.3 SPEN recognises the critical role of trees and forestry play in terms of climate change, climate adaptation, biodiversity, landscape and habitat enhancement and, therefore, recommends that OHLs should be routed to avoid forestry and woodland areas wherever possible. Where this is not possible, OHLs should be routed to follow open space and/or run alongside, not through, woodland. However, where there is no alternative, an OHL through a forested area should:

- minimise landscape impacts;
- avoid the line of sight of important views;
- be kept in valleys and depressions;

[6] The Holford Rules were reviewed circa 1992 by the National Grid Company (NGC) Plc. (now National Grid Transmission (NGT)) as owner and operator of the electricity transmission network in England and Wales, with notes of clarification added to update the Rules. A subsequent review of the Holford Rules (and NGC clarification notes) was undertaken by Scottish Hydro Electric Transmission Limited (SHETL) in 2003 to reflect Scottish circumstances.

- cross skyline or ridges where they drop to a low point;
- not divide a hill into two similar parts where it crosses over a summit;
- follow alignments diagonal to the contour as far as possible; and
- vary in the alignment to reflect the landform by rising in hollows and descending on ridges.

2.4 Consideration of Potential Effects

2.4.1 SPEN's approach to the routeing of OHLs[7] is based on the premise that one of the major effects an OHL is visual, and that the degree of visual intrusion can be reduced by careful routeing. A reduction in visual intrusion can be achieved by routeing the line to fit the topography, by using topography and trees to provide screening and/or backclothing, and by routeing the OHL at a distance from settlements and roads. However, the importance of environmental issues, including matters such as biodiversity and cultural heritage, also play a significant role in this process. On that basis, a well routed OHL takes into account other environmental and technical considerations and will avoid, wherever possible, areas of high amenity value.

2.5 Technical and Environmental Routeing Considerations and Collection of Background Information

Study Area and Buffer Zone:

2.5.1 Based on the likely effects, a study area has been defined for this routeing process, as described in the following two stages, by the identification of:

- the start and end points for the connection, which represent the fixed geographical elements of the route; and
- the technical, environmental, and economic constraints which exist in the area between these two points. This, which responds to the requirements of Holford Rules 1 and 2 and recognises that the route is not required to take a direct point between the start and end points and must route according to the constraints identified. -

2.5.2 Landscape and visual effects have the potential to impact receptors to go beyond the study area. Therefore, a 4 km buffer distance from the study area (hereafter 'buffer zone') is considered for such effects, on the basis of maximum perceptibility of a wood pole OHL in the wider landscape[8].

[7] As described within section 2.2 of the SPEN guidance (2020)
[8] As set out within D Horn, I McAulay and M Turnbull (May 2010) High Voltage Wood Pole Transmission and Distribution Main Interconnector Lines in Rural Landscapes: Perceptibility

Collection of Background Information:

2.5.3 An initial evaluation of the range of environmental and technical constraints is undertaken during this stage. Through a combination of Geographic Information Systems (GIS) analysis, field work, consultation and liaison with the wider technical and environmental project team, those constraints considered key in terms of avoidance, are mapped for the study area and buffer zone. This includes current baseline conditions, as well as known potential future conditions, for environmental features related to:

- ecology and ornithology;
- landscape and visual amenity;
- archaeology and cultural heritage;
- recreation and tourism;
- hydrology, hydrogeology and geology;
- forestry;
- residential dwellings and land use; and
- other infrastructure (incl. transmission lines, wind farms (planned and consented), and roads).

2.5.4 Digital data sets describing the nature and extent of each of the environmental features described were obtained from published sources and from SPEN records[9], and were transferred to a Project GIS for subsequent analysis, and have been verified during field reconnaissance. -Data sources for the digital data sets are listed in Appendix 2.

2.5.5 Of critical importance during this stage, for many OHLs, is the identification and understanding of the range of technical constraints that may influence the routeing of an OHL. Whereas environmental constraints may be somewhat flexible in the degree of constraint they represent, technical constraints commonly are not. An example would be the location of large waterbodies that cannot be crossed by an OHL.

2.5.6 Route options must also be economically viable. This is interpreted by SPEN as meaning that as far as is reasonably practicable, and all other routeing considerations being equal, route options should be as direct as possible and should avoid areas where technical constraints would render route options unviable on economic grounds.

[9] *Data for existing and proposed transmission lines and substations was provided by SPEN*

2.6 Stage 1: Development of Route Options

2.6.1 In response to the identification of the key environmental and technical constraints, a sensitivity weighting (high, medium or low sensitivity) is defined on an aspect-by-aspect basis, for each environmental feature identified. -This is undertaken with reference to Holford Rules 1 and 2 and by using relevant guidance and professional judgement.

2.6.2 A 'heat map' is generated which assigns colours (red, amber, green) to features of high, medium and low sensitivity, respectively. The purpose of heat mapping is to provide a graphic indication of overall receptor sensitivity across the study area; it does not ascribe absolute values to any particular area (i.e. the red areas are not considered absolute 'no go' areas and the green areas are not considered to be absolutely constraint-free).

2.6.3 Table 2.1 describes how the sensitivity of features to the type of development proposed is assigned and outlines the typical response for route selection.

Table 2.1: Sensitivity Analysis and Route Identification Response

SENSITIVITY	JUSTIFICATION	EXAMPLES	ROUTE IDENTIFICATION RESPONSE
High	Holford Rule 1 features (international and national designations) or environmental features considered particularly sensitive to transmission infrastructure Technical constraints of key significance	European designated sites (e.g. SPA's); National Park; National Scenic Area; High voltage OHL	Avoid wherever possible and prioritise for mitigation
Medium	Holford Rule 1 features considered less sensitive to transmission infrastructure; Holford Rule 2 features (regional and local designations)	Geological SSSIs; Category B and C Listed Buildings; Local Nature Reserve	Proceed with caution
Low	Holford Rule 2 features considered not to be sensitive to transmission infrastructure	Geological Conservation Review Sites	Some constraints of lesser sensitivity - no issue for route identification

2.6.4 In the case of landscape and visual amenity, it is not the case that particular areas or features can be easily recognised and separated into High, Medium and Low sensitivity categories. Therefore, the sensitivity of the constituent LCT's to the type

of development proposed has been considered with reference to criteria provided in Landscape Institute and IEMA[10] which relate to a combination of the value of the landscape and/or visual receptor and its susceptibility to the type of development proposed. This accords with Paragraphs 5.38 to 5.47, and 6.31 to 6.37 of the Guidelines or Landscape and Visual Impact Assessment the value attributed to landscapes based on clear evidence such as literary reference or formal landscape designation and/or classification.

2.6.5 It should be noted that the definition of features as being of high, medium and low sensitivity does not necessarily denote that the proposed connection would have a significant adverse effect on this feature. The determination of potential effects shall be undertaken as part of a detailed environmental assessment on a proposed OHL alignment, and any associated development, carried out as part of a future application for consent under Section 37 of the Electricity Act 1989.

2.6.6 Based on the relative sensitivity across the study area and buffer zone, a number of route options are identified. There is no definitive width for the route options and these will be as broad or as narrow as the constraints and sensitivity analysis dictate. The preferred alignment will, notwithstanding the emergence of further constraints information, fall within one of these routes. The aim of identifying routes is to identify a geographic area within which a range of alignment options can be identified.

2.6.7 Based on the constraints analysis undertaken to date, fourteen route options were identified within the study area for the proposed connection.

2.7 Stage 2: Appraisal of Route Options and Selection of Preferred Route

2.7.1 To allow identification of a Preferred Route, an appraisal of the route options is undertaken. The purpose of this is to identify the relative potential of each route option, with a focus on potential landscape and visual impacts of the options as directed by Holford Rules 3 to 7. It may be that all routes exhibit a comparative level of potential. However, this is rare, especially when appraised in terms of potential impacts across the constraints identified.

2.7.2 The conclusion of this appraisal will be the emergence of a 'Preferred Route'. Whilst this route will be defined based upon the available data to date, further consultation or technical matters may emerge which render the Preferred Route no longer the best option (for example the emergence of hitherto unknown technical constraints). Where this occurs, a review of the route options would be undertaken to determine the Proposed Route.

2.7.3 This appraisal is carried out by means of the following principal steps.

[10] *Landscape Institute and IEMA (2013) Guidelines for Landscape and Visual Impact Assessment, 3rd Edition*

Step 1: Field Surveys

2.7.4 For the proposed connection, in order to ground truth and to supplement the landscape and visual desk work, a site walkover was undertaken by landscape specialists from Ramboll on 4th and 11th November 2024.

Step 2: Environmental Analysis

2.7.5 A comparative environmental analysis of identified route options was undertaken, on a topic-by-topic basis, in order to identify a Preferred Route for the proposed connection.

2.7.6 To allow the detailed consideration of each route option, the study area was split into three sections on the basis of land cover. The three sections were defined as set out in the following.

- section A:
- section B:
- section C:

2.7.7 The splitting of the study area also allowed for the consideration of potential opportunities to link a Preferred Route option in one section with a different Preferred Route option in another section.

2.7.8 The environmental analysis comprised a qualitative appraisal of each route option, which involved professional judgement regarding the sensitivity of individual environmental features. The appraisal considered the potential interaction of transmission infrastructure with key environmental features and sensitivities, focussing on factors which differentiate the route options.

Step 3: Selection of the Preferred Route

2.7.9 Based on the analysis described above, an indicative Preferred Route was identified, which avoids environmentally sensitive features to the greatest extent possible and offers the greatest potential for mitigation. The definition of the Preferred Route is based on professional judgement regarding the overall potential for each route option to accommodate the proposed OHL.

2.7.10 This Preferred Route will be taken forward for formal consultation.

2.8 Stage 3: Consultation on the Preferred Route

2.8.1 Consultation on the Preferred Route is a key part of identifying the best on-balance route option, i.e., that which is technically feasible and economically viable, and which causes the least disturbance to people and the environment. This Routeing and Consultation Document facilitates consultation on the Preferred Route for the proposed connection.

2.9 Stage 4: Modification of the Preferred Route

2.9.1 Whilst the analysis of route options undertaken up to this point is based upon all available technical and environmental constraints and consultation with statutory

bodies, consultation with a broader range of stakeholders can raise further constraints which were hitherto unidentified, but which are important in the local context of the study area. In response to consultation feedback, the Preferred Route may be modified in some locations.

2.10 Stage 5: Selection of Proposed Route

2.10.1 Following the consultation, any changes required to the Preferred Route are evaluated and, if it is found that these can be accommodated in general routeing terms, they are incorporated. With the changes incorporated, the route then forms the Proposed Route which is taken forward for further analysis, environmental surveys and detailed design within the EA or, if requested by Scottish Ministers, the EIA.

2.10.2 By virtue of factors such as nature, size or location of the proposed connection, it is anticipated that EIA would not be required. The EA or, if requested by Scottish Ministers, the EIA, will report the findings of the detailed assessment / EIA, identify and describe in detail the potential environmental impacts of the proposed connection during construction and operation, identify any appropriate mitigation measures, and, only in the case of full EIA, confirm whether any potentially significant environmental effects remain.

03.Technical and Environmental Routeing Considerations

3 Technical and Environmental Routeing Considerations

3.1 Study Area

3.1.1 The study area envelopes an area between Sclenteuch Wind Farm and Coylton Substation, approximately 10 km across at its widest point. The main environmental and technical constraints in the area between these two points include:

- the A713 and a number of B roads;
- a historic railway track;
- existing transmission infrastructure;
- various existing and proposed wind farm developments;
- Dunaskin Glen SSSI;
- peatland
- Waterside Miners' Villages and Mineral Railway Scheduled Monument and Dalmellington Ironworks Scheduled Monument;
- former mining activity;
- watercourse networks and waterbodies; and
- semi-natural woodland.

3.1.2 The study area is shown on **Figure 1.1**. The boundaries of the study area are approximately defined as:

- to the north, the study area is bounded by the A70;
- to the east, the study area is bounded by an existing 275kV transmission line;
- to the south, the study area is bounded by the B741; and
- to the west, the study area is bound by an existing 275kV transmission line and the South Ayrshire Council boundary.

3.2 Environmental and Technical Baseline

3.2.1 Baseline information was used as a basis for the analysis of environmental constraints and to inform the approach adopted in the identification and appraisal of route options. The environmental and technical baseline information is presented in **Table 3.1** below.

3.2.2 The constraint analysis was undertaken using GIS which utilised available digital datasets. This analysis provided for the identification of alternative routes which were then tested in respect of technical priorities.

Table 3.1: Baseline Environment of Study Area and Buffer Zone

TOPIC	STUDY AREA	BUFFER ZONE
Ecology	Ecological constraints located within the Site Boundary are shown on **Figure 3.1**. Constraints relating to Peat are shown on **Figure 3.2**. There is one Designated Site in the study area, Barlosh SSSI. This SSSI lies 500 m east of route variation C5.1 and is notified for Hydromorphological Mire Range and Raised Bog. There are two further SSSIs within the study area, both notified for geological features. There are four ancient woodland areas within the study area, two of semi-natural origin and two of plantation origin. Habitats in the southern part of the study area (Section A) are mainly farmland in the form of rough pasture and improved grazing pasture. This area includes a small section (220 m) of Class 1 peatland habitat as classified by Carbon Peatland Mapping. Desk based information suggests habitats here are rough pasture grassland and modified bog, lower importance habitats. There is an area of coniferous woodland around Sclenteuch Wind Farm and small areas of broadleaved woodland.	The following Designated Sites lie within a 2 km buffer of the study area: • Dalmellington Moss SSSI – Notified for raised bog, lies 400 m south of the southern boundary of the study area; and • Bogton Loch SSSI – Notified for Open water transition fen, lies 1.2 km south of the southern boundary of the study area.

Habitats in the middle of the study area (Section B) are similar, mainly farmland in the form of rough pasture and improved grazing pasture. A large area of coniferous plantation lies around Bow Hill that all route options pass close to or through.

Habitats in the northern part of the study area (Section C) are more intensive farmland with more areas of broadleaved woodland in the form of shelter belts between fields.

The study area has potential to support the following species:

- Badger Meles meles;
- Otter Lutra lutra;
- Pine marten Martes martes;
- Red squirrel Scurius vulgaris;
- Scottish wildcat Felis silvestris sylvestris;
- Soprano pipistrelle bat Pipistrellus pygmaeus;
- Common pipistrelle Pipistrellus pipistrellus;
- Daubenton's bat Myotis daubentonii;

	• Leisler's bat Nyctalus leisleri; • Atlantic salmon Salmo salar; • Common frog Rana temporaria; and • Common toad Bufo bufo.	
Ornithology	Ornithological constraints located within the Site Boundary are shown on **Figure 3.1**. There are no Designated Sites within the study area that are designated for ornithological features. The following Schedule 1 bird species have potential to be present within the study area: • Goshawk Accipiter genitilis; • Red kite Milvus milvus; • Hen harrier Circus cyaneus; • Merlin Falco columbarius; • Peregrine falcon Falco peregrinus; • Barn owl Tyto alba; • Short-eared owl Asio flammeus; • Common crossbill Loxia curvirostra; • Kingfisher Alcedo atthis; and	The following Designated Site lies within a 10 km buffer of the study area: • Bogton Loch SSSI – Notified for breeding bird assemblage, lies 1.2 km south of the southern boundary of the study area.

Landscape		• Whooper swan Cygnus cygnus. Landscape and visual constraints located within the Site Boundary are shown on **Figures 3.3-3.5**. **Landscape Designations and Classifications** There are no designated landscapes of national importance within the Study Area; however, the Doon Valley Local Landscape Area (LLA) is present within the south. In accordance with the EALDP Plan 2 Strategic Policy NE3: Local Landscape Area, *"all proposals within the Local Landscape Area must be designed to take account of the landscape qualities of the area and seek to avoid adverse impacts where possible"*. **Landscape Character Types** The Study Area comprises contrasting foothills, valley and low-lying LCT's. LCTs that fall within the Study Area comprise: • LCT 69 Upland River Valleys – Ayrshire (14.6 % of the Study Area);	Buffer Zone: 4 km Landscape Designations and Classifications The Buffer Zone contains a small number of nationally important landscapes, including: • Craigengillan GDL. • Skeldon House GDL; and • Dumfries House GDL. The Buffer Zone also contains a number of regionally and locally important landscapes, including: • Doon Valley LLA, located in the southern and western parts of the buffer; • River Ayr Valley LLA, located in the north of the Buffer Zone;

- LCT 68 Lowland River Valleys – Ayrshire (1 % of the Study Area);
- LCT 66 Agricultural Lowlands – Ayrshire (29.4 % of the Study Area);
- LCT 76 – Foothills – Ayrshire (55 % of the Study Area).

The LCTs are based on those provided in NatureScot's online character assessment database[11] and are described in Appendix 4.

Cumulative Context

There are a large number existing, consented and proposed wind turbines within the Study Area or immediately adjoining it, including:

- Breezy Hill Wind Farm – 26 turbines Under Application at Scoping Stage are located within the Foothills – Ayrshire LCT. Although these turbines are not yet consented, they are
- River Ayr Valley – Additional LLA located in the north-east of the Buffer Zone.
- Water of Girvan LLA, located on the south-western border of the Buffer Zone;
- Brown Carrick Hills and Coast, located on the western border of the Buffer Zone; and
- The Ayr Valley, located on the north-western border of the Buffer Zone.

Landscape Character Types

In addition, the following LCTs are present:

[11] *Available at: https://www.nature.scot/professional-advice/landscape/landscape-character-assessment/scottish-landscape-character-types-map-and-descriptions (loast accessed 10-11-24)*

considered within the cumulative context in accordance with best practice guidance.

- North Kyle Wind Farm – 50 turbines Under Construction are located within the Foothills – Ayrshire LCT.
- Polquhairn Wind Farm – Consented, nine turbines are located within the Foothills – Ayrshire LCT.
- Knockkippen Wind Farm – Under Application, 12 turbines are located within the Foothills – Ayrshire LCT. Although these turbines are not yet consented, they are considered within the cumulative context in accordance with best practice guidance.
- Knockshinnoch Wind Farm – Consented, two turbines are located within the Foothills – Ayrshire LCT.
- Overhill Wind Farm – Consented, 10 turbines, are located within the Foothills – Ayrshire LCT.
- LCT 77 Low Hills – Ayrshire;
- LCT 71 Middle Dale – Ayrshire;
- LCT 82 Southern Uplands with Forest – Ayrshire;
- LCT 74 Upland Basin – Ayrshire; and
- LCT 72 Pastoral Valleys – Ayrshire.

Buffer Zone: 6 km

Cumulative Context

Beyond the Study Area, additional proposed and existing wind farms that will form the cumulative context within the 6 km Buffer Zone include:

- The Dersalloch Wind Farm – Operating, located within the Foothills – Ayrshire LCT;
- The South Kyle Wind Farm – Under Application, located

	• Sclenteuch Wind Farm – Under Application, nine turbines are located within the Foothills – Ayrshire LCT. Although these turbines are not yet consented, they are considered within the cumulative context in accordance with best practice guidance. The Study Area also contains a large number of existing OHLs, including seven 33 kV lines. The majority of these lines only traverse a limited extent of the Study Area, specifically in the north. One of the 33 kV lines traverses south along the western edge of the Study Area, terminating at Patna. Additional 11 kV OHLs also exist in the Study Area, which typically traverse across the northern and western edges of the Study Area.	within the Southern Uplands with Forest Ayrshire LCT; • The Overhill Wind Farm – Consented, but not operating, located with the Foothills – Ayrshire LCT.
Visual Amenity	Landscape and visual constraints located within the Site Boundary are shown on **Figures 3.3-3.5**. **Settlements** The main settlement within the Study Area is the village of Patna, which is located along the A713 at the edge of the Doon River valley. Otherwise, the Study Area is sparsely populated, the main clusters of dwellings being concentrated within its northern extents, east of Drongan, and along the B730 and A713 corridors. **Transportation Routes**	

Cultural Heritage	There are few transportation routes in the Study Area. The B730, a minor road, connects Polnessan and Drongan, passing through the area. Within the Study Area, three core paths cross or loop through the landscape: one path stretches from Drongan to Ochiltree, another traverses the forested land and former mining areas from Patna to Rankinston, and the third loops from Patna, following the disused railway line, winding up toward the commercial forestry and former mining land before returning to Patna. **Recreational Routes** There are numerous core paths and informal recreational routes in the Study Area, but access into forested areas and foothills is provided along forest tracks. The character and amenity of such routes is conditioned by the prominence of commercial forestry and existing wind farm and OHL infrastructure, as well as legacy mining sites. **Cumulative Context** There are concentrations of existing OHLs and wind farms within the Study Area and wider the 6 km Buffer Zone. The OHLs are concentrated in settled lowland locations and where transportation routes are most common. For each route option, a 500 m study area was utilised for the identification of all Non-Designated Heritage Assets, and a 1 km study area was utilised for the identification of all Designated Heritage Assets. Heritage constraints located within the Site Boundary are shown on **Figures 3.6-3.7**. This assessment identified a concentration of Designated Heritage Assets within the southernmost part of the Study Area. These Assets include five Scheduled Monuments (Laight Castle (Asset 1); Waterside, miners' villages & mineral railways N of (Asset 2); Waterside, Dalmellington Ironworks (Asset 3); Bogton Loch airfield, 175m SSE of Buchan's Bridge, Dalmellington (Asset 4); and the Waterside Bing, iron slag bing, Dalmellington

	Ironworks (Asset 5)) along with National Record of the Historic Environment (NRHE) recorded elements within their extents (Assets 6 to 11). A large portion of the Scheduled Area of the Dalmellington Ironworks Scheduled Monument (Asset 3) is also designated as the Waterside Conservation Area (Asset 23) which extends slightly beyond the extent Scheduled Area. Within this Conservation Area there is a concentration of Listed Buildings which include the Category A Listed Waterside Engine House (Asset 12), the Category B Listed Ardoon House (Asset 14), Waterside Institute (Asset 16) and Palace Bar (Asset 17), and the Category C Listed Waterside Chapel of Ease (Asset 20) and War Memorial (Asset 21). There is also an isolated Category B Listed Building to the west of this concentration in Patna in the form of Patna Bridge, Main Street (Asset 13). There is another concentration of Designated Assets at the southernmost boundary of the Study Area which include the aforementioned Bogton Loch airfield, 175m SSE of Buchan's Bridge, Dalmellington Scheduled Monument (Asset 4), which is located in the northeasternmost corner of the Craigengillan GDL (Asset 22). Near to the northern edge of this GDL there are three recorded Listed Buildings in the form of the Category B Listed Doon Bridge on Straiton Road (Asset 15) and the Category C Listed Buchan's Bridge (Asset 18) and Sillyhole Bridge (Asset 19). This assessment also identified 111 Non-designated Heritage Assets and two locations of previous archaeological investigation, with most of the Assets being concentrated in the southern half of the Study Area.
Geology, Hydrogeology, Hydrology, and Peat	**Surface Water Features** Hydrology constraints located within the Site Boundary are shown on **Figures 3.8**. Approximately 40 km^2 in the south of the study area is within the catchment of the River Doon, which flows through the study area for approximately 7.5 km in a south-east / north-

west direction. Tributary watercourses of the River Doon within the study area include the Dunaskin Burn, Keirs Brun, Melkleholm Burn, Polnessan Burn, and unnamed small watercourses. The Polnessan Burn represents the largest of these tributaries and flows in an east to west orientation for approximately 3.2 km before discharging to the River Doon.

