Scottish & Southern Electricity Networks

Consultation Document - Route Selection

Project: Carn Fearna Wind Farm Connection

Date: August 2024

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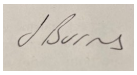
	L. Soeder		J. Burns		M. Goodwin		14.08.2024	

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GLOSSARY

Term	Definition
Alignment	A centre line of an overhead line (OHL), along with location of key angle structures.
Amenity	The natural environment, cultural heritage, landscape and visual quality. Also includes the impact of SHE Transmission's works on communities, such as the effects of noise and disturbance from construction activities.
Conductor	A metallic wire strung from structure to structure, to carry electric current.
Consultation	The dynamic process of dialogue between individuals or groups, based on a genuine exchange of views and, normally, with the objective of influencing decisions, policies or programmes of action.
Corridor	A linear area which allows a continuous connection between the defined connection points. The corridor may vary in width along its length; in unconstrained areas it may be many kilometres wide.
Environmental Impact Assessment (EIA)	A formal process set down in The Electricity Works (EIA) (Scotland) Regulations 2000 (as amended in 2008) used to systematically identify, predict and assess the likely significant environmental impacts of a proposed project or development.
Gardens and Designed Landscapes (GDLs)	The Inventory of Gardens and Designed Landscapes lists those gardens or designed landscapes which are considered by a panel of experts to be of national importance.
Habitat	Term most accurately meaning the place in which a species lives, but also used to describe plant communities or agglomerations of plant communities.
Kilovolt (kV)	One thousand volts.
Listed Building	Building included on the list of buildings of special architectural or historic interest and afforded statutory protection under the 'Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997' and other planning legislation. Classified categories A – C(s).
Micrositing	The process of positioning individual structures to avoid localised environmental or technical constraints.
Mitigation	Term used to indicate avoidance, remediation or alleviation of adverse impacts.
National Scenic Area (NSA)	A national level designation applied to those landscapes considered to be of exceptional scenic value.
National Nature Reserve (NNR)	Nature reserves deemed to be of national importance, or controlled by a national-level body may be known as national nature reserves.
Overhead line	An electric line installed above ground, usually supported by lattice steel towers or poles.
Plantation Woodland	Woodland of any age that obviously originated from planting.
Riparian Woodland	Natural home for plants and animals occurring in a thin strip of land bordering a stream or river.
Route	A linear area of approximately 1 km width (although this may be narrower/wider in specific locations in response to identified pinch points / constraints), which provides a continuous connection between defined connection points.
Routeing	The work undertaken which leads to the selection of a proposed alignment, capable of being taken forward into the consenting process under Section 37 of the Electricity Act 1989.

Term	Definition
Scheduled Monument	A monument which has been scheduled by the Scottish Ministers as being of national importance under the terms of the 'Ancient Monuments and Archaeological Areas Act 1979'.
Semi-natural Woodland	Woodland that does not obviously originate from planting. The distribution of species will generally reflect the variations in the site and the soil. Planted trees must account for less than 30% of the canopy composition.
Sites of Special Scientific Interest (SSSI)	Areas of national importance. The aim of the SSSI network is to maintain an adequate representation of all natural and semi-natural habitats and native species across Britain.
Span	The section of overhead line between two structures.
Special Area of Conservation (SAC)	An area designated under the EC Habitats Directive to ensure that rare, endangered or vulnerable habitats or species of community interest are either maintained at or restored to a favourable conservation status.
Special Landscape Area (SLA)	Landscapes designated by The Highland Council which are considered to be of regional/local importance for their scenic qualities.
Special Protection Area (SPA)	An area designated under the Wild Birds Directive (Directive 74/409/EEC) to protect important bird habitats. Implemented under the Wildlife and Countryside Act 1981.
Stakeholders	Organisations and individuals who can affect or are affected by SHE Transmission works.
Study Area	The area within which the corridor, Route and alignment study takes place.
Terminal Structure	A structure (tower or pole) required where the line terminates either at a substation or at the beginning and end of an underground cable section.
The National Grid	The electricity transmission network in the Great Britain.
Volts	The international unit of electric potential and electromotive force.
Wayleave	A voluntary agreement entered into between a landowner upon whose land an overhead line is to be constructed and SHE Transmission.
Wild Land Area (WLA)	Those areas comprising the greatest and most extensive areas of wild characteristics within Scotland.