The River Doon (ID: 10924) is classified by Scottish Environment Protection Agency (SEPA) as having an overall Water Framework Directive (WFD) status of Moderate in 2022. The tributaries within the study area of the River Doon are not included within the WFD classification. Approximately 30 small, unnamed surface waterbodies are identified within the south of the study area.

The centre and north of the study area are within the catchments of the River Ayr and the Water of Coyle. The Water of the Coyle has an overall WFD classification of Poor (2022), originates within the central area of the study area and flows in south-east / north-west orientation for approximately 7 km within the study area. Small tributary watercourses within the centre and north of the study area include the Drumbowie Burn, the Taiglum Burn, and unnamed small watercourses. The Drumbowie Burn and the Taiglum Burn flow from east to west. The Taiglum Burn is classified by SEPA as having an overall WFD status of Poor (2022). No other tributaries of the catchment situated within the study area are classified under the WFD. Three lochs are situated within northern area of the study area, one of which is identified as Belston Loch.

The Burnton Burn is located within the eastern portion of the study area which discharges into the Burnock Water directly adjacent to the eastern study area. The burnock Water discharges into the River Ayr approximately 1.75 km north of the study area.

Surface Water Resources

According to Scottish Government mapping, the study area is not located within a surface water Drinking Water Protected Area (DWPA) and is not situated within the River and Loch waterbody sub-catchment of a DWPA.

SEPA designation mapping identifies the study area to be within the catchment of three SSSI in the south, south-east, and north of the study area. However, it is noted that these designations refer to geological, terrestrial habitats and their classification does not relate specifically to hydrological features.

There are no SAC or SPA within the study area or in hydrological connection downstream of the study area.

Peat deposits are present on some of the route options (including areas of Class 1 Peat on route options A4 and A5). Peatland habitats are dependent on a high water table within deposits to maintain their condition and as such may be sensitive to any alterations in hydrological conditions.

According to East Ayrshire Council records, there are four Private Water Supplies (PWS) situated within the study area. Further information is required regarding the details and sources of these PWSs.

Flood Risk

According to the SEPA flood maps, areas of Medium (i.e. the 1 in 200 or 0.5 % Annual Exceedance Probability (AEP) flood event) and High (1 in 10 AEP or 10 % chance of flooding) fluvial flood risk are situated within the study area. Notable areas of Medium and High risk are identified within the southern extent of the study area and are associated with the River Doon. These areas to the south comprise approximately 5 % of the study area and form the main source of fluvial flood risk to the study area. Further areas of flood risk

	are minimal and associated with smaller watercourses, burns, and lochs that span the study area. SEPA mapping identifies areas of Medium (0.5 % chance) and High (10 % chance) flood risk. This is associated with the River Doon, smaller watercourses, and waterbodies. Areas of High surface water flood risk proximate to the River Doon and smaller watercourses are considered to be fluvially sourced, with other areas of isolated ponding. SEPA mapping further identifies areas of Low fluvial flood risk which are associated with smaller watercourses and are likely to include areas of bog or peatland within the study area. The remainder of the study area is located within an area of Very Low surface water flood risk. **Hydrogeology** According to 1:625,000 scale hydrogeological mapping available from the British Geological Survey, the study area is underlain by bedrock assessed to comprise Low productivity and Moderate productivity aquifers. **Groundwater Dependent Terrestrial Ecosystem (GWDTE)** Where the presence of potential GWDTE habitats supported by a UK Habs /National Vegetation Classification survey, hydrological and hydrogeological assessment would be carried out to confirm whether vegetation communities are likely to be reliant on groundwater supplies. Prior to a UK Habs / National Vegetation Classification survey and hydrological / hydrogeological assessment, GWDTEs are not considered to influence routeing preference in terms of hydrology and are not considered further within this strategy.
Forestry	The forestry study area covers approximately 170 hectares. The route options mostly avoid forestry and woodlands but do include them at some locations. Ancient woodlands are regarded as irreplaceable habitats and are identified in the Ancient Woodland Inventory

	Scotland (AWI). In the study area, these tend to be limited in number and small in coverage, with only a single Long-Established (of plantation origin) strip being unavoidable. Native woodlands identified through the Native Woodland Survey of Scotland (NWSS) are similarly poorly represented in generally small, isolated areas. While most would be avoidable by design, two wet woodlands extend across route options C1 and C2. As wet woodlands tend to be on lower ground and not of high stature, it may be possible to oversail these otherwise unavoidable habitats. Other woodlands are identified from the National Forest Inventory (NFI). Forestry constraints located within the Site Boundary are shown on **Figures 3.9-3.12**.
Recreation and Tourism	There are five core paths within the study area, including Patna Bridleway, the Patna and Waterside Circular and three others which are directly connected and run between the settlements of Drongan and Ochiltree. No formal cycle routes are located within the study area. No tourist attraction or accommodation is located within the study area, except for a privately run camping facility west of Burnton and Laigh Tarbeg Farmhouse Bed and Breakfast south-west of Ochiltree. Doon Valley Golf Club is the single golf club located within the study area, it should however be noted that Doon Valley Golf Club has been closed since 2017. Except for a privately run fishing pond, west of Rankinston, no other formal leisure facilities are located within the study area. Recreation and tourism constraints located within the Site Boundary are shown on **Figure 3.13**.
Land Use and Infrastructure	Land Use and Infrastructure constraints located within the Site Boundary are shown on **Figures 3.14-3.16**. **Agriculture**

In terms of agricultural land classification, no soils considered to be prime agricultural land[12] are located within the study area. The study area comprises soils classified as:

- Class 4.1 and 4.2, capable of supporting a narrow range of crops, located in the north-eastern areas;
- Class 5.2 and 5.3, capable of supporting improved grassland, located in the central and south-eastern areas; and
- Class 6.2 and 6.3, capable of supporting rough grazing, located in the eastern and south-eastern areas.

Settlement Distribution

Residential properties are concentrated around Patna, Waterside, Rankinston, Hayhill, Sinclairston and Drongan settlements, with a small number of properties located along the minor road running between these settlements through the study area. There are a number of individual properties within 150 m of the route options and variations.

Roads and Rail

Several roads are situated within the study area, including the A713 and the B730, as well as smaller minor roads. The Doon Valley Railway Line (not in operation) is located in the southern extent of the study area.

Infrastructure

No high-pressure pipelines are located within the study area. There are several electricity transmission lines within the study area, including OHL's supported on lattice steel towers between Mark Hill substation and Coylton Substation, New Cummock substation and Colyton substation and Kendoon substation and Kilmarnock South substation.

Wind Farms

[12] *Soil Survey of Scotland Staff (1981). Land Capability for Agriculture maps of Scotland at a scale of 1:250 000. Macaulay Institute for Soil Research, Aberdeen. DOI: 10.5281/zenodo.6322683'. Available at: https://soils.environment.gov.scot/maps/capability-maps/national-scale-land-capability-for-agriculture/*

	No operational wind farms area located within the study area. A number of wind farms are proposed within the study area, including the following: • Breezy Hill (scoping) • Sclenteuch (application) • Knockkippen (application) • Knockshinnoch (consented) • Polquhairn (consented) • North Kyle (under construction)
Mining	Mining constraints located within the Site Boundary are shown on **Figures 3.17-3.18**. The study area includes a number of former and active coal mine workings, including extensive opencast coal mining sites. Active opencast coal mining sites, Benbain Remainder, Pennyvenie, and Chalmerston North, are located in the south-east of the study area. Former opencast coal mining sites Dunstonhill and Chalmerston, located in the west and south of the study area respectively, are classified as fully restored. The Dunstonhill restoration was completed 2017, while Chalmerston was completed in 2021. Given the years since restoration completion, the risk of settlement in these areas is considered to be low. Areas of underground shallow coal mining are also present throughout the study area and particularly in the south-west, which are prone to complex ground conditions and mine entries. High density of mine shafts and adits are present in the south and west of the study area. Active coal mining sites, Benbain Remainder, Pennyvenie, and Chalmerston North, do not fall within the any of the route options, being approximately 670 m away at the closest point.

	Both former opencast coal mining sites Dunstonhill and Chalmerston fall within the route options in the south and west of the study area. However, as restoration was completed a number of years ago, the risk of settlement in these areas is considered to be low. Previous shallow underground coal mining and surface coal mining sites, as well as areas at high-risk of coal mining development, fall within the route options throughout the study area, most frequently to the south and west. Mine entries are present throughout the route options, with high density areas more likely to the south and west of the study area.
Planning	The planning constraints within the study area are predominantly limited to an area of the Doon Valley designated as LLA (Policy NE1) within the EALDP. This area is located in the southern extent of the study area. A review of the East Ayrshire Council planning portal identified the consented Coylton Greener Grid Park (a 50MW battery energy storage system) directly adjacent to Coylton Substation (planning reference: 21/0748/PP). This development overlaps route option C5. No other major planning applications within the study area which overlapped with the Proposed Route options or variations.

04. Route Selection

4 Route Selection

4.1 Introduction

4.1.1 **Figures 4.1 and 4.2,** shows the key environmental features, as described in Chapter 3, along with the heat mapping (see section 2.2.3). The relative sensitivity assigned to the specific environmental features within the study area is set out in **Appendix 3**.

4.1.2 The mapping of combined constraints and their relative sensitivity have allowed the identification and evaluation of possible routes, as described below.

4.2 Stage 1: Identification of Route Options

4.2.1 Considering the key environmental and technical constraints described in Chapter 3, Route option corridors were identified within the Study Area. Each corridor provides adequate width for further refinement as the project progresses and more baseline / survey data becomes available. A such, some constraints partially remain within some Route options; these are noted in the following descriptions and identified and considered in the detailed analysis.

4.2.2 For the purposes of the environmental analysis, the study area has been divided into three sections.

Section A

4.2.3 There are five route options for Section A. Section A originates at Sclenteuch Wind Farm and extends approximately 1.3 km north-east towards the disused Keir Lime Works, at which point route options A1 to A3 diverge from route options A4 and A5. Route option A1 extends approximately 2.2 km north-west, where it connects again with route option A2 south of the River Doon, before crossing this feature and the A713, meeting with the northern-most point of route option A3 north of the A713.

4.2.4 After diverging from route option A1, south of the disused Keir Lime Works, route options A2 and A3 extend approximately 1 km to the north, running east of Keirs Burn, before diverging south of the River Doon. Route option A2 then runs approximately 0.6 km to the north-west until it meets with route option A1, prior to running north and crossing the River Doon and the A713. Where route option A3 diverges from route option A2, it runs approximately 0.3 km north-east and then crosses the River Doon and the A713, north of Waterside settlement, before running approximately 0.85 km to the north of the A713, where it converges again with route options A1 and A2 and their northern most point.

4.2.5 Route options A4 and A5 diverge from Route options A1 to A3 south of disused Keirs Lime Works, before running approximately 1 km north-east, where the route options turn south, running adjacent to the River Doon until diverging, approximately 1 km south-west of Laight settlement. Route option A4 crossed the River Doon, the A713 and the Waterside Branch Rail Line, continuing in a north-east direction for approximately 2.7 km where it reaches the north-westernmost corner

of Old Pit Bing. Route option A4 crosses an area classified as Class 1 Peat as it approaches Section B. Where route option A4 diverges from route option A5, route option A5 continues for approximately 0.5 km to the south-east, where it then turns to the east, crosses the River Doon and the A713, then runs south of Minnivey settlement and north of Burnton settlement for approximately 3 km. At this point, Route option A5 then turns and continues north for approximately 0.7 km, crossing Old Pit Bing in a north-west direction for approximately 1.4 km, where it meets Section B.

Section B

4.2.6 There are four route options for Section B, with three variations. Section B originates in two locations. Route options B1 and B2 originate in proximity to Patna and adjacent to the A713. Route options B3 and B4 originate in the north-westernmost corner of the Old Pit Bing.

4.2.7 Route options B1 and B2 run approximately 2.3 km north, to the west of the Knockkippen turbines, where the route options then diverge and run parallel in a north, then north westerly direction, passing to the west of Dunstanhill Void, until converging again just north of Knockshinnock settlement. Route option B1 runs to the west of route option B2, the former of which crosses the B730 approximately 1 km west of Dunstanhill Void, and again north of Knockshinnock settlement. Variation B1.1 runs between route option B1 and route option B2, across an area of forest plantation, approximately 0.4 km south-west of Dunstanhill Void. Both route option B1 and B2 then run in a north-eastern direction for approximately 2 km, where they meet Section C, just north of Littlemill settlement.

4.2.8 Route options B3 and B4 run approximately 2.5 km in a north-western direction, between Knockkippen turbines to the west and North Kyle and Breezy Hill turbines to the east. Route options B3 and B4 diverge at the southernmost point of Hawford burn, running in parallel, but separated at varying distances, up to approximately 0.6 km, in a north-eastern direction for approximately 2 km, meeting adjacent to the other at a location to the south-east of Ravenscroft settlement, to the west of the Breezy Hill and Polquhairn turbines. While separated Route option B4 crosses an unavoidable narrow strip of Long-Established (of plantation origin) designated under AWI. Both route options B3 and B4 run to the north, where they meet Section C between approximately 0.5 km and 1 km south of Hayhill settlement. The southern areas of route options B3 and B4 cross areas of ground above 350 m AOD due to a number of constraints including wind farm buffers to the east and west and large areas of commercial forestry to the west.

4.2.9 Variation B4.1 and B4.2 run between route option B4 and Section C: Variation B4.1 runs from the terminus of route option B4, north-west to Section C for approximately 0.8 km, with Variation B4.2 running from the terminus of route option B4, to the north-east to Section C for approximately 0.8 km. Variation B4.1 joins with route options C1 and C2, whereas Variation B4.2 joins with route options C3, C4 and C5.

Section C

4.2.10 There are five route options for Section C, with three variations. Route option C1 originates approximately 0.4 km north of Littlemill settlement, with route option C2 and C3 originating approximately 0.6 km and 0.5 km south of Elymains settlement respectively. Route options C4 and C5 originate approximately 0.6 km south-east of Hayhill settlement.

4.2.11 Route option C1 runs in a north-eastern direction for approximately 0.4 km until it reaches Colyton Substation, crossing the B730 between High Knockmurran and Bonnyton settlements, and the B7046 and Taiglium Burn approximately 0.8 km east of Drongan settlement. Variation C1.1 diverges from route option C1 where it crosses the B7046 and runs to the east of Treesmax Farm, whereas route option C1 runs to the west of this property. Variation C1.1 joins route option C1 again approximately 0.8 km south of Coylton Substation.

4.2.12 Route options C2 and C3 run from their origin to the west and east of Elymains settlement respectively, each crossing Drumbowie Burn within approximately 0.3 km of their origin. Route options C2 and C3 converge to the north of Elymains settlement, approximately 0.3 km south-west of Hayhill settlement, where they run north for approximately 1.6 km until converging with route option C1 approximately 1.5 km south of Coylton Substation.

4.2.13 Route options C4 and C5 run approximately 1.1 km north, with Hayhill settlement to the west and Sinclairston settlement to the east, to a point where the route options diverge. Variation C4.1 runs from this point, to the north-west, joining with route options C2 and C3 approximately 0.8 km north-west of Hayhill settlement. Route options C4 and C5 cross the B7046 approximately 0.3 km north-west of Sinclairston settlement, whereas route option C4 runs approximately 2.5 km north until reaching Coylton Substation, crossing Taiglium Burn approximately 1.0 km south of Coylton Substation. Route option C5 runs approximately 1.2 km north-east, where it crosses Taiglium Burn and diverges into route option C5 and Variation C5.1, running to the west and east respectively, of properties in Ochiltree and Cumnock, before converging again, crossing Taiglium Burn a second time, approximately 1 km south-east of Coylton Substation. From this convergence, route option C5 runs approximately 1 km north-west where it connects with Coylton Substation.

Summary of Options

4.2.14 Following the consideration of identified constraints, topography, and proximity to the road network fourteen main route options and six variations have been identified within the refined study area as shown in **Figure 4.2, Appendix 1**. The fourteen route options and their associated variations are identified in **Table 4.1**.

Table 4.1: Route options by section

SECTION A	SECTION B	SECTION C
Option A1	Option B1	Option C1
Option A2	• Variation B1.1	• Variation C1.1
Option A3	Option B2	Option C2
Option A4	Option B3	Option C3
Option A5	Option B4	Option C4
	• Variation B4.1	• Variation C4.1
	• Variation B4.2	Option C5
		• Variation C5.1

4.3 Stage 2: Environmental Analysis and Selection of Preferred Route

4.3.1 Table 4.3, Table 4.4 and Table 4.5 provide a colour coded summary of the detailed analysis for each section, based on the key set out in Table 4.2[13]. The detailed analysis of the 14 route options is contained within **Appendix 4** of this report.

Table 4.2: Colour coding used for detailed analysis

COLOUR CODE	CLASSIFICATION
	Preferred option: greatest potential to accommodate the required infrastructure within the context of the environmental constraints identified.
	Some potential to accommodate required infrastructure within the context of the environmental constraints identified.
	Least relative potential to accommodate the required infrastructure within the context of the environmental constraints identified.

[13] Note that these colour coding's represent relative weightings. A green colour code does not mean that no environmental issues have been identified nor does a red colour code necessary reflect any insurmountable environmental constraint.

Table 4.3: Environmental appraisal of route options – Section A

TOPIC	ROUTE OPTIONS					SUMMARY
	A1	A2	A3	A4	A5	
Ecology						Route options A1 and A2 cross more broadleaved woodland, which is a higher value habitat. The majority of Route option A4 runs through a small section (220 m) of Class 1 peatland habitat. Desk based information suggests the habitats here are rough pasture grassland and modified bog, lower importance habitats. The condition of the peatland habitat would be confirmed through survey if Route option A4 is taken forward.
Ornithology						Route options A1 and A2 cross more broadleaved woodland, which has higher potential for bird nesting.
Landscape						All route options in Section A extend through the Doon Valley LLA, which is considered to have a Medium sensitivity to the transmission infrastructure. Route option A4 is the least constrained in landscape terms, subject to suitable routeing it would take advantage of screening, woodland and forest cover and intervening topography. A key issue in respect of Sections A1-A3 relates to their positions within a landscape designated as an LLA, where a large portion of the sections would represent a prominent new feature crossing a relatively sensitive incised valley landscape. A key issue in respect to Sections A1-A2 is their encroachment into existing woodland and forested areas, with consequent potential for notable losses of existing structural vegetation and effects on landscape condition and character. A5 will have minimal encroachment into existing woodland and forested areas, hence will have consequent potential for marginal losses of existing structural vegetation.
Visual Amenity						Route options A4-A5 are preferred over Route options A1-A3 due to the low number of Medium and/or High sensitivity visual receptors that would be affected by visibility of the line. Route option A4 is

TOPIC	ROUTE OPTIONS					SUMMARY
	A1	A2	A3	A4	A5	
						preferred given it takes more advantage of the screening effect of intervening topography and vegetation. Route option A3 is preferred over Route options A1-A2, as it takes advantage of existing vegetation for screening views from key route corridors. Although it will be positioned closer to residential receptors and recreational receptors than A1-A3, there will be no skylining of the OHL, as it would be backclothed by vegetation.
Cultural Heritage						It is not anticipated that route option A1 would result in significant impacts upon the settings of any designated assets within 1 km, and there is generally considered to be a Low potential for direct impacts upon buried archaeological remains (due to the identified Low density and the relatively small construction footprints). It is noted that further assessment of both of these factors would be required. It is not anticipated that route options A2, A3, and A4 would result in significant impacts upon the settings of any designated assets within 1 km, although it is anticipated for there to be some potential Low-level effects that would require further assessment. There is also generally considered to be a Low potential for direct impacts upon buried archaeological remains (due to the identified Moderate density of known assets and the relatively small construction footprints). It is noted that further assessment of both of these factors would be required. It is not anticipated that route option A5 would result in significant impacts upon the settings of any designated assets within 1 km, and that there is generally considered to be a Low potential for direct impacts upon buried archaeological remains (due to the identified Moderate potential and the relatively small construction footprints).

TOPIC	ROUTE OPTIONS					SUMMARY
	A1	A2	A3	A4	A5	
						It is noted that further assessment of both of these factors would be required.
Geology, Hydrogeology, Hydrology and Peat						Given that each route option within Section A crosses watercourses and areas of flood risk, it is anticipated that hydrology would not have major influence on which is preferable. Although there is a slight preference for route options A4 and A5 as they would require fewer watercourse crossings. The southern extent of all Routes and Route options B3 and B4 include areas of Class 3 and Class 5 peat. Areas of Class 1 peat are present on Route options A4 and A5 (very limited areas are present on Route option A5). Siting of poles on peat areas could lead to direct loss of peatland habitats and hydrological alterations could lead to indirect impacts on the condition of peat soils and increased erosion rates. A small area of Class 1 peat is present on Route A5 which could be avoided through micrositing. One pole location is likely to be required within an area of peat on Route option A4. The condition of the peatland habitat would require confirmation through survey if Route option A4 is taken forward.
Forestry						Route option A1 includes a high density of woodland creation which was approved for planting in 2022; a degree of this would require removal. Route option A2 is similar, with some native woodland. Route option A3 has woodland creation approved for planting in 2020 and a small strip of native woodland. However, the larger part of A3 north of the railway is clear of woodland constraints. Rout option A4 has minimal woodland constraints; a narrow strip of native woodland would be avoidable by design. Route option A5 is similar to A4 with minimal woodland present; two small native woodland and other broadleaved woodland would be avoidable.

TOPIC	ROUTE OPTIONS					SUMMARY
	A1	A2	A3	A4	A5	
Recreation and Tourism						None of the route options intersect a core path, nor are they in proximity to, nor would they intersect, any identified tourist attraction, accommodation or leisure facility set out in **Table 3.1.**
Infrastructure						All route options intersect at least one main road (A713) and comprise at least one major infrastructure crossing (OHLs and the associated 35 m standoff buffer). However, A5 would have multiple OHL crossings and is less preferred. Additionally, all route options cross the Doon Valley Railway.
Landuse						None of the route options overlap with soils classified as prime agricultural land. None of the route options intersect settlements. Route options A1, A2 and A3 do not afford alignment flexibility to maintain 150 m from all residential receptors and therefore may require further consideration of landscape/visual amenity impacts.
Mining						Route options A4 and A5 are within an area considered high-risk for development in relation to mining activities and cross a former opencast mining area which was fully restored in 2021. As restoration of these areas was completed a number of years ago, risk of settlement is considered to be low. Numerous mine entries are also indicated to be present along route option A5. Mine entries along route options A4 and A5 could result in complex ground for development. Route options A1 – A3 pass through limited areas of high-risk for development. A limited number of mine entries are also present

TOPIC	ROUTE OPTIONS					SUMMARY
	A1	A2	A3	A4	A5	
						along route options A1 – A3. These areas are not indicated to be affected by active or former opencast coal mining.
Planning						None of the route options, nor the variations, would interact with identified major application within the study area. The Route options are located within an area designated as LLA and, therefore, may require additional consideration against local planning policy.
Combined preference through Section A						Route option A4 is identified as the overall preference in Section A, on the basis that it has fewer interactions with residential dwelling and fewer watercourse crossings when compared to Route options A1-A3. Route option A4 is preferred to Route option A5 as it takes a more direct route than A5, it also requires fewer less infrastructure crossings. It is noted that sensitivities remain regarding an area of Class 1 Peat and former mining works.

Table 4.4: Environmental appraisal of route options – Section B

TOPIC	ROUTE OPTIONS							SUMMARY
	B1	B1.1	B2	B3	B4	B4.1	B4.2	
Ecology								None of the habitats recorded are considered to be of increased value. Suitability for protected species exists but cannot be used to differentiate between route options.
Ornithology								Potential for impacts on open foraging and coniferous woodland species exists for all route options and variation B1.1.
Landscape								Route option B1 is preferred over B1.1 and B2 as it takes advantage of existing vegetation for screening and will require overall less woodland removal. However, route options B3 and B4 are the least constrained as they are situated more distantly from key receptors and the main concentrations of OHLs, and are set within an undulating foothills landscape is characterised by existing wind farms. Furthermore, although positioned on the highest elevation points of the route options, Routes B3 and B4 will remain obstructed from long-distance views by existing woodland and intervening topography. Route option B3 is preferred as it is the more distant from settlements and is closest to existing wind farm developments (Polquhairn and Breezy Hill).
Visual Amenity								Route option B3 is preferred, in visual terms, as it contains few highly sensitive visual receptors, takes advantage of the screening effect of intervening topography and vegetation, and is positioned a relatively greater distance from visual receptor locations compared to the other Section B route options. Moreover, it is set within a highly developed context of wind farms in the foothills.
Cultural Heritage								It is not anticipated that route options B1 and B2 would result in significant impacts upon the settings of any designated assets within 1 km, and there is generally considered to be a Low potential for direct impacts upon buried archaeological remains (due to the identified Moderate density of known assets and the relatively small construction footprints). It is noted that further assessment of both of these factors would be required.

TOPIC	ROUTE OPTIONS							SUMMARY
	B1	B1.1	B2	B3	B4	B4.1	B4.2	
								It is not anticipated that route options B3 and B4 would result in significant impacts upon the settings of any designated assets within 1 km and there is generally considered to be a Low potential for direct impacts upon buried archaeological remains (due to the identified Low density of known assets and the relatively small construction footprints). It is noted that further assessment of both of these factors would be required. It is not anticipated that variations B1.1, B4.1 and B4.2 would result in significant impacts upon the settings of any designated assets within 1 km, and there is generally considered to be a Low potential for direct impacts upon buried archaeological remains (due to the identified Low density of known assets and the relatively small construction footprints). It is noted that further assessment of both of these factors would be required.
Geology, Hydrogeology, Hydrology and Peat								There is no preference in terms of hydrology for Section B as each route option requires a similar number of watercourse crossings that would necessitate the application of standard mitigation practices.
Forestry								Route option B1 has woodland constraints mainly in its southern half, although the NFI indicates this woodland requires verification. Native woodland occurs in two locations which are avoidable by detailed design. Variation B1.1 includes NFI identified native woodland, but this is thought to be open ground from a review of the aerial imagery. Route option B2 has a large presence of established woodland and woodland creation which would require some removal; there are also some avoidable native woodland constraints. Route option B3 has woodland creation and existing conifer plantation constraints. Route option B4 includes woodland creation constraints and a single narrow AWI (long-established plantation origin) which is unavoidable. Variation B4.1 has no woodland constraints. Variation

TOPIC	ROUTE OPTIONS							SUMMARY
	B1	B1.1	B2	B3	B4	B4.1	B4.2	
								B4.2 has a single minor element of native woodland which is readily avoidable.
Recreation and Tourism								Route option B1 and B2 intersect core paths, but the core paths do not span the entire width of the route options. Route option B1 and B2 are located adjacent to the Doon Valley Golf Club. All other route options, including variations, do not intersect core paths, nor are they in proximity to, nor would intersect, any identified tourist attraction, accommodation or leisure facility set out in **Table 3.1.**
Infrastructure								At the western edge of Knockshinnoch Wind Farm much of the width of Route option B1 sits within 2 rotor diameters of the westernmost turbine, and for this reason the Route option is rated Red. Portions of Route options B3/B4 are within 3x rotor diameter of Breezy Hill Windfarms western turbines and are therefore assigned Amber ratings. Additionally, route options B1, B2 and variation B4.1 intersect at least one main road (B730). No other route options or variations intersect main roads. None of the route options, nor the variations, comprise crossing major infrastructure. Route option B2 is rated Green on the basis that it has only one road crossing.
Landuse								None of the route options, nor the variations, overlap with soils classified as prime agricultural land. None of the route options, nor the variations, intersect settlements. Route options B1 and B2 do not afford alignment flexibility to maintain a 150 m distance from all residential receptors and therefore may require further consideration of landscape/visual amenity impacts.

TOPIC	ROUTE OPTIONS							SUMMARY
	B1	B1.1	B2	B3	B4	B4.1	B4.2	
Mining								Route options B1-B4, and variation B1.1, lie within an opencast coal mining area restored in 2017. As restoration for this area was completed a number of years ago, risk of settlement is considered to be low. Historic mine entries along route options B2 and B4 could result in complex ground for development. Route options B3 and B4, and minor portions of the remaining route options, sit within an area designated as high-risk for development in relation to mining activities. Route option B2 and minor portions of B3, B4, and variation B4.2, fall within the East Ayrshire Council areas of known coal that may be acceptable, in principle, for future coal mining.
Planning								None of the route options, nor the variations, would be contrary to planning policy or interact with identified major application within the study area. This is with the exception of the southernmost extent of the route options which is partially within a designated LLA and, therefore may require additional consideration against local planning policy.
Combined preference through Section B								Route option B3 is identified as the overall preference in Section B, on the basis that it is the least constrained with regards to landscape and visual effects. Additionally, it is less constrained in relation to Ecology, Ornithology, Heritage and Hydrology than other options in this section. It is noted that sensitivities remain in relation to proximity to Breezy Hill and Polquhairn Windfarms and former mining works.

Table 4.5: Environmental appraisal of route options – Section C

TOPIC	ROUTE OPTIONS								SUMMARY
	C1	C1.1	C2	C3	C4	C4.1	C5	C5.1	
Ecology									Route option C2 crosses more broadleaved woodland, which is a higher value habitat.
Ornithology									Route option C2 crosses more broadleaved woodland, which has higher potential for bird nesting.
Landscape									Due to the cumulative context of existing OHLs in the area, and Medium sensitivity of the agricultural lowlands, all Section C route options are considered Moderately constrained in landscape terms. Of the route options considered in Section C, C4 and C5 are marginally preferred in landscape terms as they are located in an area with marginally less OHL infrastructure, thereby slightly reducing the potential for wirescape impacts.
Visual Amenity									Route option C5 is the preferred option, in visual terms, as it contains few highly sensitive visual receptors, takes advantage of the screening effect of intervening topography and vegetation, and is positioned a relatively greater distance from visual receptor locations compared to the other Section C route options.
Cultural Heritage									It is not anticipated that route options C1 to C5 would result in significant impacts upon the settings of any designated assets within 1 km, and there is generally considered to be a Low potential for direct impacts upon buried archaeological remains (due to the identified Low density of known assets and the relatively small construction footprints). It is noted that further assessment of both of these factors would be required. It is not anticipated that variations C1.1, C4.1 and C5.1 would result in significant impacts upon the settings of any designated assets within 1

TOPIC	ROUTE OPTIONS								SUMMARY
	C1	C1.1	C2	C3	C4	C4.1	C5	C5.1	
									km, and that there is generally considered to be a Low potential for direct impacts upon buried archaeological remains (due to the identified Low density of known assets and the relatively small construction footprints). It is noted that further assessment of both of these factors would be required.
Geology, Hydrogeology and Hydrology									There is no preference in terms of hydrology for Section C as each route option requires a similar number of watercourse crossings that would necessitate the application of standard mitigation practices.
Forestry									Route option C1 has minor native woodland and while one area of wet woodland is not avoidable, it may be possible to oversail as the trees tend to be lower in stature. Variant C1.1 contains no woodland constraints. Route option C2 has a single native woodland, similar to C1, which may be possible to oversail with no effect on the wet woodland. Route options C3, C4, and Variation C4.1 contain no woodland constraints. Route option C5 and Variation C5.1 have minor native woodlands which are readily avoidable.
Recreation and Tourism									All route options, with the exception of variation C4.1 and C5.1, intersect a core path, each intersecting the core path across the full span of the route option. None of the route options are they in proximity to, nor would intersect, any identified tourist attraction, accommodation or leisure facility set out in **Table 3.1**
Infrastructure									Route option C1 intersects at least two main roads (B730 and B7046) and comprises at least one major transmission infrastructure crossing (OHL). All route other options intersect at least one main road (B7046) or comprise at least one major infrastructure crossing (OHL). This is apart from variations C1.1, which only partially overlaps with the 35m standoff buffer from the OHL, and C4.1, which does not intersect any

TOPIC	ROUTE OPTIONS								SUMMARY
	C1	C1.1	C2	C3	C4	C4.1	C5	C5.1	
									infrastructure. Variation C1.1 does intersect a main road, the B7046. Route Option C4 does not intersect any major infrastructure crossing.
Land Use									None of the route options, nor the variations, overlap with soils classified as prime agricultural land. None of the route options, nor the variations, intersect settlements. Route option C1 does not afford alignment flexibility to maintain a 150 m distance from all residential receptors and therefore would require further consideration of landscape/visual amenity impacts.
Mining									One possible mine entry is located in the northern half of route option C1. Minor portions of C1 fall within a high-risk area. A minor portion of route options C4 and C5 fall within the East Ayrshire Council areas of known coal that may be acceptable, in principle, for future coal mining.
Planning									None of the Route options, nor the variations, would be contrary to planning policy. Route option C5 interacts with Coylton Greener Grid Park in East Ayrshire (planning reference: 21/0748/PP) as it approaches Coylton substation.
Combined preference through Section C									Route options C3, C4 and C5 all score strongly. Route option C5 is deemed marginally preferrable from a visual amenity standpoint while route option C4 is preferrable from a technical and planning perspective. Additionally route option C4 is the most direct route within Section C. Overall, route option C4 is marginally preferred due to the lack of infrastructure crossings, lack of interaction with the Coylton Greener Grid Park and it being the most direct route. It is noted that sensitivities remain for route option C4.

Preferred Route and Key Issues

4.3.2 The Preferred Route is identified as follows:

- Section A: A4;
- Section B: B3, and
- Section C: C4.

4.3.3 This has an overall length of approximately 16 km. It is considered to offer the best balance between environmental, technical and economic factors. It is technically feasible and economically viable and, relative to other route options, avoids or reduces impacts on the environment and the people who live, work and partake of recreational activities in the area as far as possible.

4.3.4 The Preferred Route is shown on Figure 4.1c and Figure 4.2c.

4.3.5 Key issues associated with this Preferred Route are:

- Proximity to Heritage Asset 11: a mineral railway which forms part of the wider Waterside Miners Village and mineral railways Scheduled Monument (Asset 2). Asset 11 extends slightly into the north-eastern extent of the Preferred Route within Section A;
- Proximity to Class 1 peatland habitat in the north-eastern extent Section A4.
- Proximity to proposed Breezy Hill wind farm in Section B3;
- Requirement for tree felling within a woodland creation scheme in Section B to ensure appropriate safety clearances from the OHL. The required wayleave would include this area;
- Potential interaction with former mining assets (now restored);
- Proximity to dwellings with the northern section of the Preferred Route within Section C, and
- Road and railway crossings.

4.3.6 Through detailed design it is anticipated that the majority of the above issues would be avoided to the greatest extent possible. Where avoidance is not possible appropriate mitigation measures would be identified to mitigate against significant effects.

Biodiversity Net Gain

4.3.7 Biodiversity Net Gain (BNG) been considered through the routeing process. The biodiversity value of habitats within the various Route Options has enabled consideration of the biodiversity mitigation hierarchy as best practice. The results of the BNG appraisal undertaken as part of the routeing process, indicate that although it is not possible to avoid impacts to high distinctiveness habitats (covering the majority of the area across all Route Options considered), it should be possible to minimise biodiversity impacts and offsetting requirements through the detailed design of the chosen alignment (including access tracks and construction

works) to avoid areas of irreplaceable habitat within the preferred option, specifically blanket bog habitat in section A4 and B3. Additionally, application of good environmental construction practice would help to minimise impacts on high value habitats in line with the mitigation hierarchy.

4.3.8 A detailed Biodiversity Net Gain (BNG) assessment on the chosen alignment will be undertaken as part of the environmental assessments. This BNG assessment will use detailed UKHab survey and Habitat Condition Assessment (HCA) data, along with detailed designs, to assess biodiversity impacts as a result of the development as well as considering opportunities to deliver BNG. As a business, SPEN is committed to achieving No Net Loss (NNL) of biodiversity across all of its projects.

05. Consultation on the Proposals and Next Steps

5 Consultation on the Proposals and Next Steps

5.1.1 As set out in section 1 of this Routeing and Consultation Document, SPEN will be required to apply to Scottish Ministers for consent under Section 37 of the Electricity Act 1989 for construct the project. At the same time, SPEN will also apply for deemed planning permission and associated works under Section 57(2) of the Town and Country Planning (Scotland) Act 1997.

5.1.2 While there are no formal pre-application requirements for consultation in seeking Section 37 consent and deemed planning permission, SPEN is embracing best practice as promoted by Scottish Government Energy Consents Unit and encouraging the engagement of stakeholders and the public in order to develop its proposals in advance of such applications being made.

5.1.3 The intention of this consultation is to gain views on the identified Proposed Route as well as the alternatives considered. The consultation will seek to gain views from the following broad groups:

- Statutory and non-statutory consultees, including community councils.
- Known local interest and community groups operating in the East Ayrshire and South Ayrshire areas.
- Local elected members in the East Ayrshire Council area.
- Local residents, businesses and the public in general.

5.1.4 Prior to the submission of the consent application, SPEN will carry out two rounds of consultation with stakeholders and the public:

- Phase One Consultation: Public consultation on the Preferred Route option, as detailed in this Routeing and Consultation Document.
- Phase Two Consultation: Public consultation on a more detailed route alignment for the Grid Connection anticipated to be later in 2025.

5.1.5 The public exhibition as part of the Phase One consultation will be held in the locations and at the times detailed in the following:

Tuesday 22nd April 2025 between 2.30pm – 7pm

Miners Suite, Dalmellington Community Centre

38 Ayr Rd, Dalmellington, Ayr. KA6 7SJ

Wednesday 23rd April 2025 between 11:30am - 5pm

The Young Farmers Room, Stair Community Centre

Trabboch, Mauchline. KA5 5HT

5.1.6 The exhibition will be advertised in the local press, and in the local community. All of the project information and documents will also be available online at: www.spenergynetworks.co.uk/pages/sclenteuch_wind_farm_connection.aspx

5.1.7 Comments forms will be available at the public exhibition. Comments can also be posted or emailed to SPEN, at the details below.

E-mail:

sclenteuchconnection@spenergynetworks.co.uk

Post:

Sclenteuch Connection
Land & Planning Team
55 Fullarton Drive
Glasgow
G32 8FA

5.1.8 Phase 1 Consultation will run from **16th April to 16th May 2025.**

5.1.9 All comments received will inform further consideration of the Preferred Route alignment and the selection of a Proposed Route alignment, which will be taken forward for more detailed environmental assessment prior to submission of an application for Section 37 consent under the Electricity Act 1989 (for the OHL). These applications will be developed for submission in early 2026.

Appendix 1: Figures

Appendix 2: Environmental Baseline Data Sources

Table B.1: Environmental Data Sources		
Feature	**Abb**	**Source**
Ancient Woodland Inventory	AWI	NatureScot
Conservation Areas	CA	Historic Scotland
Core Paths	-	East Ayrshire Council
Wild Land Areas 2014	WLA	NatureScot
Cycle Routes	-	SUSTRANS
Existing Transmission Infrastructure	-	SPEN
Flood Risk Zones	FRZ	SEPA online flood mapping
Hydrogeology	-	BGS (online)
Landscape Character Types (Landscape Character Assessment)	LCT (LCA)	NatureScot
Listed Buildings	LB	Historic Scotland
National Tourist Routes	-	VisitScotland
National Scenic Areas	NSA	Scottish Government
Regional Scenic Areas	RSA	East Ayrshire Council
OS Maps 1-250k	-	OS Open Data
OS Maps 1-50k	-	Emapsite
Ramsar sites	-	NatureScot
Residential Settlements and housing allocation areas	-	OS Address Layer (downloaded from emapsite)
RSPB Reserves	-	RSPB
Scheduled Monuments	SM	Historic Scotland
SEPA Assessed Watercourses	-	SEPA online river basin management plan mapping
Sites of Special Scientific Interest	SSSI	NatureScot
East Ayrshire Scenic Area	-	East Ayrshire Council
Special Area of Conservation	SAC	NatureScot
Special Protection Areas	SPA	NatureScot
Wind farms	-	East Ayrshire Council / Energy Consents Unit

Appendix 3: Environmental Constraint Sensitivity

Constraint	Sensitivity (High / Medium / Low)	Buffer (m)	Sensitivity of Buffer (High / Medium -Amber Low - Green)	Notes
Landscape				
Settlement	High	200	Medium	
National Scenic Areas	High	250	Medium	
Wild Land Areas and GDLs	High	500	Medium	
Seascape Type 9 - Sounds, Narrows and Islands	High	-		
Cultural Heritage				
Listed Buildings - A	High	500	High	Buffer to reduce potential setting impacts
Listed Buildings – B	Medium	500	Medium	Buffer to reduce potential setting impacts
Listed Buildings – C	Medium	250	Low	Buffer to reduce potential setting impacts
Scheduled Monument	High	500	Medium	Buffer to reduce potential setting impacts
Conservation Area	High	250	Medium	Buffer to reduce potential setting impacts
Ecology				
Special Area of Conservation	High	500	Medium	
RAMSAR	High	0	-	
Special Protection Area	High	1000	Medium	
Sites of Special Scientific Interest Biological or Mixed	High	0	-	
Important Bird Area	Medium	0	-	
Ancient Woodland Inventory	Medium	0	-	
Geology, Hydrogeology and Hydrology				
Waterbodies (rivers, burns, lakes, ponds etc.)	High	50	High	Buffer to ensure no infrastructure located within 50 m.
Recreation and Tourism				
Core Paths	Medium	0	-	

Constraint	Sensitivity (High / Medium / Low)	Buffer (m)	Sensitivity of Buffer (High / Medium -Amber Low - Green)	Notes
Land Use and Infrastructure				
Existing HV lines	Medium	70	Medium	Buffer allows for typical stand-off distance. Medium sensitivity assigned due to potential to cross via undergrounding.
Properties	High	150	High	Buffer to reduce potential impacts on residential amenity.
Wind farm turbine locations (existing, consented and application stage)	High	Tip height + 10%	High	Red buffer defined as 2x maximum rotor diameter, to avoid technical issues (turbulence, etc). Amber buffer defined as 3x maximum rotor diameter.

Appendix 4: Detailed Environmental Analysis of Route Options

1 Introduction

1.1.1 Seven potential routes have been identified as potentially feasible to accommodate the proposed connection, to connect Sclenteuch Wind Farm to Coylton Substation All route options and associated variations are shown on **Figure 4.1, Appendix 1**.

1.1.2 This annex provides the detailed environmental analysis of each route option, presenting a preference for each environmental topic area.

2 Detailed Environmental Analysis of Route Options

Ecology

2.1.1 Ecology surveys have not been undertaken to date, with this assessment based on desk-based data sourced online. The study area is mainly agricultural with intensively grazed and arable fields in the lower sections and upland rough pasture in the higher sections. There are also stands of coniferous woodland, especially the middle section around Bow Hill and smaller areas of broadleaved woodland.

Section A

Route Option A1

2.1.2 The southern end of route option A1 leaves Sclenteuch Wind Farm initially crossing are coniferous woodland and rough pasture. This gives way to more intensive farmland and patches of woodland by the River Doon, including a belt of broadleaved woodland at Knockannot. These habitats have potential to be used by otter, badger, red squirrel, pine marten and Scottish wildcat. These habitats have the potential to support roosting, commuting and foraging bats.

2.1.3 The route option overlaps slightly with an area listed on the Ancient Woodland Inventory, Keir's Glen, listed as Ancient (of semi-natural origin).

Route Option A2

2.1.4 The southern end of route option A2 leaves Sclenteuch Wind Farm initially crossing are coniferous woodland and rough pasture. This gives way to more intensive farmland and patches of woodland by the River Doon, including a belt of broadleaved woodland at Knockannot. These habitats have potential to be used by otter, badger, red squirrel, pine marten and Scottish wildcat. These habitats have the potential to support roosting, commuting and foraging bats.

Route Option A3

2.1.5 The southern end of route option A3 leaves Sclenteuch Wind Farm initially crossing are coniferous woodland and rough pasture. This gives way to more intensive farmland and patches of woodland by the River Doon. These habitats have

potential to be used by otter, badger, red squirrel, pine marten and Scottish wildcat. These habitats have the potential to support roosting, commuting and foraging bats.

Route Option A4

2.1.6 The southern end of route option A4 leaves Sclenteuch Wind Farm initially crossing are coniferous woodland and rough pasture. This gives way to more intensive farmland and patches of woodland by the River Doon before it climbs in altitude to the east of Dunaskin Glen, again over rough pasture. At its northern end it crosses a small section (220m) of Class 1 peatland habitat. The habitats here are rough pasture grassland and modified bog, lower importance habitats. There is also a track that runs through this area, adjacent to which the peatland is likely to be disturbed and modified. There is also potential for the line to span this peatland at its shortest crossing point, 140m. These habitats have potential to be used by otter, badger, red squirrel, pine marten and Scottish wildcat. These habitats have the potential to support roosting, commuting and foraging bats.

Route Option A5

2.1.7 The southern end of route option A5 leaves Sclenteuch Wind Farm initially crossing are coniferous woodland and rough pasture. This gives way to more intensive farmland and patches of woodland by the River Doon before it climbs in altitude to the east of Chalmerston Glen, again over rough pasture and an area of broadleaved woodland. These habitats have potential to be used by otter, badger, red squirrel, pine marten and Scottish wildcat. These habitats have the potential to support roosting, commuting and foraging bats.

Section B

Route Option B1

2.1.8 Route option B1 heads north over rough pasture before changing into coniferous woodland at Dunston Hill. The habitats switch back into more intensive agriculture and broadleaved woodland on the stretch toward Littlemill. These habitats have potential to be used by otter, badger, red squirrel, pine marten and Scottish wildcat. These habitats have the potential to support commuting and foraging bats.

Variation B1.1

2.1.9 Variation B1.1 is a short, 150 m, section that connects route options B1 and B2. It lies within coniferous woodland surrounded by modified grassland. These habitats have potential to be used by badger, red squirrel, pine marten and Scottish wildcat. These habitats have the potential to support commuting and foraging bats.

Route Option B2

2.1.10 Route option B2 heads north over rough pasture before changing into coniferous woodland at Dunston Hill. The habitats switch back into more intensive agriculture and broadleaved woodland on the stretch toward Littlemill. These habitats have potential to be used by otter, badger, red squirrel, pine marten and Scottish wildcat. These habitats have the potential to support commuting and foraging bats.

Route Option B3

2.1.11 Route option B3 heads north over coniferous woodland and rough pasture, passing Craigdonkey, Ewe Hill and Auchingee Hill. These habitats have potential to be used by otter, badger, red squirrel, pine marten and Scottish wildcat. These habitats have the potential to support commuting and foraging bats.