PREFACE

This Consultation Document has been prepared by ERM on behalf of Scottish and Southern Electricity Networks Transmission (SSEN Transmission), to seek comments from all interested parties on the Carn Fearna Wind Farm Connection project.

The Consultation Document is available online at: https://www.ssen-transmission.co.uk/carn-fearna-wind-farm-connection

Public consultation events detailing the proposals described in this document will be held at the following time and location:

- Wednesday 4th September 2024 Garve Village Hall: 3pm – 7pm

Comments on this document should be sent to:

Lisa Marchi

Community Liaison Manager

SSEN Transmission

10 Henderson Road, Inverness IV1 1SA

Email: lisa.marchi@sse.com

Mobile: 07825 015 507

All comments are requested by Friday 4th October 2024.

EXECUTIVE SUMMARY

SSEN Transmission is proposing to construct and operate a 132 kV overhead line (OHL) to connect the proposed Carn Fearna Wind Farm to the existing Corriemoillie 132 kV Substation. Statkraft Ltd, the developer of Carn Fearna Wind Farm, have sought a Scoping Opinion from the Scottish Government's Energy Consents Unit (ECU) under Section 36 of the Electricity Act 1989, which has a contracted connection date of 2029. The ~85 MW wind farm requires a single circuit 132 kV connection from the wind farm substation compound and terminating at the existing Corriemoillie Substation.

Three Route Options have been identified to achieve the connection and these have been appraised against environmental, engineering and economic criteria. This Consultation Document invites comments from all interested parties on all the Route Options under consideration.

From an environmental perspective, the comparison of the three Route Options has identified similar environmental constraints for all of them. There are marginal differences outside of the RAG assessment of each topic. On balance and using professional judgement Route Option 1 is considered to be the environmentally Preferred Route, followed by Route Option 2.

Despite the similar RAG Ratings, Route Option 1 has a lower impact on irreplaceable habitats such as ancient woodland (of poor quality) and impacts to commercial forestry operations. Route Option 1 is located further away from the settlements of Gorstan and Little Garve and the two recreation Core Paths in the area.

Route Option 2 and Route Option 3 are less preferable due to intersecting a larger number of irreplaceable habitats such as ancient woodland (of poor quality), large areas of commercial forestry plantations and the proximity to the existing road and network infrastructure.

Route Option 2 is the Preferred Route from an engineering standpoint, followed by Route Option 1 as the second preferred option. The challenges at this stage with Route Option 2 are hilly terrain, elevation and access. Route Option 3 is the least preferred considering major crossings, proximity to the residential properties and presence of flood risk areas.

Although Route Option 2 is the Preferred Route Option from a technical perspective, all Options and their findings are taken into consideration and feed into the overall assessment as per PR-NET-ENV-501 which includes other aspects such environmental/consenting and cost to determine the Preferred Route Option when considering all criteria.

The economic appraisal identified all Route Options are within 120% of the lowest capital and operational cost option, therefore all options are considered acceptable from a cost perspective.

The overall Preferred Route for the connection between the proposed Carn Fearna Wind Farm to the existing Corriemoillie 132 kV Substation is Route Option 2, achieved through consideration of environmental, engineering and economic appraisals of all Route Options. Although environmentally Route Option 1 is marginally preferrable, from a technical perspective, Route Option 2 is substantially more favourable due to elevation and access constraints.

Face to face consultation events will be held at Garve Village Hall on 4th September between 3pm and 7pm. Meetings will be arranged with statutory and other stakeholders. The responses received, and those sought from statutory consultees and other key stakeholders, will inform further consideration and design of the preferred Route leading to the identification of a Proposed Route to take forward to the alignment and consenting stages.

Please submit your comments to Lisa Marchi, Community Liaison Manager, SSEN Transmission, 10 Henderson Road, Inverness IV1 1SA (lisa.marchi@sse.com).

All comments are requested by 4th October 2024.

1. INTRODUCTION

1.1 Purpose of Document

SSEN Transmission is proposing to construct and operate a 132 kV overhead line (OHL) to connect the proposed Carn Fearna Wind Farm to the existing Corriemoillie 132 kV Substation ('the Proposed Development'). This Consultation Document invites comments from all interested parties on the three Route Options under consideration (see **Figure 1.1**).

This Consultation Document presents the findings of an environmental, engineering and cost appraisal of the three Route Options identified by SSEN Transmission and describes the process by which a Preferred Route for the OHL has been selected. The Preferred Route is considered to provide the optimal opportunity to achieve an economically viable, technically feasible and environmentally sound alignment within it.

1.2 Document Structure

This Consultation Document comprises the following sections:

- Section 1: Introduction - describes the purpose of the document;
- Section 2: The need for the proposals – describes the project need, the project overview, and consultation history;
- Section 3: Route selection process – describes the process for selecting the Preferred Route, based on environmental, engineering and economic considerations;
- Section 4: Description of routes – describes the identification of Route Options and provides a summary of each Route Option (1, 2 and 3);
- Section 5: Comparative appraisal – a summary of the environmental, engineering and economic topics, followed by a comparative analysis summary and a description of the Preferred Route; and
- Section 6: Consultation on the proposals – invites comments on the Preferred Route Option process, the identification of Preferred Route and next steps.

1.3 Next Steps

As part of the consultation exercise, comments are sought from members of the public, statutory consultees, and other stakeholders on the Preferred Route Option put forward in this report.

A Report on Consultation will be published after the consultation period has ended, which will document the consultation responses received, and the decisions made considering these responses to select a Preferred Route. The Preferred Route will go forward to Alignment Selection, Stage 3 (see **Section 4.1**).

Further engineering and environmental studies will be undertaken to identify a Preferred Alignment within the Preferred Route. Upon completion of the alignment selection process, an Indicative Proposed Alignment will be selected, and further technical and environmental assessment will be undertaken. This assessment will culminate with an application to Scottish Ministers for consent for the construction and operation of an OHL under Section 37 of the Electricity Act 1989.

2. THE PROPOSALS

2.1 The Need for the Project

Scottish Hydro Electric Transmission plc who, operating and known as SSEN Transmission, holds a licence under the Electricity Act 1989 to develop and maintain an efficient, co-ordinated, and economical system of electricity transmission in the north of Scotland and remote islands.

The developer of Carn Fearna Wind Farm has sought a Scoping Opinion from the Scottish Government's Energy Consents Unit (ECU) under Section 36 of the Electricity Act 1989 for a ~ 85 MW wind farm. SSEN Transmission has a statutory duty under Schedule 9 of the Electricity Act 1989 to connect the new development to the transmission network by the contracted connection date[1] ("The Proposed Development").

The development is in line with SSEN Transmission's commitment and licence obligation to facilitate the connection of renewables generators to the grid through an economical, efficient and coordinated approach to transmission reinforcement.

2.2 Project Overview

The Carn Fearna Wind Farm is an onshore wind project comprising of up to 9 wind turbines and associated infrastructure located to the east of Loch Luichart in the northwest Highlands. The turbines will each have a tip height of approximately 180 m to 200 m.

The Carn Fearna Wind Farm Connection (the 'Proposed Development') comprises approximately 9.4 km of overhead line (OHL) connecting the proposed Carn Fearna Wind Farm Substation to the existing Corriemoillie 132 kV Substation (**Figure 2.1.**). The lengths of the OHL will be confirmed at alignment stage.