Route Option B4

2.1.12 Route option B4 heads north over coniferous woodland and rough pasture, passing Craigdonkey, Ewe Hill and Auchingee Hill. This option runs through an area of Ancient Woodland at Coylton, long established of plantation origin, a lower importance ecological habitat. These habitats have potential to be used by otter, badger, red squirrel, pine marten and Scottish wildcat. These habitats have the potential to support commuting and foraging bats.

Variation B4.1

2.1.13 Variation B4.1 is a section that connects options B4 to C1. It crosses intensive grazing fields, with very little trees present. These habitats have potential to be used by badger. These habitats have the potential to support commuting and foraging bats.

Variation B4.2

2.1.14 Variation B4.2 is a section that connects options B4 to C4/5. It crosses intensive grazing fields, with an area of broadleaved woodland around Drumbowie. These habitats have potential to be used by badger. These habitats have the potential to support commuting and foraging bats.

Section C

Route Option C1

2.1.15 Route option C1 crosses intensive grazed or arable fields as it runs north into Coylton Substation. There are some lines of trees crossed by the route along field boundaries, but the route option mostly avoid trees. These habitats have potential to be used by otter and badger. These habitats have the potential to support commuting and foraging bats.

Variation C1.1

2.1.16 Variation C1.1 diverts from route options C1-3 and runs to the east of Treesmax, before rejoining route options C1-3. It crosses intensively grazed or arable fields with little to no trees present. These habitats have potential to be used by otter and badger. These habitats have the potential to support commuting and foraging bats.

Route Option C2

2.1.17 Route option C2 crosses intensive grazed or arable fields as it runs north into Coylton Substation. At its southern end it crosses and area of broadleaved woodland around Drumbowie Burn. These habitats have potential to be used by otter, badger, red squirrel, pine marten and Scottish wildcat. These habitats have the potential to support roosting, commuting and foraging bats.

Route Option C3

2.1.18 Route option C3 crosses intensive grazed or arable fields as it runs north into Coylton Substation. At its southern end it crosses and area of scattered broadleaved trees around Drumbowie Burn. These habitats have potential to be used by otter, badger, red squirrel, pine marten and Scottish wildcat. These habitats have the potential to support roosting, commuting and foraging bats.

Route Option C4

2.1.19 Route option C4 crosses intensive grazed or arable fields as it runs north into Coylton Substation. There are some lines of trees crossed by the route along field boundaries at Muirston and Whitehill Farms. These habitats have potential to be used by otter and badger. These habitats have the potential to support roosting, commuting and foraging bats.

Variation C4.1

2.1.20 Variation C4.1 links route option C4 with route option C2.1/C3. It crosses intensively grazed or arable fields with little to no trees present. These habitats have potential to be used by otter and badger. These habitats have the potential to support commuting and foraging bats.

Route Option C5

2.1.21 Route option C5 crosses intensive grazed or arable fields as it runs north into Coylton Substation. There are some lines of trees crossed by the route along field boundaries at Muirston and Bardarroch Farms. These habitats have potential to be used by otter and badger. These habitats have the potential to support roosting, commuting and foraging bats.

Variation C5.1

2.1.22 Variation C5.1 breaks from route option C5 and goes to the east of Bardarroch Farm, before rejoining route option C5. It crosses intensively grazed or arable fields with some areas of broadleaved woodland present. These habitats have potential to be used by otter and badger. These habitats have the potential to support roosting, commuting and foraging bats.

Ornithology

2.1.23 Ornithology surveys have not been undertaken to date, with this assessment based on desk-based data sourced online. The study area is mainly agricultural with intensively grazed and arable fields in the lower sections and upland rough pasture in the higher sections. There are also stands of coniferous woodland, especially the middle section around Bow Hill and smaller areas of broadleaved woodland.

2.1.24 Section A

Route Option A1

2.1.25 Habitats present could support red kite, barn owl and kingfisher. Areas of broadleaved woodland and rough grassland provide good habitat for breeding birds.

Route Option A2

2.1.26 Habitats present could support red kite, barn owl and kingfisher. Areas of broadleaved woodland and rough grassland provide good habitat for breeding birds.

Route Option A3

2.1.27 Habitats present could support red kite, barn owl and kingfisher. Areas of broadleaved woodland and rough grassland provide good habitat for breeding birds.

Route Option A4

2.1.28 Habitats present could support red kite, barn owl and kingfisher. Areas of broadleaved woodland and rough grassland provide good habitat for breeding birds.

Route Option A5

2.1.29 Habitats present could support red kite, barn owl and kingfisher. Areas of broadleaved woodland and rough grassland provide good habitat for breeding birds.

Section B

Route Option B1

2.1.30 Habitats present could support red kite, hen harrier, goshawk, merlin, peregrine, barn owl, short-eared owl and common crossbill. Areas of coniferous woodland and rough grassland provide good habitat for breeding birds.

Variation B1.1

2.1.31 Habitats present could support red kite, hen harrier, goshawk, merlin, peregrine, barn owl, short-eared owl and common crossbill. Areas of coniferous woodland and rough grassland provide good habitat for breeding birds.

Route Option B2

2.1.32 Habitats present could support red kite, hen harrier, goshawk, merlin, peregrine, barn owl, short-eared owl and common crossbill. Areas of coniferous woodland and rough grassland provide good habitat for breeding birds.

Route Option B3

2.1.33 Habitats present could support red kite, hen harrier, goshawk, merlin, peregrine, barn owl, short-eared owl and common crossbill. Areas of coniferous woodland and rough grassland provide good habitat for breeding birds.

Route Option B4

2.1.34 Habitats present could support red kite, hen harrier, goshawk, merlin, peregrine, barn owl, short-eared owl and common crossbill.

Variation B4.1

2.1.35 Habitats present could support red kite, hen harrier, goshawk, merlin, peregrine, barn owl, short-eared owl and common crossbill. Areas of coniferous woodland and rough grassland provide good habitat for breeding birds.

Variation B4.2

2.1.36 Habitats present could support red kite, hen harrier, goshawk, merlin, peregrine, barn owl, short-eared owl and common crossbill. Areas of coniferous woodland and rough grassland provide good habitat for breeding birds.

Section C

Route Option C1

2.1.37 Habitats present could support red kite, barn owl and kingfisher. Areas of broadleaved woodland and rough grassland provide good habitat for breeding birds.

Variation C1.1

2.1.38 Habitats present could support red kite, barn owl and kingfisher. Areas of broadleaved woodland and rough grassland provide good habitat for breeding birds.

Route Option C2

2.1.39 Habitats present could support red kite, barn owl and kingfisher. Areas of broadleaved woodland and rough grassland provide good habitat for breeding birds.

Route Option C3

2.1.40 Habitats present could support red kite, barn owl and kingfisher. Areas of broadleaved woodland and rough grassland provide good habitat for breeding birds.

Route Option C4

2.1.41 Habitats present could support red kite, barn owl and kingfisher. Areas of broadleaved woodland and rough grassland provide good habitat for breeding birds.

Variation C4.1

2.1.42 Habitats present could support red kite, barn owl and kingfisher. Areas of broadleaved woodland and rough grassland provide good habitat for breeding birds.

Route Option C5

2.1.43 Habitats present could support red kite, barn owl and kingfisher. Areas of broadleaved woodland and rough grassland provide good habitat for breeding birds.

Variation C5.1

2.1.44 Habitats present could support red kite, barn owl and kingfisher. Areas of broadleaved woodland and rough grassland provide good habitat for breeding birds.

Landscape

2.1.45 The degree of each route option's interaction with the identified landscape receptors has been considered in order to identify the key differentiators.

2.1.46 For landscape considerations, the following criteria have been applied at the initial route corridor appraisal stage:

- Landscape Sensitivity: To avoid landscapes with greatest sensitivity (value and susceptibility) to the type of development proposed and which afford the least potential for mitigation.
- Key Landscape Elements / Features: To avoid detraction from or loss of characteristic features such as prominent topographical features or structural vegetation.
- Potential for Mitigation: Ease of mitigation of likely effects by careful siting / alignment and/or additional mitigation measures such as planting.
- Corridor Position: To minimise the length and prominence of the OHL and consequently impacts on landscape receptors, all else being equal.

2.1.47 Section A

Route Option A1

2.1.48 In Section A, all five route options start and end within the Doon Valley LLA, which is considered to have a Medium sensitivity. Within this designated area, the Route options bisect initially the Foothills - Ayrshire LCT 76 and terminate in the Upland River Valleys - Ayrshire LCT 69. Route option A1 is approximately 4.1 km long.

2.1.49 The characteristics and sensitivities of LCT 76, within the LLA, include a variety of landcover types, from pastoral, rougher grazing, and moorland vegetation to coniferous forest covering many of the rounded peaks. This LCT forms an important backdrop and setting for the lower lying valleys. Modern settlements are generally very limited. Views tend to be long distance and panoramic and reveal the contrast between the remote character of the foothills and the surrounding settled valley and lowlands. Due to its sense of remoteness, and importance as a backdrop, it is considered to have a Medium sensitivity to transmission infrastructure.

2.1.50 The characteristics and sensitivities of LCT 69, within the LLA, include varying river valley landforms with broad open sections that contrast with steeper valley slopes and narrow, more enclosed valleys, which creates a confined landscape scale. The areas of this LCT near to A1-A5 is based along the river Doon, with the river meandering, attractively, back and forth across a narrowing floodplain. Landcover typically consists of moorland vegetation, with some improved pasture on lower

slopes of and valley floors, and the occasional settlement. Due to its contrasting areas of settlement and remote, rural areas, and intimate views within the narrow valley sections, this LCT is considered to have a Medium sensitivity to transmission infrastructure.

2.1.51 All five route options will begin in an area of commercial forestry, and then move through simple upland areas of moorland vegetation. A moderate level of landscape constraint is identified in route options A1-A3 as they traverse through the narrow section of the Doon Valley around the Keirs Glen, which consists of existing ancient woodland, multiple farmsteads and Keirs Castle.

2.1.52 A Moderate level of constraint is also identified along route options A1-A5, where all five of the Route options cross the River Doon, the A713 and Doon Valley Railway.

2.1.53 Route options A1-A3 will encroach and traverse through several sections of woodland and tree shelterbelts. A1 will require removal of more woodlands than A2 and A3, and consequently would have a marginally higher impact on the landscape.

2.1.54 As route option A1 extends through the Doon Valley LLA, with its Moderately sensitive Foothills and Valleys landscapes, it is considered Moderately constrained in landscape terms.

Route Option A2

2.1.55 In Section A, all five route options start and end within the Doon Valley LLA and will traverse initially through the Foothills - Ayrshire LCT 76 and terminate in the Upland River Valleys - Ayrshire LCT 69. Route option A2 follows most of route option A1, deviating around the eastern side Keirs Glen before rejoining. This deviation makes the route option slightly longer than A1, at approximately 4.4 km in length.

2.1.56 The characteristics and sensitivities of both LCT 76 and LCT 69 within route option A2 will have Medium sensitivity like that of route option A1. Additional features that influence the landscape characteristic type and constraints along route option A2 include an existing 11 kV Timber OHL and accessway leading to private properties within Keirs Glen. Route option A2 will also follow the River Doon for longer than route option A1 and A3, hence will be marginally more constrained by this feature.

2.1.57 As route option A2 extends through the Doon Valley LLA, with its Medium sensitive Foothills and Valleys landscapes, it is considered Moderately constrained in landscape terms.

Route Option A3

2.1.58 In Section A, all five route options start and end within the Doon Valley LLA and will traverse initially through the Foothills - Ayrshire LCT 76 and terminate in the Upland River Valleys - Ayrshire LCT 69. Route option A3 follows most of route option A2, deviating just past Keirs Glen, where it crosses over the River Doon, A713 and Doon Valley Railway, just 900 m further south-east than route options A1 and A2.

2.1.59 The other features which influence the landscape character of LCT 69 and will Moderately constrain route option A3 are the existing man-made structures such as the 11 kV OHLs which form a prominent cumulative context, the Doon Valley

Railway, as well as the presence of a concentration of residential properties and transportation routes.

2.1.60 As route option A3 extends through the Doon Valley LLA, with its Medium sensitive Foothills and Valleys landscapes, it is considered Moderately constrained in landscape terms. This route option is, preferred to both A1 and A2, as it will be substantially screened by existing trees and scrub between the railway and the A713.

Route Option A4

2.1.61 In Section A, all five route options start and end within the Doon Valley LLA and will traverse initially through the Foothills - Ayrshire LCT 76 and terminate in the Upland River Valleys - Ayrshire LCT 69. Route options A1-A5 are relatively similar alignments and are approximately 6.1 km and 8.6 km in length, respectively. Although route options A4-A5 are significantly longer than route options A1-A3, they both terminate at the border of the LLA.

2.1.62 From the south route options A4-A5 would initially follow route options A1-A3 within LCT 76, but where route options A1-A3 head north-west, route options A4-A5 continue north-east, descending towards the valley bottom into LCT 69 and then ascending the northern valley side into LCT 76. Both route options A4-A5 terminate on the southern upper slopes of Benquhat Hill.

2.1.63 The characteristics and sensitivities of both LCT 76 and LCT 69 within route option A4-A5 will have Medium sensitivity like that of route option A1-A3. Although the eastern upper slopes of LCT 76 are indirectly impacted upon by the North Kyle wind farm turbines and proposed Konckkippen Wind Farm, the landscape in this area has all the characteristics of the Foothills-Ayshire.

2.1.64 Like route options A1-A3, A4 would be subject to Moderate levels of landscape constraint where route options A4-A5, cross the River Doon, the A713, Doon Valley Railway and multiple existing 11 kV Timber OHLs. Route option A4 will partially follow a similar alignment as an existing 11 kV OHL, and consequently have a lesser impact on the landscape in this location than route option A5. Cumulatively the existing OHLs create a context of similar built development as the proposal and may have wirescape impacts.

2.1.65 As route option A4 extends through the Doon Valley LLA, with its Medium sensitive Foothills and Valleys landscapes, it is considered Moderately constrained in terms of landscape.

Route Option A5

2.1.66 Route options A1-A5 all start and end within the Doon Valley LLA. The route options all start at the same point and will traverse through the Foothills - Ayrshire LCT 76 and Upland River Valleys - Ayrshire LCT 69. Route options A4 and A5 share a similar path, traversing in an overall north-east direction, and terminate at the same location on the border of the LLA. Route option A5 is relatively longer than A4, at 8.6 km.

2.1.67 Route option A5 deviates from route option A4 just before the River Doon, traversing further through to the east. Like route option A4, a Moderate level of constraint is also identified where the route options cross the River Doon, the A713, Doon Valley Railway and multiple existing 11 kV Timber OHLs.

2.1.68 The section of LCT 69 within route option A5 is relatively more constrained than A4, with additional manmade features in the landscape including farmsteads, brownfield sites and stormwater features.

2.1.69 The characteristics and sensitivities of both LCT 76 and LCT 69 within route option A5 is also of Medium sensitivity, as per route options A1-A5. Although the eastern upper slopes of LCT 76 are indirectly impacted upon by the North Kyle Wind Farm turbines and proposed Konckkippen Wind Farm, the landscape in this area has all the characteristics of the Foothills-Ayshire.

2.1.70 A marginal level of constraint is also identified along route option A5 where it borders the Calwell's Glen and Chalmerston Glen, and the Glens' associated woodland cover. Several small sections of their woodlands will be encroached on by route option A5, which would impact on the landscape.

2.1.71 As route option A5 extends through the Doon Valley LLA, with its Medium sensitive Foothills and Valleys landscapes, it is considered Moderately constrained in terms of landscape. Route option A5 is less preferred than route option A4, given it will have a larger impact on the landscape, and is more constrained.

Section B

Route Option B1

2.1.72 In Section B, route options B1-B2 both start within the Doon Valley LLA. Both route options will traverse along the western side of the Study Area, initially uphill from the Upland River Valleys of - Ayshire LCT 69, to the Foothills - Ayrshire LCT 76, and then back down to the Agricultural Lowland - Ayrshire LCT 66. Both routes terminate at the same point within LCT 66, north of Littlemill and Rankinston Village. Route option B1 is approximately 7.0 km long.

2.1.73 The part of the LLA, within route options B1-B2, overlaps with the extent of the LCT 69. Both route options travel through less sensitive pastoral fields and moorland of the LCT 69, where they are surrounded by extensive moorland upland landscape, which would contain the line. The only potential constraint is the existing OHL transmission infrastructure.

2.1.74 Route options B1-B2 deviate close to Dunston Hill, with B2 continuing through the edge of LCT 69, and LCT 68 briefly, and B1 on the outer edge of LCT 76. This transitional landscape consists of a relatively elevated, high-density area of woodland. Considering the prevalence of forest cover and the predominance of existing transmission infrastructure, sensitivity to this type of development is considered to be Low. There are marginal preferences for route option B1, over B2 in this area based on that it will follow the same alignment as existing transmission infrastructure through the areas of woodland and would consequently have a lesser impact on the landscape.

2.1.75 The characteristics and sensitivities of the LCT 66, within route options B1-B4 include an undulating lowland landscape, dissected by many burns and streams. The LCT is a small to medium scale landscape with landcover predominantly of pastoral fields, edged often by mature hedgerow trees and hedges. The settlement pattern typically comprises large self-contained farmsteads and scattered villages. Given the medium scale of this low settled landscape, rural character and limited woodland areas for screening, sensitivity would be Medium to this type of development. Other features which influence the landscape character are the existing 11 kV OHLs. Cumulatively, the existing steel towers, wood poles create a context of similar built development as the proposal.

2.1.76 Due to the cumulative context, this section of LCT 66 which route options B1-B2 traverse through is considered to be Moderately constrained in terms of landscape.

Variation B1.1

2.1.77 Variation B1.1 follows a section of existing OHL through a wooded plantation, reducing the impact on the landscape.

Route Option B2

2.1.78 Route option B2 is approximately 7.7 km in length, and hence marginally longer than route option B1, traversing through a greater extent of LCT 69 and LCT 66.

2.1.79 Where route option B2 deviates to route option B1, it will traverse through an area of woodland which would require more vegetation removal than B2, increasing the risk of scarring on the hill sides. Furthermore, route option B2 will have less screening by existing vegetation woodland plantations around Dunston Hill.

2.1.80 Within LCT 66, route option B2 will traverse an area of open pastoral field with relatively less 11 kV OHLs to B1. Therefore, from a cumulative context of the landscape, route option B2 will be less constrained.

2.1.81 Even though route option B2 will be marginally less constrained from a cumulative context, B1 is still preferred. B2 will have a higher impact on the landscape, given the likely additional woodland clearance required, and greater length of route through the landscape, which shares similar characteristics to those traversed through by route option B1.

Route Option B3

2.1.82 In Section B, route options B3-B4 will traverse along the eastern side of the Study Area, initially within the Foothills - Ayrshire LCT 76, along the hill tops of Benquhat Hill and Ewe Hill. The routes then descend to the Agricultural Lowland - Ayrshire LCT 66 where route options B3-B4 terminate. B3 and Variation B4.2 will end at the same point, to the north-east of Rankinston Village, while Variation B4.1 will terminate at the same location as routes options B1-B2. Route option B3 is approximately 7 km in length.

2.1.83 The characteristics and sensitivities of both LCT 76 within route options B3-B4 is also of Medium sensitivity, as per route options B1-B2. The route will traverse through a variety of open moorland, pastoral fields and sections of woodland and

tree swatches. Although the LCT 76 is indirectly impacted upon by the North Kyle Wind Farm turbines and proposed Breezy Hill Wind Farm, Knockkippen windfarm, and Polquhairn Wind Farm the landscape in this area has all the characteristics of the Foothills-Ayshire and no significant landscape constraints identified.

2.1.84 Route options B3-B4 will be constrained where they traverse through existing woodland vegetation and tree swatches which will marginally increase the impact on the landscape.

2.1.85 Within LCT 76 and LCT 66, Route option B3 will have additional screening provided by existing woodlands and tree swatches in comparison to B4.

2.1.86 Due to the low risk of cumulative effects, and only marginal landscape impacts along the sections of this route, Route option B3 is considered to be Low constrained in terms of landscape.

Route Option B4

2.1.87 Route option B4 (including the length of the B4.1/B4.2 variation) is of approximately 7.5 km in length, and hence similar to route option B1.

2.1.88 Where B4 deviates from route option B3, it will trace the eastern edge of existing forest plantations, however no encroachment into the plantation or landscape impact is anticipated. Further north however, route option B4 will be Moderately constrained where it crosses through a section of ancient woodland, increasing the impact on the landscape.

2.1.89 Within LCT 76 and LCT 66, route option B4 will traverse in open moorland and pastoral fields with closer proximity to existing 11 kV OHLs and cumulatively the existing steel towers and wood poles create a context of similar built development as the proposal.

2.1.90 Given there is some risk of cumulative effects, and the route will traverse through ancient woodland, route option B4 is considered to be Moderately constrained in terms of landscape.

Variation B4.1

2.1.91 Variation B4.1 traverses towards the northeast within LCT 66, and is approximately 740 m length. Variation B4.1 follows the abandoned railway and will marginally constrained as it crosses the Dunbrowie Burn.

Variation B4.2

2.1.92 Variation B4.2 traverses towards the northwest within LCT 66, and is approximately 850 m in length. This variation will cross an existing 11 kV OHL and, hence given the cumulative context will be marginally more constrained than Variation B4.1

Section C

Route Option C1

2.1.93 In Section C, route options C1-C5 all start and terminate within the Agricultural Lowlands - Ayrshire LCT 66. All Route options traverse from south to north through

undulating pastoral fields and tree hedgerows, and between scattered farmsteads, until they terminate at the same point, Coylton Substation.

2.1.94 The lowlands are traversed by an abandoned railway line, major roads, and local roads and accessways leading to scattered farmsteads. Although the landscape of Section C has some characteristics consistent with the rural Agricultural Lowland LCT and is considered of Medium sensitivity, it contains less woodland than other areas within the LCT. The other features which influence the landscape character in this area are the relatively high density of existing 11kV OHLs, and more noticeable the 33 kV OHLs, which visually intensify as they converge at Coylton Substation in the north. Cumulatively the existing steel towers and wood poles create a context of similar built development as the proposal.

2.1.95 Route option C1 will also be Moderately constrained from the south between Littlemill and Bonnyton. In this section the route crosses over multiple local roads, existing OHL infrastructure, tree swatches and tributaries, whilst following an existing stream and the B730. Where the route crosses tree swatches and streams there is also a greater potential for impact on the landscape.

2.1.96 The northern section of C1 will also be Moderately constrained where it closely follows an existing 33 kV OHL, up to the Coylton Substation, increasing the risk of 'wirescape' effects on the landscape.

2.1.97 Due to the cumulative context, route options C1-C5 are considered Moderately constrained in terms of landscape.

Variation C1.1

2.1.98 Where route option C1 closely follows an existing 33 kV OHL, Variation C.1..1 deviates further to the east, to avoid this convergence and intensification of Transmission Infrastructure.

Route Option C2

2.1.99 From the south, route option C2 begins along Variation B4.1 and traverses parallel to route option C1, but further to the east, it eventually merges with route option C1 approximately halfway along the route. Route option C2 is approximately 4.9 km in length.

2.1.100 Where route option C2 deviates from C1, it will be Moderately constrained as it crosses existing tree swatches and watercourse, the B7046, multiple existing OHL infrastructure and then another watercourse. Where the route crosses tree swatches there is also a greater potential for impacts on the landscape. Route option C2 is marginally less constrained by the additional manmade features in the landscape and will have marginally less impact on the landscape than C1.

2.1.101 Overall, due to the same cumulative context and LCT sensitivity, route option C2 is considered Moderately constrained in terms of landscape.

Route Option C3

2.1.102 Route option C3 follows most of route option C2 and is approximately 4.8 km in length.

2.1.103 Route option C3 deviates from route option C2 only its southern section, where it begins further to the east from Variation B4.2. Route option C3 has similar constraints to route option C2, but is marginally less preferred as it traverses through pastoral fields with relatively less surrounding existing vegetation for screening.

Route Option C4

2.1.104 From the south, route options C4-C5 begin along route options B4.2 and B3 and traverse parallel to route options C1-C3, also through undulating pastoral fields and tree swatches, and between scattered farmsteads, but further to the east. Route options C4-C5 also terminate at the same point as C1-C3, at the Coylton Substation. Route option C4 is approximately 4.2 km in length.

2.1.105 Route option C4 will be marginally constrained as it crosses isolated sections of existing tree swatches, watercourses, roads and existing OHL infrastructure. Where the route crosses tree swatches, particularly at its midway point, there is also a greater potential for impacts on the landscape.

2.1.106 Similarly to route option C1, a northern section of route option C4 will be Moderately constrained as it closely follows an existing 33 kV OHL, up to the Coylton Substation, increasing the risk of 'wirescape' effects on the landscape.

2.1.107 Overall, due to the same cumulative context and LCT sensitivity as per route option C1, route option C4 is also considered Moderately constrained in terms of landscape.

Variation C4.1

2.1.108 Variation C4.1 deviates in alignment with Sinclairston Village. It then traverses in a north-west direction, through undulating pastoral fields until merges with route options C2 and C3.

2.1.109 The section of Variation C4.1 will be Moderately constrained as it crosses multiple existing OHLs, including a 33 kV and 11 kV OHL.

Route Option C5

2.1.110 From the south, route options C5 follows route option C4, but deviates in the same location as Variation C4.1. Route option C5 also terminates at the same location as the other routes at the Coylton Substation. The route is approximately 5 km in length.

2.1.111 Most of route option 5 is surrounded by extensive pastoral landscape, which would contain the line with only marginal constraints identified including isolated hedgerows, 11 kV OHLs, watercourses and roads.

2.1.112 However, the north third of the route option is Moderately constrained as it crosses several existing 11 kV OHLs, and sharply turns multiple times, following closely an existing tree line and section of an existing 33 kV OHL. The convergence of this section route option 5 to an existing OHL, in an open landscape, increases the risk of 'wirescape' effects.

2.1.113 Overall, due to the same cumulative context and LCT sensitivity, Route option C5 is also considered Moderately constrained in terms of landscape. However, with relatively less OHLs infrastructure adding to the cumulative context, it is the preferred option over C1-C4.

Variation C5.1

2.1.114 The variation deviates where route option C5 sharply changes direction around tree swatch, Variation C5.1 continues in a north-easterly direction, and then curves back west to remerge with route option C5.

Visual Amenity

2.1.115 The degree of interaction of each route option with the identified visual receptors has been considered in order to identify key differentiators.

2.1.116 For visual amenity two criteria have been applied at the initial appraisal stage as outlined below:

- Residential Amenity - To avoid proximity to residential properties as far as possible on the grounds of general amenity including views from private property.
- Visual Amenity - To minimise impacts on public visual amenity, including residents in settlements, users of main transport routes, and users of key recreational areas.

2.1.117 When considering these criteria, an initial judgement has been made with regard to their likely presence within the vicinity of each route option and therefore potential susceptibility to the OHL.

2.1.118 **Section A**

Route Option A1

2.1.119 Views of the OHL within route option A1-A3 would be likely from Patna and Waterside Settlements, and several isolated properties, with one being within route option A1 and two further properties lying 50 m outside of the on both the east and west sides. The golf course adjacent to Patna would like also have views of the OHL within route options A1-A3.

2.1.120 The OHL within route option A1 has the potential to appear on the skyline in views from the A713 which runs along the valley floor. There will also be views from the B741 and Patna and Waterside Circular Core Path; however, the apparent height of the OHL would be reduced by sections of intervening woodland. Views of the southern end of route options A1-A5 will be screened by topography and commercial forestry.

2.1.121 Where route options A1-A5 cross the valley to the north at the edge of Patna, there would be potential for an OHL to impact the channelled views through the valley from the A713.

2.1.122 An OHL within route option A1 would affect several medium sensitivity (road users, golf course users) and high sensitivity (recreational users, residential properties) visual receptor and is therefore considered Moderately constrained.

Route Option A2

2.1.123 The section of route option A2 which deviates from route option A1 passes in proximity to a residential property near Keirs Glen and traverses in the lower lying section of Doon Valley. This route option is less preferred than A1 as although it would be backclothed by the neighbouring foothills of LCT 76, it will still be located closer to the surrounding receptor locations and will be relatively less screened by existing vegetation.

2.1.124 Route option A2 is therefore Moderately constrained in terms of OHL routeing, due to the number of medium and high sensitivity visual receptors which would be affected by visibility of the line within route option A2.

Route Option A3

2.1.125 The section of route option A3 which deviates from route option A2 will run parallel to the Doon Valley railway and will subsequently be positioned closer than the route options A1 and A2 to the surrounding receptors. This route option will be positioned in proximity to existing OHL infrastructures, however as the nearby receptors are positioned between the existing, and the other route options, they would not be simultaneously visible from key views.

2.1.126 Route option A3 will also be substantially screened by existing vegetation between the railway and the A713 road. Existing vegetation will also screen the views from some, but not all of the nearby residential properties. Where views are not screened, the existing vegetation adjacent to the railway will provide a backdrop to the line.

2.1.127 Route option A3 will also be positioned downhill from the nearby Patna and Waterside Circular Core Path, hence is unlikely to appear in the skyline in views from this core path.

2.1.128 Route option A3 is therefore Moderately constrained in terms of OHL routeing, due to the number of Medium and High sensitivity visual receptors which would be affected by visibility of the line.

Route Option A4

2.1.129 Views of the OHL within route option A4 would be likely from the Waterside Settlement, and several isolated residential properties, 200 m and 600 m east.

2.1.130 As for route option A1, the OHL within route option A4 has the potential to appear on the skyline in views from the A713 road. Skyline views of the OHL will also appear from the Patna and Waterside Circular Core Path, located 200 m west. Visual receptors from both these locations may also have cumulative views of the proposed OHL in combination with the existing OHL infrastructure. However, both the height and visibility of the line and would be reduced by sections of intervening woodland and topography.

2.1.131 Where route options A1-A5 cross the valley to the north there would be potential for an OHL to impact the channelled views through the valley from the A713 road.

2.1.132 The northern section of route option A4 has limited public access and no other locations of visual receptors.

2.1.133 Route option A4 has a Low constraint in terms of OHL routeing, due to the low number of Medium and High sensitivity visual receptors which would be affected by visibility of the line.

Route Option A5

2.1.134 Residential receptors from the Dalmellington Settlement and isolated properties located 210 m and 700 m west of route option A5 would constitute the most sensitive visual receptors located within route option A5. Some of these receptors may also have cumulative views of the OHL in combination with the existing OHL infrastructure. However, views may be partially screened by intervening vegetation and topography, particularly the two nearby isolated properties, both with wide screening vegetation situated along their eastern boundaries.

2.1.135 There will be potential views of route option A5 from the B741 and Patna and Waterside Circular Core Path too; however, existing vegetation and topography will reduce the perceived height and visibility of the OHL.

2.1.136 The northern section of route option A5 has limited public access and no other locations of visual receptors.

2.1.137 Route option A5 is lowly constrained in terms of OHL routeing, due to the low number of Medium and High sensitivity visual receptors which would be affected by visibility of the proposed OHL.

Section B

Route Option B1

2.1.138 Route option B1 has the potential for wirescape effects to occur where the route options converge towards existing 11 kV and 33 kV lines. Cumulative views would be likely from highly sensitive receptor locations including Patna, Rakinston, LIttlemill and scattered residential properties. Transport and recreational routes within the area will potentially experience cumulative views of the proposed OHL within route options B1-B2, including the A713, B730, Dismantled Railway Line Core Path and the Patna and Waterside Circular Core Path.

2.1.139 As the locations of the residential receptors and transport corridors are situated in relatively lower-lying areas, the OHL within route options B1-B2 may potentially appear on the skyline. However, views from these receptor locations are likely to be disrupted in sections by intervening topography and vegetation.

2.1.140 Furthermore, large sections of the OHL will be screened by woodland from the Dismantled Railway Line Core Path. Where route options B1-B2 will not be screened, they will be positioned downhill to the core paths and hence are unlikely to appear in the skyline in views from these locations.

2.1.141 Route option B1 is Moderately constrained in terms of OHL routeing, due to the number of High sensitivity visual receptors, which may be affected by simultaneous visibility of the proposed OHL in conjunction with existing OHLs in the area.

Variation B1.1

2.1.142 Given Variation B1.1 deviates from route option B2 within a dense forest plantation, it would have no noticeable differences in visual amenity to route option B2 as described below.

Route Option B2

2.1.143 Where route option B2 deviates from route option B1, road users and residential receptors would be the most sensitive visual receptors to be potentially affected by the OHL. Cumulative and skyline views of the OHL within route option B2 would likely appear from isolated residential properties on the border of the route corridor, and from the B730 road.

2.1.144 Route option B2 is Moderately constrained in terms of OHL routeing, due to the number of high sensitivity visual receptors which may be affected by simultaneous visibility of the proposed OHL in conjunction with existing OHLs in the area. Given where B2 deviates to B1, there is additional nearby highly sensitive residential receptors, route option B1 is preferred.

Route Option B3

2.1.145 Route option B3 contains few visual receptors. Views of the route could be gained from the Dismantled Railway Line Core Path and surrounding higher hills (including Ewe Hill and Benquhat Hill), from where the proposed OHL would appear in the context of the surrounding constructed and proposed wind farms (North Kyle, Breezy Hill, and Polquhalm).

2.1.146 A number of isolated properties, and settlements including Rakinston, Littlemill and Sinclairston would have cumulative views of the proposed OHL in combination with the existing and proposed wind farms. However, the line would typically be screened by intervening topography, forestry and mature swatches of vegetation in the area.

2.1.147 Route option B3 is lowly constrained in terms of OHL routeing, due to the low number of high sensitivity visual receptors, which may be affected by the proposed OHL and cumulative context.

Route Option B4

2.1.148 Route option B4 contains the same visual receptors as route option B3. Views will again be experienced in a cumulative context with the surrounding proposed and constructed wind farms. As route option B4 is located further from these visual receptor locations, with distance reducing the likely visual effects, it is marginally preferred over route option B3.

Variation B4.1

2.1.149 A number of isolated properties, and settlements, including Rakinston and Littlemill, would have cumulative and skyline views of the proposed OHL in combination with

existing OHLs in the area. However, the line would typically be screened by swatches of mature vegetation.

Variation B4.2

2.1.150 Similarly to Variation B4.1, numerous local roads, isolated properties, and the settlements of Sinclairston would have cumulative and skyline views of the proposed OHL in combination with the existing OHLs in the area. However, the proposal would typically be screened by swatches of mature vegetation. The Variation has less highly sensitive receptors than Variation B4.1, and hence is preferred.

Section C

Route Option C1

2.1.151 Route option C1 has the potential for wirescape effects to occur, with the proposed OHL seen simultaneously with the existing transmission infrastructure in the area.

2.1.152 An OHL along route option C1 would appear on the skyline in views from numerous scatter properties, the Drongan settlement, the farm track core path and from several transport corridors including the B730 and B7046 roads. Existing mature vegetation and intervening topography will partially screen some sections of the route from these visual receptors.

2.1.153 This section of the route option is Moderately constrained in terms of OHL routeing, due to the number of high sensitivity visual receptors, which may be affected by simultaneous visibility of the proposed OHL in conjunction with the existing OHLs connecting into Colyton Substation.

Variation C1.1

2.1.154 Variation C1.1 would potentially be less visible from Drongan settlement, with additional vegetation screening and topography located between the route option and the settlement.

Route Option C2

2.1.155 Route option C2 has similar potential as route option C1 for wirescape effects to occur, with the proposed OHL seen simultaneously with the existing transmission infrastructure in the area.

2.1.156 This section of the route option is Moderately constrained in terms of OHL routeing, due to the number of similar high sensitivity visual receptors as route option C1, which may be affected by simultaneous visibility of the proposed OHL in conjunction with the existing OHLs connecting into Colyton Substation.

Route Option C3

2.1.157 Route option C3 has similar potential as route options C1-C2 for wirescape effects to occur, with the OHL seen simultaneously with the existing transmission infrastructure in the area.

2.1.158 An OHL along route option C3 would appear on the skyline, in views from numerous scattered properties, the Drongan and Sinclairston settlements, the farm track core

path and from several transport corridors including the B730 and B7046. Existing mature vegetation and intervening topography will partially screen some sections of the route option from these visual receptors.

2.1.159 This section of the route option is Moderately constrained in terms of OHL routeing, due to the number of similar High sensitivity visual receptors as route option C1 and C2, which may be affected by simultaneous visibility of the Proposed OHL in conjunction with the existing OHLs connecting into Colyton Substation.

Route Option C4

2.1.160 Route option C4 has marginally less potential for wirescape effects to occur compared to route options C1-C3, however route option C4 will still be seen simultaneously with the existing transmission infrastructure in the area.

2.1.161 An OHL along route option C4 would appear on the skyline, in views from numerous scattered properties, the Drongan and Sinclairston settlements, the farm track core path and from several transport corridors including the B730 and B7046 roads. Existing mature vegetation and intervening topography will partially screen some sections of the route option from these visual receptors.

2.1.162 This section of the route option is Moderately constrained in terms of OHL routeing, due to the number of similar high sensitivity visual receptors as route options C1-C3, which may be affected by simultaneous visibility of the proposed OHL in conjunction with the existing OHLs connecting into Colyton Substation.

Variation C4.1

2.1.163 Visual amenity receptors associated with this variation include Sinclairston settlement, isolated farmstead, and several residential properties next to the B7046 road, which represent high sensitivity receptor locations. However, Variation C4.1 would potentially be screened by existing vegetation and woodland.

Route Option C5

2.1.164 Route option C5 has similar potential to route option C4 for wirescape effects to occur, with the proposed OHL seen simultaneously with the existing transmission infrastructure in the area.

2.1.165 An OHL along route option C5 would appear on the skyline, in views from numerous scattered properties, but from settlements to the other Section C route options, with likely views from Sinclairston settlement only. Views will likely be obtained also from the B7046 road and farm track core tail. However, like the outer Section C route options, these views would potentially be screened by existing vegetation and woodland.

2.1.166 This section of the route option is considered to represent a Low constraint in terms of OHL routeing, due to the low number of High sensitivity visual receptors, which may be affected by simultaneous visibility of the existing OHL in conjunction with the existing OHLs connecting into Colyton Substation.

Variation C5.1

2.1.167 Variation C5.1 would have a similar potential for wirescape and skyline views from a similar number of highly sensitive receptors as route option C5. Given the curved, a longer alignment of Variation C5 however, it will potentially occupying a larger extent of views from nearby residential receptors, hence is less preferred to route option C5.

Cultural Heritage

2.1.168 For each route option, a 500 m study area was utilised for the identification of all for all Non-Designated Heritage Assets and a 1 km study area was utilised for the identification of all Designated Heritage Assets. The only data utilised for this assessment is that available through Historic Environment Scotland's (HES) online data portal which includes up to date designated heritage data and NRHE asset data from the online catalogue of Scotland's archaeology sites, buildings and industrial and maritime heritage (Canmore).

2.1.169 All Assets have been considered in order to consider the potential for direct impacts caused by the route options upon known and unknown buried remains and also to consider the potential for any impacts upon the settings of designated heritage assets.

Section A

Route Option A1

2.1.170 There are no World Heritage Sites, Scheduled Monuments, GDL's, Battlefields or Listed Buildings within the confines of route option A1.

2.1.171 Within the 1 km study area there are a total of 11 Designated Heritage Assets comprising Assets 6, 8 and 9 which form part of the Waterside Dalmellington Ironworks Scheduled Monuments (Assets 3) and the Waterside, miners' villages & mineral railways N of (Asset 2). Asset 5 is the Waterside Bing, iron slag bing, Scheduled Monument which covers a wide area to the east of route option A1. The Waterside Conservation Area (Asset 23), two Category B Listed Buildings (Assets 16 and 17) and two Category C Listed Buildings (Assets 20 and 21). These Assets are all dated to the post-medieval and modern periods.

2.1.172 With regard to the Scheduled monument noted above Policy 7h of NPF4 states that:

"Development proposals affecting scheduled monuments will only be supported where:

i. direct impacts on the scheduled monument are avoided;

ii. significant adverse impacts on the integrity of the setting of a scheduled monument are avoided; or

iii. 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."

2.1.173 With regard to the Listed Buildings noted above Policy 7C of NPF4 notes that:

"...Development proposals affecting the setting of a listed building should preserve its character, and its special architectural or historic interest."

2.1.174 With regard to the Conservation Area noted above Policy 7D of NPF4 notes that

"Development proposals in or affecting conservation areas will only be supported where the character and appearance of the conservation area and its setting is preserved or enhanced."

2.1.175 It is not anticipated that the development of route option A1 would significantly impact the settings of the designated assets noted above. This is largely due to the intervening distance, as they are all over 500 m from route option A1 other than a small part of the Scheduled Monument, but also because they are largely considered likely to derive much of their setting significance from their immediate setting of the village of Waterside and its immediate historical iron works area (which is concentrated to the east and north-east). The potential for adverse effects upon their settings would require further assessment.

2.1.176 There are a total of 13 Non-Designated Heritage Assets within the 500 m study area surrounding route option A1. Asset 49 and Asset 52 are located within the confines of route option A1 itself. Asset 49 is recorded on Canmore as a cluster of post-medieval huts and Asset 52 is recorded as an enclosure (period unassigned). Although not likely to be of a high degree of archaeological importance, measures should still be taken to avoid direct impacts on each of these Assets should route option A1 be chosen. The remaining 11 Non-Designated Heritage Assets (Assets 27, 28, 47, 51, 55, 56, 94, 104, 105, 119 and 130) range in date from the prehistoric to the modern periods. Asset 55 is recorded as a possible prehistoric burnt mound located approximately 450 m to the south of the southern edge of route option A1. There are two quarries (Assets 51 and 56) also located to the south of route option A1 and on the eastern edge of route option A1 there is a site recorded as Keirs Castle (Asset 47) which survives as a heavily truncated mound from which it is likely that stone was removed in order to construct the now derelict adjacent farmhouse (Asset 105). Given the generally Low density of heritage assets identified along route option A1, the potential for further previously unidentified remains is considered to be Low.

2.1.177 It is therefore not anticipated that route option A1 would result in significant impacts upon the settings of any designated assets within 1 km, and that there is generally considered to be a Low potential for direct impacts upon buried archaeological remains (due to the identified Low density and the relatively small construction footprints). It is noted that further assessment of both of these factors would be required.

Route Option A2

2.1.178 There are no World Heritage Sites, Scheduled Monuments, GDL's, Battlefields or Listed Buildings within the confines of route option A2.

2.1.179 Within the 500 m study area there are a total of nine Designated Heritage Assets. Assets 6, and 8 are elements of the Waterside Dalmellington Ironworks Scheduled Monument (Asset 3), Asset 5 is the Waterside Bing, iron slag bing, Scheduled Monument which cover a wide area to the east of route option A2. Assets 14, 16 and 17 are Category B Listed Buildings located within the village of Waterside and Asset 21 is a Category C listed War Memorial. Also encompassing the village and the Scheduled Monument extent is Asset 23, the Waterside Conservation Area.

2.1.180 Within the 1 km study area there are a further five Designated Heritage Assets; Assets 7 and 9 are further elements of the Waterside Scheduled Monuments (Assets 2 and 3) and Asset 12 is a Category A Listed Building related to 19th century industrial activity. These Designated Heritage Assets are all dated to the post-medieval and modern periods.

2.1.181 It is not anticipated that the development of route option A2 would significantly impact the settings of the designated assets noted above, but it would pass within approximately 260 m of both the Scheduled Monument (Asset 3) and Conservation Area (Asset 23). These assets are considered likely to derive much of their setting significance from their immediate setting of the village of Waterside and its immediate historical iron works area (which is concentrated to the east and northeast). Given the proximity, however, there is considered to be a potential for a Low-level impact upon the setting of the Waterside Scheduled Monument (Asset 3) and the character of the Waterside Conservation Area (Asset 23) and potentially some of the other Listed Buildings therein. The potential for adverse effects upon their settings would require further detailed assessment.

2.1.182 There are a total of 22 Non-Designated Heritage Assets within a 500 m radius of route option A2, the majority of which are undated (Assets 51, 56, 63, 64, 68, 71, 81, 84, 85, 94, 104, 105 and 106). The Assets which can be assigned a broad date range from the prehistoric to the modern periods, indicating the continuity of settlement within this period, with a particular focus on mining activity from the post-medieval period onwards. Assets 52 and 49 fall within the confines of route option A2 and Asset 104 is located on the western edge of route option A2. Asset 49 is recorded on Canmore as a cluster of post-medieval huts, Asset 52 is recorded as an enclosure (period unassigned) and Asset 104 is recorded as a farmstead (period unassigned). Although not likely to be of a high degree of archaeological importance, measures should still be taken to avoid direct impacts from construction on each of these Assets should route option A2 be chosen. Given the generally Low density of heritage assets identified along route option A2 the potential for further previously unidentified remains is considered to be Moderate.

2.1.183 It is not anticipated that route option A2 would result in significant impacts upon the settings of any designated assets within 1 km (though it is anticipated that some potential Low-level effects would require further assessment) and that there is

generally considered to be a Low potential for direct impacts upon buried archaeological remains (due to the identified Moderate potential and the relatively small construction footprints). It is noted that further assessment of both of these factors would be required.

Route Option A3

2.1.184 There are no World Heritage Sites, Scheduled Monuments, GDL's, Battlefields or Listed Buildings within the confines of route option A3.

2.1.185 Within the 1 km study area there are a total of 15 Designated Heritage Assets. Assets 6 to 9 are all aspects of the Waterside Scheduled Monuments (Asset 2 and 3) and Asset 5 is the Waterside Bing, iron slag bing, Scheduled Monument, Asset 23 is the Waterside Conservation Area which encompasses the planned village of Waterside and its environs and Assets 12, 14, 16, 17, 20, 21 and 23 are Listed Buildings. Asset 12 is a Category A Listed Building, Assets 14, 16 and 17 are Category B Listed and Assets 20 and 21 are Category C Listed. All of the Designated Heritage Assets within the study areas date to the post-medieval and modern periods.

2.1.186 Although none of the Designated Heritage Assets are present within the confines of route option A3, the northern section of route option A3 comes very close (between approximately 25 m and 100 m) to the eastern edge of the Waterside Scheduled Monument (Asset 3) and the Waterside Conservation Area (Asset 23). Given the nature of the development and these Designated Assets (which are assessed as deriving much of their setting significance from the immediate setting of the village of Waterside and its immediate historical iron works area, which is concentrated to the east and north-east) significant impacts upon their settings are not anticipated. Given the proximity, however, there is considered to be a potential for Low level impacts upon the setting of the Waterside Scheduled Monument (Asset 3), the character of the Waterside Conservation Area (Asset 23) and the Category C Listed Waterside Chapel of Ease (Asset 20). The potential for adverse effects upon their settings would require further detailed assessment.

2.1.187 There are 23 Non-Designated Heritage Assets located within the 500 m study area of route option A3. The majority of these are undated and related to post-medieval settlement in the area related to the development of mining activity (Assets 63, 64, 68, 69, 70, 71, 81). Asset 55 is recorded as being a possibly prehistoric burnt mound however there are no other prehistoric assets within the study area. Assets 52 and 49 fall within the confines of route option A3 and Asset 104 is located on the western edge of route option A3. Asset 49 is recorded on Canmore as a cluster of post-medieval huts, Asset 52 is recorded as an enclosure (period unassigned) and Asset 104 is recorded as a farmstead (period unassigned). Although not likely to be of a high degree of archaeological importance, measures should still be taken to avoid direct impacts on each of these Assets should route option A3 be chosen. Given the generally Low density of heritage assets identified along route option A3 the potential for further previously unidentified remains is considered to be Moderate.

2.1.188 It is not anticipated that route option A3 would result in significant impacts upon the settings of any designated assets within 1 km (though it is anticipated that some potential Low-level effects would require further assessment) and that there is generally considered to be a Low potential for direct impacts upon buried archaeological remains (due to the identified Moderate potential and the relatively small construction footprints). It is noted that further assessment of both of these factors would be required.

Route Option A4

2.1.189 There are no World Heritage Sites, GDL's, Battlefields or Listed Buildings within the confines of route option A4.

2.1.190 However, Asset 11 is a mineral railway which forms part of the wider Waterside Miners Village and mineral railways Scheduled Monument (Asset 2) extends slightly into the north-eastern extent of route option A4.

2.1.191 Within the 500 m and 1 km study areas there are a total of nine Designated Heritage Assets. Assets 1 (Laight Castle), 3 (Waterside, Dalmellington Ironworks) and 5 (Waterside Bing, iron slag bing, Dalmellington Ironworks) are Scheduled Monuments with Assets 7, 10 being specific elements within those Scheduled Monuments, Asset 12 (Engine House) is a Category A Listed Building, Asset 14 (Ardoon House) is a Category B Listed Building and Asset 23 is the Waterside Conservation Area.

2.1.192 It is anticipated that the finalised route option (given the small construction footprints) would be positioned to avoid direct impacts upon the Waterside Miners Village and mineral railways Scheduled Monument (Asset 2). It is noted, however, that any direct impacts upon Scheduled Areas would require Scheduled Monument Consent and would result in the assessed RAG scoring being upgraded to Red.

2.1.193 The northern edge of route option A4 also runs close to south-eastern edge of the Waterside Dalmellington Ironworks Scheduled Monument (Asset 3) and the Waterside Conservation Area (Asset 23). These assets along, with the Waterside Miners Village and mineral railways Scheduled Monument (Asset 2), are assessed as deriving much of their setting significance from the immediate setting of the village of Waterside and its immediate historical iron works area (which is concentrated to the west and northwest of the route option) and, therefore, significant impacts upon their settings are not anticipated. Given their proximity, however, there is considered to be a potential for Low level impacts upon the setting of the Waterside Miners Village and mineral railways Scheduled Monument (Asset 2), the Waterside Dalmellington Ironworks Scheduled Monument (Asset 3) and the character of the Waterside Conservation Area (Asset 23). The potential for adverse effects upon their settings would require further detailed assessment.

2.1.194 There are a 24 Non-Designated Assets within the 500 m study area. Of these Assets 52, 49, 48, 93, 125, 91, 124 and 45 are located within the confines of route option A4 itself. The majority of these Assets are undated, with Assets 48 and 49 recorded on Canmore as post-medieval. Asset 45 is recorded as the site of a colliery, Asset 91 is recorded as a structure, and Asset 49 is recorded as being the location of hut(s).

The remainder of the Non-Designated Heritage Assets present within route option A4 relate to agricultural activity with Assets 124 and 125 recorded as rig and furrow, Asset 93 as the site of a sheepfold and Asset 52 as an enclosure. All of these Assets point towards the area being utilised for past agricultural use and, although unlikely to be of high archaeological importance, any groundbreaking works taking place along route option A4 would need to be designed in order to minimise any impacts on these Assets. Given the generally Low density of heritage assets identified along route option A4 the potential for further previously unidentified remains is considered to be Moderate.

2.1.195 It is not therefore anticipated that route option A4 would result in significant impacts upon the settings of any designated assets within 1 km (though it is anticipated that some potential Low-level effects would require further assessment) and that there is generally considered to be a Low potential for direct impacts upon buried archaeological remains (due to the identified Moderate potential and the relatively small construction footprints). It is noted that further assessment of both of these factors would be required.

Route Option A5

2.1.196 There are no World Heritage Sites, Scheduled Monuments, GDL's, Battlefields or Listed Buildings within the confines of route option A5.

2.1.197 Within the 1 km study area there are a total of ten Designated Heritage Assets. These include Asset 3 the Waterside, Dalmellington Ironworks Scheduled Monument, Asset 5 the Waterside Bing, iron slag bing, Dalmellington Ironworks Scheduled Monument and Asset 11 which is a mineral railway element of the wider Waterside Miners Village and mineral railways Scheduled Monument (Asset 2), all of which are located to the north or north-west of route option A5. The remaining designated assets within 1 km include the Asset 23 the Waterside Conservation Area which contains Asset 12 (Engine House) which is a Category A Listed Building and Asset 14 (Ardoon House) which is a Category B Listed Building. They also include the Category B Listed Doon Bridge on Straiton Road (Asset 15) as well as two further both Category C Listed Bridges (Assets 18 and 19) which are all recorded to the south of route option A5. To the south of route option A5 there is also the northernmost parts of the Craigengillan GDL (Asset 22). Also recorded, but just over 1 km south of route option A5 is the Bogton Loch airfield, 175 m SSE of Buchan's Bridge Scheduled Monument (Asset 4).

2.1.198 With regard to the GDL noted above: Policy 7i of NPF4 states that:

"Development proposals affecting nationally important Gardens and Designed Landscapes will be supported where they protect, preserve or enhance their cultural significance, character and integrity and where proposals will not significantly impact on important views to, from and within the site, or its setting."

2.1.199 It is not anticipated that the development of route option A5 would significantly impact the settings of the designated assets noted above. This is largely due to the intervening distance, as they are all over 400 m from route option A5 other than a small part of the Conservation Area (which is considered likely to derive much of its

setting significance from the immediate setting of the village of Waterside and its immediate historical iron works area, which is concentrated to the north and north-west of route option A5). The potential for adverse effects upon their settings would, however, require further assessment.

2.1.200 There are a total of 32 Non-Designated Heritage Assets within the 500 m study area and 1 Event. The majority of Non-Designated Assets (Assets 108, 112, 117, 57, 58, 86, 42 and 89) are clustered around the former Craigmark mine to the south of route option A5. Assets 52, 49, 48, 93, 125, 91, 92, 117 and 75 are all located within the confines of route option A5 and relate to mostly to agricultural activity and coal mining. Although unlikely to be of high archaeological importance, any groundbreaking works taking place along route option A5 would need to be designed in order to minimise any impacts on these Assets. Given the generally Low density of heritage assets identified along route option A5 the potential for further previously unidentified remains is considered to be Moderate.

2.1.201 It is not anticipated that route option A5 would result in significant impacts upon the settings of any designated assets within 1 km, and that there is generally considered to be a Low potential for direct impacts upon buried archaeological remains (due to the identified Moderate potential and the relatively small construction footprints). It is noted that further assessment of both of these factors would be required.

Section B

Route Option B1

2.1.202 There are no World Heritage Sites, Scheduled Monuments, GDL's, Battlefields or Listed Buildings within the confines of route option B1.

2.1.203 Within the 1 km study area there are three Designated Heritage Assets; one of which is a colliery (Asset 9) which is located within the wider extent of the Waterside Miners Village and mineral railways Scheduled Monument (Asset 2), the other is a Category B Listed Building (Asset 13).

2.1.204 It is not anticipated that the development of route option B1 would significantly impact the settings of the designated assets noted above. This is largely due to the intervening distances from route option B1 but also because the Scheduled Monument is largely considered likely to derive much its setting significance from its immediate setting of the village of Waterside and its immediate historical iron works area (which is concentrated to the south-east of route option B1). The potential for adverse effects upon their settings would, however, require further assessment.

2.1.205 There are 25 Non-Designated Heritage Assets within the 500 m study area. There are no prehistoric or medieval heritage assets within the study area. There is one Roman asset (Asset 36) recorded to the east of route option B1. This is registered as an isolated findspot of a Roman coin uncovered during electric cable works in the 1950s. Assets 33, 34, 36, 37, 38, 39, 65, 66, 76, 78, 79, 94, 100, 101, 103, 106, 107, 116 and 132 are undated and related to industrial activity and agricultural settlement within the area. Asset 77 is recorded as a post-medieval bing. Assets 118, 119, 120 and 122 are recorded as modern and comprise two war memorials, a commemorative

monument and a golf course. The only Non-Designated Heritage Asset located within the confines of route option B1 is Asset 38, recorded as a colliery. Although unlikely to be of high archaeological importance, any groundbreaking works taking place along route option B1 would need to be designed in order to minimise any impacts on this known Asset. Given the generally Low density of heritage assets identified along route option B1 the potential for further previously unidentified remains is considered to be Moderate.

2.1.206 It is not therefore anticipated that route option B1 would result in significant impacts upon the settings of any designated assets within 1 km, and that there is generally considered to be a Low potential for direct impacts upon buried archaeological remains (due to the identified Moderate potential and the relatively small construction footprints). It is noted that further assessment of both of these factors would be required.

Variation B1.1

2.1.207 There are no World Heritage Sites, Scheduled Monuments, GDL's, Battlefields or Listed Buildings within the confines of variation B1.1.

2.1.208 There are no Designated Heritage Assets within 1 km of variation B1.1 and no Non-Designated Heritage Assets within 500 m of variation B1.1.

2.1.209 It is not therefore anticipated that variation B1.1 would result in significant impacts upon the settings of any designated assets within 1 km (as there are none) and that there is generally considered to be a Low potential for direct impacts upon buried archaeological remains (due to the identified Low density and the relatively small construction footprints). It is noted that further assessment of both of these factors would be required.

Route Option B2

2.1.210 There are no World Heritage Sites, Scheduled Monuments, GDL's, Battlefields or Listed Buildings within the confines of route option B2.

2.1.211 Within the 1 km study area there are three Designated Heritage Assets; one of which is a colliery (Asset 9) which is located within the wider extent of the Waterside Miners Village and mineral railways Scheduled Monument (Asset 2), the other is a Category B Listed Building (Asset 13).

2.1.212 It is not anticipated that the development of route option B2 would significantly impact the settings of the designated assets noted above. This is largely due to the intervening distances from route option B2but also because the Scheduled Monument is largely considered likely to derive much its setting significance from their immediate setting of the village of Waterside and its immediate historical iron works area (which is concentrated to the southeast of the route option). The potential for adverse effects upon their settings would, however, require further assessment.

2.1.213 There are 22 Non-Designated Heritage Assets within the 500 m study area. Asset 35 is recorded as the findspot of a Roman coin. Asset 77 is recorded as a post-medieval bing. Assets 36-39, 65-66, 76, 79, 94, 100, 103, 106, 107 and 116 are recorded

on Canmore as undated and mostly relate to industrial and agricultural activity within the study area. Assets 118, 119, 120 and 122 are recorded as modern and comprise two war memorials, a commemorative monument and a golf course. Of the Non-Designated Heritage Assets, 36, 38, 66, 77, 78, 79 are located within the confines of route option B2. Assets 36 and 38 are recorded as collieries, Assets 66 and 79 are recorded as a farmstead and a cottage respectively and Assets 77 and 78 are recorded as the site of bings. While none of these Assets are likely to be of high archaeological importance, any impact of construction works upon them should be avoided as far as possible. Given the density of heritage assets identified along route option B2 the potential for further previously unidentified remains is considered to be Moderate.

2.1.214 It is not therefore anticipated that route option B2 would result in significant impacts upon the settings of any designated assets within 1 km, and that there is generally considered to be a Low potential for direct impacts upon buried archaeological remains (due to the identified Moderate potential and the relatively small construction footprints). It is noted that further assessment of both of these factors would be required.

Route Option B3

2.1.215 There are no World Heritage Sites, Scheduled Monuments, GDL's, Battlefields or Listed Buildings within the confines of route option B3.

2.1.216 Within the 1 km study area there are two Designated Heritage Assets which include Asset 11 which is a mineral railway which forms part of the wider Waterside Miners Village and mineral railways Scheduled Monument (Asset 2).

2.1.217 It is not anticipated that the development of route option B3 would significantly impact the settings of the Scheduled Monument noted above. This is largely due to the intervening distance from route option B3 (at approximately 285 m) but also because the Scheduled Monument is largely considered likely to derive much its setting significance from their immediate setting of the village of Waterside and its immediate historical iron works area (which is concentrated to the west and southwest). The potential for adverse effects upon their settings would, however, require further assessment.

2.1.218 Within the 500 m study area, there are 10 Non-Designated Heritage Assets noted on the NRHE. Asset 24 is recorded as the findspot of a Prehistoric axehead, Asset 54 is recorded as the findspot of a Roman coin and Asset 30 is recorded as an area of rig and furrow agriculture dating from the medieval to the post-medieval periods. The remainder of the Non-Designated Heritage Assets are undated, with Assets 90, 95, 96 and 97 recorded as the sites of farmsteads, Asset 31 as a clearance cairn and Asset 53 as a colliery. Of the Non-Designated Heritage Assets, only Assets 54, 90 and 95 are located within the confines of route option B3. While none of these Assets are likely to be of high archaeological importance, any impact of construction works upon them should be avoided as far as possible. Given the Low density of heritage assets identified along route option B3 the potential for further previously unidentified remains is considered to be Low.

2.1.219 It is not therefore anticipated that route options B3 would result in significant impacts upon the settings of any designated assets within 1 km, and that there is generally considered to be a Low potential for direct impacts upon buried archaeological remains (due to the identified Low potential and the relatively small construction footprints). It is noted that further assessment of both of these factors would be required.

Route Option B4

2.1.220 There are no World Heritage Sites, Scheduled Monuments, GDL's, Battlefields or Listed Buildings within the confines of route option B4.

2.1.221 Within the 1 km study area there are two Designated Heritage Assets which include Asset 11 which is a mineral railway which forms part of the wider Waterside Miners Village and mineral railways Scheduled Monument (Asset 2).

2.1.222 It is not anticipated that the development of route option B4 would significantly impact the settings of the Scheduled Monument noted above. This is largely due to the intervening distance from the route option (at approximately 285 m) but also because the Scheduled Monument is largely considered likely to derive much its setting significance from its immediate setting of the village of Waterside and its immediate historical iron works area (which is concentrated to the west and southwest). The potential for adverse effects upon their settings would, however, require further assessment.

2.1.223 Within the 500 m study area, there are nine Non-Designated Heritage Assets. Asset 24 is recorded as the findspot of a prehistoric axehead, Asset 59 is recorded as the location of the post-medieval Rankinston miner's village, Asset 129 is recorded as a modern war memorial and the remaining assets are undated with Asset 90 recorded as an enclosure, Assets 95-97 recorded as farmsteads, Asset 98 as a sheepfold and Asset 60 as the Rankinston Colliery. Assets 90 and 96 are located within the confines of route option B4 and although they are not thought to be of high archaeological importance any design plan should consider the potential for construction impacts on each of these assets. Given the Low density of heritage assets identified along route option B4 the potential for further previously unidentified remains is considered to be Low.

2.1.224 It is not anticipated that route option B4 would result in significant impacts upon the settings of any designated assets within 1 km, and that there is generally considered to be a Low potential for direct impacts upon buried archaeological remains (due to the identified Low potential and the relatively small construction footprints). It is noted that further assessment of both of these factors would be required.

Variation B4.1

2.1.225 There are no World Heritage Sites, Scheduled Monuments, GDL's, Battlefields or Listed Buildings within the confines of variation B4.1.

2.1.226 There are no Designated Heritage Assets within 1 km of variation B4.1

2.1.227 There are two Non-Designated Heritage Assets recorded within 500 m of variation B4.1. Asset 100 is recorded on Canmore as a farmstead and Asset 101 as a bridge.

There is also a prehistoric stone axehead (Asset 24) recorded just beyond 500 m of to the east of variation B4.1. Given the Low density of heritage assets identified within 500 m of variation B4.1 the potential for further previously unidentified remains is considered to be Low.

2.1.228 It is not anticipated that variation B4.1 would result in significant impacts upon the settings of any designated assets within 1 km (as there are none) and that there is generally considered to be a Low potential for direct impacts upon buried archaeological remains (due to the identified Low density and the relatively small construction footprints). It is noted that further assessment of both of these factors would be required.

Variation B4.2

2.1.229 There are no World Heritage Sites, Scheduled Monuments, GDL's, Battlefields or Listed Buildings within the confines of variation B4.2.

2.1.230 There are no Designated Heritage Assets within 1 km of variation B4.2

2.1.231 There are three Non-Designated Heritage Assets recorded within 500 m of variation B4.2. Assets 53 and 72 are recorded as collieries and Asset 24 is a findspot of a prehistoric stone axehead. Given the Low density of heritage assets identified within 500m of variation B4.2 the potential for further previously unidentified remains is considered to be Low.

2.1.232 It is not anticipated that variation B4.2 would result in significant impacts upon the settings of any designated assets within 1 km (as there are none) and that there is generally considered to be a Low potential for direct impacts upon buried archaeological remains (due to the identified Low density and the relatively small construction footprints). It is noted that further assessment of both of these factors would be required.

Section C

Route Option C1

2.1.233 There are no World Heritage Sites, Scheduled Monuments, GDL's, Battlefields or Listed Buildings within the confines of route option C1.

2.1.234 There are also no Designated Heritage Assets within 1 km of route option C1.

2.1.235 Within the 500 m study area there are two Non-Designated Heritage Assets, and two Events recorded within the NRHE Dataset (none of which are within route option C1). Asset 73 is recorded as a colliery and Asset 100 as a bridge. Event 127 records the location of a small-scale evaluation conducted in 2018 to the north-east of route option C1 which did not find any significant archaeological remains and Event 136 refers to mitigation works undertaken to the north of the route option C1 in advance of electricity pylon work in 2016. Given the Low density of heritage assets identified along route option C1 the potential for further previously unidentified remains is considered to be Low.

2.1.236 It is not therefore anticipated that route option C1 would result in significant impacts upon the settings of any designated assets within 1 km (as there are none) and that

there is generally considered to be a Low potential for direct impacts upon buried archaeological remains (due to the identified Low potential and the relatively small construction footprints). It is noted that further assessment of both of these factors would be required.

Variation C1.1

2.1.237 There are no World Heritage Sites, Scheduled Monuments, GDL's, Battlefields or Listed Buildings within the confines of variation C1.1.

2.1.238 There are also no Designated Heritage Assets recorded within 1 km of variation C1.1.

2.1.239 There is one Event recorded within 500 m of variation C1.1. This is recorded as Event 127, a small-scale evaluation conducted in 2018 which did not find any significant archaeological remains. Given the Low density of heritage assets identified within 500 m of variation C1.1 the potential for further previously unidentified remains is considered to be Low.

2.1.240 It is not therefore anticipated that variation C1.1 would result in significant impacts upon the settings of any designated assets within 1 km (as there are none) and that there is generally considered to be a Low potential for direct impacts upon buried archaeological remains (due to the identified Low density and the relatively small construction footprints). It is noted that further assessment of both of these factors would be required.

Route Option C2

2.1.241 There are no World Heritage Sites, Scheduled Monuments, GDL's, Battlefields or Listed Buildings within the confines of route option C2.

2.1.242 There are also no Designated Heritage Assets within 1 km of route option C2.

2.1.243 Within the 500 m study area there are two Non-Designated Heritage Assets, and two Events recorded within the NRHE Dataset (none of which are within route option C2). Asset 73 is recorded as a colliery and Asset 100 as a bridge. Event 127 records the location of a small-scale evaluation conducted in 2018 to the north-east of route option C2 which did not find any significant archaeological remains and Event 136 refers to mitigation works undertaken to the north of the route option C2 in advance of electricity pylon work in 2016. Given the Low density of heritage assets identified along route option C2 the potential for further previously unidentified remains is considered to be Low.

2.1.244 It is not anticipated that route option C2 would result in significant impacts upon the settings of any designated assets within 1 km (as there are none) and that there is generally considered to be a Low potential for direct impacts upon buried archaeological remains (due to the identified Low potential and the relatively small construction footprints). It is noted that further assessment of both of these factors would be required.

Route Option C3

2.1.245 There are no World Heritage Sites, Scheduled Monuments, GDL's, Battlefields or Listed Buildings within the confines of route option C3.

2.1.246 There are also no Designated Heritage Assets within 1 km of route option C3.

2.1.247 Within the 500 m study area there are four Non-Designated Heritage Assets, and two Events recorded within the NRHE Dataset (none of the Assets are within route option C3). Three of the Non-Designated Heritage Assets are undated; Asset 73 is recorded as a colliery, Asset 100 as a bridge and Asset 101 as a farmstead (all likely post-medieval in date). Asset 24 is recorded as the findspot of a prehistoric stone axehead located to the south-east of route option C3. Event 127 records the location of a small-scale evaluation conducted in 2018 to the north-west of route option C3 which did not find any significant archaeological remains and Event 136 refers to mitigation works undertaken in the northern part of the route option C3 in advance of electricity pylon work in 2016. Given the Low density of heritage assets identified along route option C3 the potential for further previously unidentified remains is considered to be Low.

2.1.248 It is not anticipated that route option C3 would result in significant impacts upon the settings of any designated assets within 1 km (as there are none) and that there is generally considered to be a Low potential for direct impacts upon buried archaeological remains (due to the identified Low potential and the relatively small construction footprints). It is noted that further assessment of both of these factors would be required.

Route Option C4

2.1.249 There are no World Heritage Sites, Scheduled Monuments, GDL's, Battlefields or Listed Buildings within the confines of route option C4.

2.1.250 There are also no Designated Heritage Assets within 1 km of route option C4.

2.1.251 Within the 500 m study area there are six Non-Designated Heritage Assets, and two Events recorded within the NRHE Dataset (none of the Assets are within route option C4). Five of the Non-Designated Heritage Assets are undated; Assets 53 and 72 are recorded as collieries, Asset 110 is recorded as a house / former school, Asset 100 as a bridge and Asset 101 as a farmstead (all of which are likely post-medieval in date). Asset 24 is recorded as the findspot of a prehistoric stone axehead located to the south of route option C4. Event 127 records the location of a small-scale evaluation conducted in 2018 to the west of route option C4 which did not find any significant archaeological remains and Event 136 refers to mitigation works undertaken in the northern part of route option C4 in advance of electricity pylon work in 2016. Given the Low density of heritage assets identified along route option C4 the potential for further previously unidentified remains is considered to be Low.

2.1.252 It is not anticipated that route option C4 would result in significant impacts upon the settings of any designated assets within 1 km (as there are none) and that there is generally considered to be a Low potential for direct impacts upon buried archaeological remains (due to the identified Low potential and the relatively small construction footprints). It is noted that further assessment of both of these factors would be required.

Variation C4.1

2.1.253 There are no World Heritage Sites, Scheduled Monuments, GDL's, Battlefields or Listed Buildings within the confines of variation C4.1.

2.1.254 There are no Designated Heritage Assets within 1 km of variation C4.1 and no Non-Designated Heritage Assets within 500 m of variation C4.1.

2.1.255 It is not anticipated that variation C4.1 would result in significant impacts upon the settings of any designated assets within 1 km (as there are none) and that there is generally considered to be a Low potential for direct impacts upon buried archaeological remains (due to the identified Low density and the relatively small construction footprints). It is noted that further assessment of both of these factors would be required.

Route Option C5

2.1.256 There are no World Heritage Sites, Scheduled Monuments, GDL's, Battlefields or Listed Buildings within the confines of route option C5.

2.1.257 There are also no Designated Heritage Assets within 1 km of route option C5.

2.1.258 Within the 500 m study area there are six Non-Designated Heritage Assets, and one Events recorded within the NRHE Dataset (none of the Assets are within route option C5). Five of the Non-Designated Heritage Assets are undated; 53 and 72 are recorded as collieries, Assets 99 and 109 are recorded as farmhouses and Asset 110 is recorded as a house/former school (all of which are likely post-medieval in date). Asset 24 is recorded as the findspot of a prehistoric stone axehead located to the south of route option C5. Event 136 refers to mitigation works undertaken to the north-west of route option C5 in advance of electricity pylon work in 2016. Given the Low density of heritage assets identified along route option C5 the potential for further previously unidentified remains is considered to be Low.

2.1.259 It is not anticipated that route option C5 would result in significant impacts upon the settings of any designated assets within 1 km (as there are none) and that there is generally considered to be a Low potential for direct impacts upon buried archaeological remains (due to the identified Low potential and the relatively small construction footprints). It is noted that further assessment of both of these factors would be required.

Variation C5.1

2.1.260 There are no World Heritage Sites, Scheduled Monuments, GDL's, Battlefields or Listed Buildings within the confines of variation C5.1.

2.1.261 There are no Designated Heritage Assets within 1 km of variation C5.1.

2.1.262 There are three Non-Designated Heritage Assets recorded within 500 m of variation C5.1. Assets 99 and 109 are recorded as a farmstead/farmhouse (likely post-medieval in date) and Asset 29 is recorded as the location of a possible cairn (this is posited only through placename studies and no trace of any surviving cairn is noted). Asset 109 is located centrally within variation 5.1 and although it is not thought to be of high archaeological importance any design plan should consider

the potential for construction impacts on this asset. Given the Low density of heritage assets identified within 500 m of variation C5.1 potential for further previously unidentified remains is considered to be Low.

2.1.263 It is not therefore anticipated that variation C5.1 would result in significant impacts upon the settings of any designated assets within 1 km (as there are none) and that there is generally considered to be a Low potential for direct impacts upon buried archaeological remains (due to the identified Low density and the relatively small construction footprints). It is noted that further assessment of both of these factors would be required.

Geology, Hydrogeology and Hydrology

Section A

2.1.264 Little difference is noted between the route options in Section A as multiple watercourse crossings are required for each.

Route Option A1

2.1.265 While multiple watercourses are situated within the extent of route option A1, it is likely that standard mitigation practices and micro-siting could be implemented to ensure the quality or quantity of water supply at crossing locations would not be affected.

2.1.266 Route option A1 crosses areas of Medium and High flood risk associated with the River Doon. However, this does not influence preference regarding hydrology as all route options are required to cross the River Doon in the same vicinity.

2.1.267 There is a minor preference for route option A1 in terms of hydrology as it could potentially require fewer watercourse crossings.

Route Option A2

2.1.268 Route option A2 has a marginally lower preference to route option A1 as it has potential for a larger number of watercourse crossings.

Route Option A3

2.1.269 Route option A3 is less favourable than route option A1 as it would require a greater number of watercourse crossings subsequently increasing the need for standard mitigation measures for watercourse crossings.

Route Option A4

2.1.270 Route option A4 has a marginally higher preference than route options A1, A2 and A3 as it only requires a single watercourse crossing.

2.1.271 Route option A4 requires the crossing of a band of Class 1 peat. Based on the width of this band (approximately 150m), it is likely that a single pole location would be required. Aerial imagery suggests that worked ground in this area was formerly in use for mining and a track is present in the east. Field survey would be required to confirm the condition of the peat should route option A4 be progressed. It is

therefore likely that micrositing could ensure that a pole location would be on a lower value area of peat and given the scale of works required, any impacts to peat soils and habitats would be minor and temporary.

Route Option A5

2.1.272 Route option A5 has a marginally lower preference than route option A4 as it requires a larger number of watercourse crossings.

2.1.273 A small area of Class 1 peat is present on route option A5, which could be avoided through micrositing of pole locations.

Section B

2.1.274 There is no preference for any particular route option or variation within Section B as they all require a similar number of watercourse crossings with standard mitigation practices.

2.1.275 Route options B3 and B4 include areas of Class 3 and Class 5 peat. It is not anticipated that minor works at pole locations (excavations or instatement of footings) would lead to alteration of hydrological / hydrogeological conditions). Pole locations could be microsited to avoid any areas of deeper peat or higher-value habitats. Any impacts to peat soils and habitats would be very minor and temporary.

Section C

2.1.276 There is no preference for any particular route option or variation within Section C as they all require a similar number of watercourse crossings with standard mitigation practices.

Forestry

2.1.277 While there are large, forested locations within the study area, the route options mostly avoid them. However, there remains some forests and woodlands identified within the route options and variations. Ancient woodlands are regarded as irreplaceable habitats and are identified in Ancient Woodland Inventory Scotland (AWI)[14]. In the study area these tend to be limited in number and small in coverage, with only a single Long-Established (of plantation origin) strip being unavoidable. NatureScot's Guide to understanding the Scottish Ancient Woodland Inventory (AWI) states that, "*In Scotland, Ancient Woodland is defined as land that is currently wooded and has been continually wooded, at least since 1750*." This relates to Ancient semi-natural origin woodland (ASNO1750) or category 1a in the Inventory. The areas listed in the Inventory as 2a or ASNO1860 did not exist in 1750 and would

[14] Scottish Government. 2024. Ancient Woodland Inventory (Scotland); available at Ancient Woodland Inventory (Scotland) - data.gov.uk; Accessed 05/11/2024.

not be considered under NPF4[15] policy 6 b)i to be truly ancient. NPF4 Policy6 Trees, woodlands and Forestry states, "*Development proposals should not be supported where they would result in:*

- *any loss of ancient woodlands, ancient and veteran trees, or adverse impact on their ecological condition;*
- *adverse impacts on native woodlands, hedgerows and individual trees of high biodiversity value or identified for protection in the Forestry and Woodland Strategy;...*"

2.1.278 Native woodlands identified through NWSS[16] are similarly poorly represented in generally small, isolated areas. While most would be avoidable by design, two wet woodlands extend across two route options (C1 and C2). As wet woodlands tend to be in the lower ground and typically not of high stature, it may be possible to oversail these otherwise unavoidable habitats.

2.1.279 Woodland creation sites supported through Forestry Grant Scheme[17] (FGS), ranging from 2016 to 2022, are present across the route options; some woodland removal would be required should these route options be selected.

2.1.280 Other woodlands are identified from the NFI[18].

2.1.281 All woodland removal would require compliance with The Scottish Government's Policy on Control of Woodland Removal[19].

Section A

Route Option A1

2.1.282 Sclenteuch Wind Farm will be within the Sclenteuch Plantation, a productive conifer forest.

2.1.283 Route option A1 includes part of a woodland at Grid Reference NS431080, Keirs Glen, which is identified within the AWI as ancient (of semi-natural origin) ASNO1860, antiquity code 2a. Within route option A1, the site is small and peripheral and can easily be avoided. This site is also recorded as wet woodland within NWSS. Native woodland (upland birchwood) is present in the north of route option A1, Grid Reference NS426086. NFI records young trees at Grid Reference NS463085 and conifer woodland at Grid Reference NS426086. The conifer woodland and the upland birchwood are spread across route option and would necessitate some

15 The Scottish Government 2023. Scotland's National Planning Framework 4. Available at: https://www.gov.scot/publications/national-planning-framework-4/; Accessed: 05/11/2024
16 Scottish Government. 2024. Native Woodland Survey of Scotland (NWSS) Available at Native Woodland Survey of Scotland (NWSS) - data.gov.uk. Accessed: 18/10/2024
17 Scottish Forestry Open data MapViewer. Available at https://scottishforestry.maps.arcgis.com/apps/webappviewer; Accessed: 05/11/2024
18 Forestry Commission. 2021. National Forest Inventory Scotland. Available at www.data.gov.uk/dataset/3c98f46e-432d-4a3e-8afd-72bd8f49550d/national-forest-inventory-scotland-2021. Accessed: 05/11/2024
19 Forestry Commission Scotland,2009: Scottish Government's Policy on Control of Woodland Removal. Available at https://www.forestry.gov.scot/publications/285-the-scottish-government-s-policy-on-control-of-woodland-removal; Accessed: 05/11/2024.

woodland removal. Woodland creation is present at NS434681 and NS428084 as mixed woodland approved for planting in 2022 and native mixed broadleaves at NS427086 approved for planting in 2020.

Route Option A2

2.1.284 Sclenteuch Wind Farm will be within the Sclenteuch Plantation, a productive conifer forest.

2.1.285 Route option A2 contains no AWI. The NWSS identifies a portion of native woodland, upland birchwood at Grid Reference NS428088. An extensive woodland creation scheme approved in 2020 includes native mixed broadleaves and Scots pine at Grid Reference NS429087. The upland birchwood almost covers the width of route option, but is avoidable, while the woodland creation scheme is unavoidable.

Route Option A3

2.1.286 Sclenteuch Wind Farm will be within the Sclenteuch Plantation, a productive conifer forest.

2.1.287 No AWI is present in route option A3. A small narrow strip of native woodland (upland birchwood) is present at NS434088. This native woodland is avoidable by design. The route option includes the continuation of the same woodland creation scheme as route option A2 at NS432087, which would be unavoidable. The greater extent of route option A3 has no woodland constraints.

Route Option A4

2.1.288 Sclenteuch Wind Farm will be within the Sclenteuch Plantation, a productive conifer forest.

2.1.289 Route option A4 includes very little woodland and no AWI. The woodland present comprises a narrow strip of nearly native woodland, lowland mixed deciduous woodland at Grid Reference NS455078, which could be avoidable by design. There is a small area of young trees at NS450076, which is also avoidable.

Route Option A5

2.1.290 Sclenteuch Wind Farm will be within the Sclenteuch Plantation, a productive conifer forest.

2.1.291 Route option A5 includes minor areas of woodland and no AWI. Small areas of native woodland, upland birchwood are present at NS452068 and NS483074. This route option also includes a small area of broadleaved woodland. All the woodlands are avoidable by design.

Section B

Route Option B1

2.1.292 Route option B1 includes no AWI. Native woodland (upland mixed ashwood) is present at NS428130, which is avoidable by design. A section of native woodland, lowland mixed deciduous woodland at Grid Reference NS434139 extends across the route option, which may be possible to avoid by detailed design. NFI shows the

southern section of route option B1 as including assumed woodland and felled woodland which would be unavoidable; however, aerial imagery suggests this may be open ground.

Variation B1.1

2.1.293 Variation B1.1 is occupied by an area of native woodland (upland mixed ashwood) at Grid Reference NS424126, and an area of young trees which are avoidable by design. NFI shows an extensive area of assumed woodland, but on the aerial imagery this appears to be open ground. No AWI is present.

Route Option B2

2.1.294 Route option B2 includes no AWI. Minor areas of native woodland (wet woodland) are present at NS422124 and NS423127. An area of native woodland (upland mixed ashwood) is present at NS424126. These areas may be avoidable by detailed design. However, the lower section of the route option includes various woodland shown within NFI centred on Grid Reference NS424124 which is unavoidable. Further woodland (young trees) are present at NS421132, which may be avoidable by detailed design. Two areas of woodland creation are present in the north of the route option at NS424135 (approved for planting in 2022) and NS429141 (approved for planting in 2016). These woodland creation schemes are unavoidable.

Route Option B3

2.1.295 Route option B3 includes no AWI or native woodlands. A woodland creation scheme approved for planting in 2018 is located across the route option at NS462125 and is unavoidable. NFI includes woodland at NS464136 which is unavoidable. A further conifer woodland is present at NS466142 and this is also avoidable.

Route Option B4

2.1.296 Route option B4 includes a strip of AWI habitat (long-established plantation origin (LEPO1860 antiquity code 2b)) at Grid Reference NS456133, which stretches the full width of the route corridor and is therefore unavoidable; it is listed as conifer woodland within NFI. A small area of native woodland (lowland mixed deciduous woodland) is present at Grid Reference NS457137. The NFI also includes two areas of felled woodland at Grid Reference NS457136 and NS460138, with a two small area of assumed woodland. These should be avoidable by design.

Variation B4.1

2.1.297 There is no woodland identified within variation B4.1.

Variation B4.2

2.1.298 There is no woodland identified within variation B4.2.

Section C

Route Option C1

2.1.299 Route option C1 includes no AWI. A minor native woodland (wet woodland) is present at Grid Reference NS451161. This is a narrow strip which stretches the full

width the route corridor and is therefore unavoidable. No other woodland is identified.

Variation C1.1

2.1.300 There is no woodland identified within variation C1.1.

Route Option C2

2.1.301 Route option C2 includes no AWI. A narrow strip of native woodland (wet woodland) is present at NS457155. This strip is the full width of the route corridor and is unavoidable. No other woodland is identified.

Route Option C3

2.1.302 There is no woodland identified within route option C3.

Route Option C4

2.1.303 There is no woodland identified within route option C4.

Variation C4.1

2.1.304 There is no woodland identified within variation C4.1

Route Option C5

2.1.305 Route option C5 includes no AWI. A minor native woodland area of native woodland (hawthorn scrub) is present at Grid Reference NS470174 which would be easily avoided. No other woodland is identified.

Variation C5.1

2.1.306 Variation C5.1 includes no AWI. A small area of native woodland (lowland mixed deciduous woodland) is present at Grid Reference 475190 which could be avoided by design. No other woodland is identified.

Recreation and Tourism

2.1.307 As set out in **Table 3.1,** the recreation and tourism resources within the Site Boundary are limited to core paths, a single golf course and two accommodation facilities.

Section A

Route Option A1

2.1.308 The route option does not intersect a core path. The route option is not located in proximity to, nor would it intersect, any identified tourist attraction, accommodation or leisure facility set out in **Table 3.1**.

Route Option A2

2.1.309 The route option does not intersect a core path. The route option is not located in proximity to, nor would it intersect, any identified tourist attraction, accommodation or leisure facility set out in **Table 3.1**.

Route Option A3

2.1.310 The route option does not intersect a core path. The route option is not located in proximity to, nor would it intersect, any identified tourist attraction, accommodation or leisure facility set out in **Table 3.1**.

Route Option A4

2.1.311 The route option does not intersect a core path. The route option is not located in proximity to, nor would it intersect, any identified tourist attraction, accommodation or leisure facility set out in **Table 3.1**.

Route Option A5

2.1.312 The route option does not intersect a core path. The route option is not located in proximity to, nor would it intersect, any identified tourist attraction, accommodation or leisure facility set out in **Table 3.1**.

Section B

Route Option B1

2.1.313 The route option crosses a core path approximately 1 km south-east of Patna settlement, the Patna and Waterside Circular, and is located immediately adjacent to the Doon Valley Golf Club. Where the route option crosses the core path, this core path does not span the full width of the route option. The route option is not located in proximity to, nor would it intersect, any identified tourist attraction, accommodation or leisure facility set out in **Table 3.1**. This is apart from a privately run fishing pond, west of Rankinston, which is located within approximately 200 m of the route option.

Variation B1.1

2.1.314 The variation does not intersect a core path. The variation is not located in proximity to, nor would it intersect, any identified tourist attraction, accommodation or leisure facility set out in **Table 3.1**.

Route Option B2

2.1.315 The route option crosses a core path approximately 1 km south-east of Patna settlement, the Patna and Waterside Circular, and is located immediately adjacent to the Doon Valley Golf Club. Where the route option crosses the core path, this core path does not span the full width of the route option. The route option is not located in proximity to, nor would it intersect, any identified tourist attraction, accommodation or leisure facility set out in **Table 3.1**.

Route Option B3

2.1.316 The route option does not intersect a core path. The route option is not located in proximity to, nor would it intersect, any identified tourist attraction, accommodation or leisure facility set out in **Table 3.1**.

Route Option B4

2.1.317 The route option does not intersect a core path. The route option is not located in proximity to, nor would it intersect, any identified tourist attraction, accommodation or leisure facility set out in **Table 3.1**.

Variation B4.1

2.1.318 The variation does not intersect a core path. The variation is not located in proximity to, nor would it intersect, any identified tourist attraction, accommodation or leisure facility set out in **Table 3.1**

Variation B4.2

2.1.319 The variation does not intersect a core path. The variation is not located in proximity to, nor would it intersect, any identified tourist attraction, accommodation or leisure facility set out in **Table 3.1**.

Section C

Route Option C1

2.1.320 The route option crosses a core path approximately 700 m east of Drongan settlement. Where the route option crosses the core path, this core path does span the full width of the route option. The route option is not located in proximity to, nor would it intersect, any identified tourist attraction, accommodation or leisure facility set out in **Table 3.1**.

Variation C1.1

2.1.321 The variation crosses a core path approximately 1.2 km east of Drongan settlement. Where the variation crosses the core path, this core path does span the full width of the variation. The variation is not located in proximity to, nor would it intersect, any identified tourist attraction, accommodation or leisure facility set out in **Table 3.1**.

Route Option C2

2.1.322 The route option crosses a core path approximately 700 m east of Drongan settlement. Where the route option crosses the core path, this core path does span the full width of the route option. The route option is not located in proximity to, nor would it intersect, any identified tourist attraction, accommodation or leisure facility set out in **Table 3.1**.

Route Option C3

2.1.323 The route option crosses a core path approximately 700 m east of Drongan settlement. Where the route option crosses the core path, this core path does span the full width of the route option. The route option is not located in proximity to, nor would it intersect, any identified tourist attraction, accommodation or leisure facility set out in **Table 3.1**.

Route Option C4

2.1.324 The route option crosses a core path approximately 1.5 km east of Drongan settlement. Where the route option crosses the core path, this core path does span the full width of the route option. The route option is not located in proximity to, nor

would it intersect, any identified tourist attraction, accommodation or leisure facility set out in **Table 3.1.**

Variation C4.1

2.1.325 The variation does not intersect a core path. The variation is not located in proximity to, nor would it intersect, any identified tourist attraction, accommodation or leisure facility set out in **Table 3.1.**

Route Option C5

2.1.326 The route option crosses a core path approximately 1.9 km east of Drongan settlement. Where the route option crosses the core path, this core path does span the full width of the route option. The route option is not located in proximity to, nor would it intersect, any identified tourist attraction, accommodation or leisure facility set out in **Table 3.1.**

Variation C5.1

2.1.327 The variation does not intersect a core path. The variation is not located in proximity to, nor would it intersect, any identified tourist attraction or leisure facility set out in **Table 3.1.** The variation is in proximity to, approximately 450 m west, a privately run camping facility west of Burnton.

Land Use and Infrastructure

2.1.328 As set out in **Table 3.1,** the land use resources within the site boundary are predominantly limited to open agricultural land and plantation forestry, with more limited areas of residential settlement.

Section A

Route Option A1

2.1.329 The route option is underlain by soils classified as 4.2, 5.2, 6.2 and 6.3, so is not considered to be prime agricultural land, as set out in **Table 3.1.** The route option does not intersect a residential settlement.

2.1.330 At the closest point the route option is in proximity to the Patna and Waterside settlements, located approximately 0.5 km south-east and approximately 0.7 km west respectively.

2.1.331 The route option is within 150 m of several residential receptors, but the width of the route option affords adjustment to allow for a 150 m distance for residential receptors to be implemented. This is with the exception of the northernmost point of the route option, where residential receptors to the east and west of the route option restrict flexibility to maintain said buffer.

Route Option A2

2.1.332 The route option is underlain by soils classified as 4.2, 5.2, 6.2 and 6.3, so is not considered to be prime agricultural land, as set out in **Table 3.1.** The route option does not intersect a residential settlement.

2.1.333 At the closest point the route option is in proximity to the Patna and Waterside settlements, located approximately 0.5 km south-east and approximately 0.7 km west respectively.

2.1.334 The route option is within 150 m of several residential receptors, but the width of the route option affords adjustment to allow for a 150 m distance for residential receptors to be implemented. This is with the exception of the northernmost point of the route option, where residential receptors to the east and west of the route option restrict flexibility to maintain said buffer.

Route Option A3

2.1.335 The route option is underlain by soils classified as 4.2, 5.2, 6.2 and 6.3, so is not considered to be prime agricultural land, as set out in **Table 3.1.** The route option does not intersect a residential settlement.

2.1.336 At the closest point the route option is in proximity to the Patna and Waterside settlements, located approximately 0.5 km south-east and approximately 0.1 km west respectively.

2.1.337 The route option is within 150 m of several residential receptors, but the width of the route option affords adjustment to allow for a 150 m distance for residential receptors to be implemented. This is with the exception of the northernmost point of the route option, where residential receptors to the east and west of the route option restrict flexibility to maintain said buffer.

Route Option A4

2.1.338 The route option is underlain by soils classified as 5.2, 6.2 and 6.3, so is not considered to be prime agricultural land, as set out in **Table 3.1.** The route option does not intersect a residential settlement.

2.1.339 At the closest point the route option is in proximity to the Patna and Waterside settlements, located approximately 2.7 km south-east and approximately 0.2 km south respectively. The route option is not within 150 m of residential receptors.

Route Option A5

2.1.340 The route option is underlain by soils classified as 5.2, 6.2 and 6.3, so is not considered to be prime agricultural land, as set out in **Table 3.1.** The route option does not intersect a residential settlement.

2.1.341 At the closest point the route option is in proximity to the Patna and Waterside settlements, located approximately 2.7 km south-east and approximately 0.2 km south respectively.

2.1.342 The route option is within 150 m of one residential receptor, but the width of the route option affords adjustment to allow for a 150 m distance for residential receptors to be implemented.

Section B

Route Option B1

2.1.343 The route option is underlain by soils classified as 4.1 and 5.2, so is not considered to be prime agricultural land, as set out in **Table 3.1.** The route option does not intersect a residential settlement.

2.1.344 At the closest point and at the origin of the route option, it is in proximity to the Patna and Waterside settlements, located approximately 2.7 km south-east and approximately 0.2 km south respectively. At the closest point, the northern extent of the route option is located approximately 0.8 km west of the settlement of Rankinston.

2.1.345 The route option is within 150 m of several residential receptors, but the width of the route option affords adjustment to allow for a 150 m distance for residential receptors to be implemented. This is with the exception of the southernmost point of the route option and approximately 1.5 km south-west of Rankinston, where residential receptors to the east and west of the route option restrict flexibility to maintain said buffer.

2.1.346 The route option is constrained by the proposed Knockshinnoch turbines, one of which overlaps the majority of the route option. The majority of the route option is within two rotor diameters of the westernmost turbine and may be affected by unacceptable levels of wake effect. A narrow strip of the route option falls outwith two rotor diameters and may be technically feasible however route option B1 is considered to be heavily constrained by its proximity to Knockshinnoch wind farm.

Variation B1.1

2.1.347 The variation is underlain by soils classified as 5.2, so is not considered to be prime agricultural land, as set out in **Table 3.1.** The variation does not intersect, nor lie in proximity to, a residential settlement. The variation is not within 150 m of several residential receptors.

Route Option B2

2.1.348 The route option is underlain by soils classified as 4.1 and 5.2, so is not considered to be prime agricultural land, as set out in **Table 3.1.** The route option does not intersect a residential settlement.

2.1.349 At the closest point and at the origin of the route option, it is in proximity to the Patna and Waterside settlements, located approximately 2.7 km south-east and approximately 0.2 km south respectively. At the closest point, the northern extent of the route option is located approximately 0.8 km west of the settlement of Rankinston.

2.1.350 The route option is within 150 m of several residential receptors, but the width of the route option affords adjustment to allow for a 150 m distance for residential receptors to be implemented. This is with the exception of the southernmost point of the route option, where residential receptors to the east and west of the route option restrict flexibility to maintain said buffer.

Route Option B3

2.1.351 The route option is underlain by soils classified as 5.2, 6.1 and 6.2, so is not considered to be prime agricultural land, as set out in **Table 3.1.** The route option does not intersect a residential settlement. At the closest point and at the origin of the route option, it is in proximity to the Patna and Waterside settlements, located approximately 2.7 km south-east and approximately 0.2 km south respectively.

2.1.352 At the closest point, the route option is located approximately 1.3 km east of the settlement of Rankinston. The route option is not within 150 m of several residential receptors.

2.1.353 The route option is constrained by the proposed Breezy Hill and Polquhairn turbines. The route option maintains a two-rotor diameter distance at all points however sections of the route are located within three rotor diameters of the wind farms. Within these sections a corridor remains outwith the three-rotor diameter buffer. Route option B3 is considered to be moderately constrained by its proximity to Breezy Hill and Polquhairn wind farm. It should be noted that Breezy Hill wind farm is currently at scoping stage and turbine movements are possible which may impact the route option.

Route Option B4

2.1.354 The route option is underlain by soils classified as 5.2, 6.1 and 6.2, so is not considered to be prime agricultural land, as set out in **Table 3.1.** The route option does not intersect a residential settlement.

2.1.355 At the closest point and at the origin of the route option, it is in proximity to the Patna and Waterside settlements, located approximately 2.7 km south-east and approximately 0.2 km south respectively. At the closest point, the route option is located approximately 0.5 km south-east of the settlement of Rankinston. The route option is not within 150 m of several residential receptors.

2.1.356 The route option is constrained by the proposed Breezy Hill turbines. The route option maintains a two-rotor diameter distance at all points however sections of the route are located within three rotor diameters of the wind farm. Within these sections a corridor remains outwith the three-rotor diameter buffer. Route option B4 is considered to be moderately constrained by its proximity to Breezy Hill wind farm. It should be noted that Breezy Hill wind farm is currently at scoping stage and turbine movements are possible which may impact the route option.

Variation B4.1

2.1.357 The variation is underlain by soils classified as 4.1 and 5.2, so is not considered to be prime agricultural land, as set out in **Table 3.1.** The variation does not intersect a residential settlement and, at its closest point, is located approximately 0.7 km north-east of the settlement of Rankinston. The variation is not within 150 m of several residential receptors.

Variation B4.2

2.1.358 The variation is underlain by soils classified as 5.2, so is not considered to be prime agricultural land, as set out in **Table 3.1.** The variation does not intersect a residential settlement and, at its closest point, is located approximately 0.7 km north-east of the settlement of Rankinston. The variation is not within 150 m of several residential receptors.

Section C

Route Option C1

2.1.359 The route option is underlain by soils classified as 4.1 so is not considered to be prime agricultural land, as set out in **Table 3.1.** The route option does not intersect a residential settlement. At the closest point, the route option is located approximately 0.7 km east of the settlement of Drongan.

2.1.360 The route option is within 150 m of several residential receptors, but the width of the route option affords adjustment to allow for a 150 m distance for residential receptors to be implemented. This is except for approximately 1.5 km north-west of the settlement of Hayhill , where residential receptors to the east and west of the route option restrict flexibility to maintain said buffer.

Variation C1.1

2.1.361 The variation is underlain by soils classified as 4.1, so is not considered to be prime agricultural land, as set out in **Table 3.1.** The variation does not intersect a residential settlement. At the closest point, the variation is located approximately 1.1 km east of the settlement of Drongan.

2.1.362 The variation is within 150 m of several residential receptors, but the width of the variation affords adjustment to allow for a 150 m distance for residential receptors to be implemented.

Route Option C2

2.1.363 The route option is underlain by soils classified as 4.1 and 5.2 so is not considered to be prime agricultural land, as set out in **Table 3.1.** The route option does not intersect a residential settlement. At the closest point, the route option is located approximately 0.2 km west of the settlement of Hayhill.

2.1.364 The route option is within 150 m of several residential receptors, but the width of the route option affords adjustment to allow for a 150 m distance for residential receptors to be implemented.

Route Option C3

2.1.365 The route option is underlain by soils classified as 4.1 and 5.2 so is not considered to be prime agricultural land, as set out in **Table 3.1.** The route option does not intersect a residential settlement. At the closest point, the route option is located approximately 0.1 km west of the settlement of Hayhill.

2.1.366 The route option is within 150 m of several residential receptors, but the width of the route option affords adjustment to allow for a 150 m distance for residential receptors to be implemented

Route Option C4

2.1.367 The route option is underlain by soils classified as 4.1 and 5.2 so is not considered to be prime agricultural land, as set out in **Table 3.1.** The route option does not intersect a residential settlement. At the closest point, the route option is located approximately 0.2 km south-west of the settlement of Sinclairston.

2.1.368 The route option is within 150 m of several residential receptors, but the width of the route option affords adjustment to allow for a 150 m distance for residential receptors to be implemented.

Variation C4.1

2.1.369 The variation is underlain by soils classified as 4.1, so is not considered to be prime agricultural land, as set out in **Table 3.1.** The route does not intersect a residential settlement. At the closest point, the variation is located approximately 0.5 km west of the settlement of Sinclairston. The variation is not within 150 m of several residential receptors.

Route Option C5

2.1.370 The route option is underlain by soils classified as 4.1 and 5.2 so is not considered to be prime agricultural land, as set out in **Table 3.1.** The route option does not intersect a residential settlement. At the closest point, the route option is located approximately 0.1 km west of the settlement of Sinclairston.

2.1.371 The route option is within 150 m of several residential receptors, but the width of the route option affords adjustment to allow for a 150 m distance for residential receptors to be implemented.

Variation C5.1

2.1.372 The variation is underlain by soils classified as 4.1, so is not considered to be prime agricultural land, as set out in **Table 3.1.** The variation does not intersect a residential settlement. At the closest point, the variation is located approximately 1.2 km north-east of the settlement of Sinclairston.

2.1.373 The variation is within 150 m of several residential receptors, but the width of the variation affords adjustment to allow for a 150 m distance for residential receptors to be implemented.

Mining

2.1.374 The main sensitivities requiring consideration are areas of current and former opencast workings, and areas of significant underground mining history where shaft and adit entrances are present. Further consideration will be given to areas identified as high-risk for development in relation to mining, and where there are known mineral reserves.

Sensitivities relating specifically to mining are detailed in the following sections. These sections discuss the level of interaction for each route option.

Due to the extensive historic coal mining in the area, the exact areas of former workings are not clear. However, based on East Ayshire Council[2021] and Coal Authority (CA)[22] information, no current coal or mineral working sites are present along any of the route options.

Section A

2.1.375 Approximately 30 % of route options A4 and A5 pass through a previously restored opencast coal mining area mapped by the East Ayrshire Council[21] (Chalmerston mine restored between June – July 2021[23]) and are impacted by a high density of possible mine entries[22]. The remaining route options do not pass through previously mined land, but a low density of mine entries is present in route options A1 – A3.

Approximately 50% of route options A4 and A5 sit within an area outlined by the Coal Authority as development high-risk[22]. These areas are likely to be labelled as high-risk due to the presence of historic surface and shallow coal mining. Approximately 20% of route options A1 – A3 are also designated as development high-risk areas. None of the route options fall within the East Ayrshire Council areas of known coal that may be acceptable, in principle, for future coal mining[20].

Route Option A1

2.1.376 20 % impacted by land designated as development high-risk.

Route Option A2

2.1.377 20 % impacted by land designated as development high-risk.

Route Option A3

2.1.378 20 % impacted by land designated as development high-risk.

Route Option A4

2.1.379 50 % impacted by land designated as development high-risk.

30 % impacted by restored coal mine workings.

High density of possible mine entries.

Route Option A5

2.1.380 50 % impacted by land designated as development high-risk.

2.1.381 30 % impacted by restored coal mine workings.

2.1.382 Low density of possible mine entries.

[20] *East Ayrshire Council, January 2020, Mineral Local development Plan*
[21] *URL: Surface Coal Mining Web Map November 2024 [Accessed November 2024]*
[22] *URL: The Coal Authority Map Viewer [Accessed November 2024]*
[23] *East Ayrshire Council, March 2021, Opencast Coal Mining in East Ayrshire – Completion of Restoration And Recovery Activity*

Section B

2.1.383 Approximately 10% of options B3/B4 and 20% of B1/B2 lie within a restored opencast coal mining area outlined by the East Ayrshire Council (Chalmerston mine restored between June-July 2021[23]). The majority of options B2, B1, and Variation B1.1 also lie within a restored opencast coal mining (Dunstonhill mine restored between July 2015 and December 2017[23]). Both options B4 and B2 contain a moderate density of historic mine entries recorded by the CA.

Approximately 30% of options B3/B4 and minor portions of the remaining options sit within an area outlined by the Coal Authority as Development high-risk [22]. These areas are likely labelled as high-risk due to the presence of shallow and surface historic coal mining. Approximately 40% of option B2 and minor portions of B3, B4, and B4.2 fall within the East Ayrshire Council areas of known coal that may be acceptable, in principle, for future coal mining[20].

Route Option B1

2.1.384 20 % impacted by restored coal mining sites.

<10 % impacted by land designated as development high-risk.

Variation B1.1

2.1.385 100 % impacted by restored opencast coal mining sites.

Route Option B2

2.1.386 20 % impacted by restored coal mine workings.

10 % impacted by land designated as development high-risk.

Route Option B3

2.1.387 10 % impacted by restored coal mining sites.

30 % impacted by land designated as development high-risk.

Route Option B4

2.1.388 10 % impacted by restored coal mine workings.

30 % impacted by land designated as development high-risk.

Areas of moderate density of possible mine entries

Variation B4.1

2.1.389 No constraints.

Variation B4.2

2.1.390 50 % impacted by areas of known coal that may be acceptable, in principle, for future coal mining.

Section C

2.1.391 According to the Coal Authority and East Ayrshire Council[21], none of the route options within Section C pass through known areas of previous mining. However, one possible mine entry is located in the northern half of route option C1.

The majority of Section C route options are not affected by areas designated as development high-risk[22]. Approximately 10 % of C1 falls within a high-risk area, due to probable shallow coal mine workings mapped by the Coal Authority. Approximately <10 % of route options C4 and C5 fall within the East Ayrshire Council areas of known coal that may be acceptable, in principle, for future coal mining[20].

Route Option C1

2.1.392 >10 % impacted by land designated as development high-risk.

Areas of low density of possible mine entries.

Variation C1.1

2.1.393 No constraints.

Route Option C2

2.1.394 No constraints.

Route Option C3

2.1.395 No constraints.

Route Option C4

2.1.396 <10 % impacted by areas of known coal that may be acceptable, in principle, for future coal mining.

Variation C4.1

2.1.397 No constraints.

Route Option C5

2.1.398 <10 % impacted by areas of known coal that may be acceptable, in principle, for future coal mining.

Variation C5.1

2.1.399 No constraints.

Planning

2.1.400 As set out in Table 3.1, the planning constraints within the Site Boundary are predominantly limited to an area designated as LLA (Policy NE1) within the EALDP. No other significant planning constraints are anticipated.

Section A

Route Option A1

2.1.401 The route option is located within an area of the Doon Valley which is a designated LLA (Policy NE1) within the EALDP. As set out within the LDP, proposal which have the potential for unacceptable impacts on character and visual amenity will not be supported. No other designations overlaps with the route option.

2.1.402 A review of the East Ayrshire Council planning portal has identified no major planning applications within the route option. This is apart from the proposed Sclenteuch wind farm, which overlaps with the route option, as would be expected to afford connection.

Route Option A2

2.1.403 The route option is located within an area of the Doon Valley which is a designated LLA (Policy NE1) within the EALDP. As set out within the LDP, proposal which have the potential for unacceptable impacts on character and visual amenity will not be supported. No other designations overlaps with the route option.

2.1.404 A review of the East Ayrshire Council planning portal has identified no major planning applications within the route option. This is apart from the proposed Sclenteuch wind farm, which overlaps with the route option, as would be expected to afford connection.

Route Option A3

2.1.405 The route option is located within an area of the Doon Valley which is a designated LLA (Policy NE1) within the EALDP. As set out within the LDP, proposal which have the potential for unacceptable impacts on character and visual amenity will not be supported. No other designations overlaps with the route option.

2.1.406 A review of the East Ayrshire Council planning portal has identified no major planning applications within the route option. This is apart from the proposed Sclenteuch wind farm, which overlaps with the route option, as would be expected to afford connection.

Route Option A4

2.1.407 The route option is located within an area of the Doon Valley which is a designated LLA (Policy NE1) within the EALDP. As set out within the LDP, proposal which have the potential for unacceptable impacts on character and visual amenity will not be supported. No other designations overlaps with the route option.

2.1.408 A review of the East Ayrshire Council planning portal has identified no major planning applications within the route option. This is apart from the proposed Sclenteuch wind farm, which overlaps with the route option, as would be expected to afford connection.

Route Option A5

2.1.409 The route option is located within an area of the Doon Valley which is a designated LLA (Policy NE1) within the EALDP. As set out within the LDP, proposal which have

the potential for unacceptable impacts on character and visual amenity will not be supported. No other designations overlaps with the route option.

2.1.410 A review of the East Ayrshire Council planning portal has identified no major planning applications within the route option. This is apart from the proposed Sclenteuch wind farm, which overlaps with the route option, as would be expected to afford connection.

Section B

Route Option B1

2.1.411 The southernmost extent of the route option is located within an area of the Doon Valley which is a designated LLA (Policy NE1) within the EALDP. As set out within the LDP, proposal which have the potential for unacceptable impacts on character and visual amenity will not be supported. No other designations overlaps with the route option.

2.1.412 A review of the East Ayrshire Council planning portal has identified no major planning applications within the route option.

Variation B1.1

2.1.413 The variation is not located within any areas designated within the EALDP. A review of the East Ayrshire Council planning portal has identified no major planning applications within the variation.

Route Option B2

2.1.414 The southernmost extent of the route option is located within an area of the Doon Valley which is a designated LLA (Policy NE1) within the EALDP. As set out within the LDP, proposal which have the potential for unacceptable impacts on character and visual amenity will not be supported. No other designations overlaps with the route option.

2.1.415 A review of the East Ayrshire Council planning portal has identified no major planning applications within the route option.

Route Option B3

2.1.416 The southernmost extent of the route option is located within an area of the Doon Valley which is a designated LLA (Policy NE1) within the EALDP. As set out within the LDP, proposal which have the potential for unacceptable impacts on character and visual amenity will not be supported. No other designations overlaps with the route option.

2.1.417 A review of the East Ayrshire Council planning portal has identified no major planning applications within the route option.

Route Option B4

2.1.418 The southernmost extent of the route option is located within an area of the Doon Valley which is a designated LLA (Policy NE1) within the EALDP. As set out within the LDP, proposal which have the potential for unacceptable impacts on character

and visual amenity will not be supported. No other designations overlaps with the route option.

2.1.419 A review of the East Ayrshire Council planning portal has identified no major planning applications within the route option.

Variation B4.1

2.1.420 The variation is not located within any areas designated within the EALDP. A review of the East Ayrshire Council planning portal has identified no major planning applications within the variation.

Variation B4.2

2.1.421 The variation is not located within any areas designated within the EALDP. A review of the East Ayrshire Council planning portal has identified no major planning applications within the variation.

Section C

Route Option C1

2.1.422 The route option is not located within any areas designated within the EALDP. A review of the East Ayrshire Council planning portal has identified no major planning applications within the route option.

Variation C1.1

2.1.423 The variation is not located within any areas designated within the EALDP. A review of the East Ayrshire Council planning portal has identified no major planning applications within the variation.

Route Option C2

2.1.424 The route option is not located within any areas designated within the EALDP. A review of the East Ayrshire Council planning portal has identified no major planning applications within the route option.

Route Option C3

2.1.425 The route option is not located within any areas designated within the EALDP. A review of the East Ayrshire Council planning portal has identified no major planning applications within the route option.

Route Option C4

2.1.426 The route option is not located within any areas designated within the EALDP. A review of the East Ayrshire Council planning portal has identified no major planning applications within the route option.

Variation C4.1

2.1.427 The variation is not located within any areas designated within the EALDP. A review of the East Ayrshire Council planning portal has identified no major planning applications within the variation.

Route Option C5

2.1.428 The route option is not located within any areas designated within the EALDP. A review of the East Ayrshire Council planning portal has identified Coylton Greener Grid Park in East Ayrshire (planning reference: 21/0748/PP) directly adjacent to Coylton Substation. Route option C5 interacts with the Coylton Greener Grid Park as it approaches Coylton substation.

Variation C5.1

2.1.429 The variation is not located within any areas designated within the EALDP. A review of the East Ayrshire Council planning portal has identified no major planning applications within the variation.

Appendix 5: Holford Rules

Rule 1

Avoid altogether, if possible, the major areas of highest amenity value, by so planning the general route of the line in the first place, even if the total mileage is somewhat increased in consequence.

Note on Rule 1

(a) Investigate the possibility of alternative routes, avoiding altogether, if possible major areas of highest amenity value. The consideration of alternative routes must be an integral feature of environmental statements. If there is an existing transmission line through a major area of highest amenity value and the surrounding land use has to some extent adjusted to its presence, particularly in the case of commercial forestry, then effect of remaining on this route must be considered in terms of the effect of a new route avoiding the area.

(b) Areas of highest amenity value require to be established on a project-by-project basis considering Schedule 9 to The Electricity Act 1989, Scottish Planning Policies, National Planning Policy Guidelines, Circulars and Planning Advice Notices and the spatial extent of areas identified.

Examples of areas of highest amenity value which should be considered are:

- Special Area of Conservation (SAC)
- Special Protection Area (SPA)
- Ramsar Site
- National Scenic Areas (NSA)
- National Parks
- National Nature Reserves (NNR)
- Protected Coastal Zone Designations
- Sites of Special Scientific Interest (SSSI)
- Schedule of Ancient Monuments
- Listed Buildings
- Conservation Areas
- World Heritage Sites
- Historic Gardens and Designed Landscapes

Rule 2

Avoid smaller areas of high amenity value or scientific interest, by deviation; provided that this can be done without using too many angle towers (i.e. the more massive structures which are used when lines change direction).

Note on Rule 2

a) Small areas of highest amenity value not included in Rule 1 as a result of their spatial extent should be identified along with other areas of regional or local high amenity value identified from development plans.

b) Impacts on the setting of historic buildings and other cultural heritage features should be minimised.

c) If there is an existing transmission line through an area of high amenity value and the surrounding land uses.

Rule 3

Other things being equal, choose the most direct line, with no sharp changes of direction and thus fewer angle towers.

Note on Rule 3

a) Where possible choose inconspicuous locations for angle towers, terminal towers and sealing end compounds.

b) Too few angles on flat landscape can also lead to visual intrusion through very long straight lines of towers, particularly when seen nearly along the line.

Rule 4

Choose tree and hill backgrounds in preference to sky background wherever possible and when the line has to cross a ridge, secure this opaque background as long as possible and cross obliquely when a dip in the ridge provides an opportunity. Where it does not, cross directly, preferably between belts of trees.

Note on Rule 4

Choose tree and hill backgrounds in preference to sky backgrounds, wherever possible; and when the line has to cross a ridge, secure this opaque background as long as possible and cross obliquely when a dip in the ridge provides an opportunity. Where it does not, cross directly, preferably between belts of trees.

Rule 5

Prefer moderately open valleys with woods, where the apparent height of the towers will be reduced and views of the line will be broken by trees.

Notes on Rules 4 and 5

a) Utilise background and foreground features to reduce the apparent height and domination of towers from main viewpoints.

b) Minimise the exposure of numbers of towers on prominent ridges and skylines.

c) Where possible follow open space and run alongside, not through woodland or commercial forestry, and consider opportunities for skirting edges of copses and woods. Where there is no reasonable alternative to cutting through woodland or commercial forestry, the Forestry Commission Guidelines should be followed (Forest Landscape Design

Guidelines, second edition, The Forestry Commission 1994 and Forest Design Planning – A Guide to Good Practice, Simon Bell/The Forest Authority 1998).

d) Protect existing vegetation, including woodland and hedgerows, and safeguard visual and ecological links with the surrounding landscape.

Rule 6

In country which is flat and sparsely planted, keep the higher voltage lines as far as possible independent of smaller lines, converging routes, distribution lines and other masts, wires and cables so as to avoid a concatenation or 'wirescape'.

Note on Rule 6

a) In all locations minimise confusing appearance.

b) Arrange wherever practicable that parallel or closely related routes are planned with tower types, spans and conductors forming a coherent appearance. Where routes need to diverge allow, where practicable, sufficient separation to limit the impacts on properties and features between lines.

Rule 7

Approach urban areas through industrial zones where they exist and where pleasant residential and recreational land intervenes between the approach line and substation, go carefully into the costs of undergrounding, for lines other than those of the highest voltage.

Note on Rule 7

a) When a line needs to pass through a development area, route it so as to minimise as far as possible the effect on development.

b) Alignments should be chosen after consideration of impacts on the amenity of existing development and on proposals for new development.

c) When siting substations take account of the impacts of the terminal towers and line connections that will need to be made and take advantage of screening features such as ground form and vegetation.

Explanatory Note on Rule 7

The assumption made in Rule 7 is that the highest voltage line is overhead.

Supplementary Notes

a) Residential Areas: Avoid routeing close to residential areas as far as possible on grounds of general amenity.

b) Designations of Regional and Local Importance: Where possible choose routes which cause the least disturbance to Areas of Great Landscape Value and other similar designations of Regional or Local Importance.

c) Alternative Lattice Steel Tower Designs:

In addition to adopting appropriate routeing, evaluate where appropriate the use of alternative lattice steel tower designs available where these would be advantageous visually, and where the extra cost can be justified. [Note: SHETL have reviewed the visual and

landscape arguments for the use of lattice steel towers in Scotland and summarised these in a document entitled Overhead Transmission Line Tower Study 2004].

Further Notes on Clarification to The Holford Rules

Line Routeing and People

The Holford Rules focused on landscape amenity issues for the most part. However, line routeing practice has given greater importance to people, residential areas etc. The following notes are intended to reflect this.

a) Avoid routeing close to residential areas as far as possible on grounds of general amenity.

b) In rural areas avoid as far as possible dominating isolated house, farms or other small-scale settlements.

c) Minimise the visual effect perceived by users of roads, and public rights of way, paying particular attention to the effects of recreational, tourist and other well used routes.