Three Route Options with corridors of circa 600 m in width have been identified. The environmental constraints present and potential impact of the Proposed Route Options are assessed below.

The Proposed Development incorporates a single circuit 132 kV trident wood "H" pole arrangement supporting the OHL as illustrated in **Plate 2.1** below. The typical height of trident poles is between 10-18 m, with an average span of between 75-100 m.

Plate 2.1. 'H' Trident Wood Poles

[1] Energy Consents Unit (2024) Carn Fearna Wind Farm Application Details [online] Available at: https://www.energyconsents.scot/ApplicationDetails.aspx?cr=ECU00004732 [Accessed: July 2024]

2.2.1 Construction Activities

Key tasks during construction of the project would relate to:

- Improvements to the public road network;
- Establishment of suitable laydown areas for materials and installation of temporary track solutions (e.g. trackway), as necessary;
- Upgrades to existing tracks and potentially new tracks where required;
- Delivery of structures and materials to site;
- Assembly and erection of wood pole structures and stays; and
- Stringing of conductors using hauling ropes and winches.

Installation of the wood poles would involve the following tasks:

- Excavation of a suitable area for the wood poles, and backfilling after installation of the pole (backfilling would generally be carried out the same day as excavation so that no open excavations are left overnight). The exact area would depend on the ground conditions at each pole;
- In some pole locations, it may be necessary to add imported hardcore backfill around the pole foundations to provide additional stability in areas where the natural sub soils have poor compaction qualities;
- Conductors would be installed on the wood poles using full tension stringing to prevent the conductor coming into contact with the ground; and
- Remedial works would be carried out to reinstate the immediate vicinity of the structures, and any ground disturbed, to pre-existing use. This would be undertaken using excavated material.

2.2.2 Forestry Removal

Any woodland removal which may be required prior to the construction work will be identified and described after a Proposed Alignment has been identified. Any removal of sections of commercial forest would be undertaken in consultation with Forestry and Land Scotland and other landowners. After felling, any timber removed that is commercially viable would be sold and the remaining forest material would be dealt with in a way that delivers the best practicable environmental outcome and is compliant with waste regulations.

An operational corridor would be required to enable the safe operation and maintenance of the Proposed Development. The Operational Corridor will vary depending on the type of woodland (based on species present) in proximity to the Proposed Development. In areas of native woodland, it is usually possible to provide a narrower corridor due to a reduced risk of trees falling on the Proposed Development.

2.2.3 Access

The access strategy has not yet been determined. It is anticipated that minimal access track would be required to be installed in close proximity to the OHL to enable construction and maintenance.

More detailed plans for access during construction will be prepared once a Proposed Alignment has been identified. Where possible, existing access tracks will be used and upgraded as required. New access tracks may be required and where there is a justified long-term requirement they will be left in place.

Where ground conditions permit, it is preferable to construct the infrastructure without an access track (e.g. on dry and level pasture). Temporary matting may be used in sensitive areas subject to an assessment of gradients and ground conditions. Preference will be given to lower impact access solutions including the use of low pressure tracked personnel vehicles and temporary track solutions in boggy / soft ground areas to reduce any damage to, and compaction of, the ground.

2.2.4 Programme

It is anticipated that construction of the Proposed Development would take place over an 18 to 22 months period, following the granting of consents, although detailed programming of works would be the responsibility of the Principal Contractor in agreement with SSEN Transmission. The programme for the project is currently under development, an indicative programme is as follows:

- Construction Start: July 2027; and
- Operation: June 2029.

3. ROUTE SELECTION PROCESS

3.1 Guidance Document

The approach to Route selection is informed by the following SSEN Transmission Guidance:

- Procedures for Routeing Overhead Lines and Underground Cables of 132kV or above, SSEN Transmission, 2020 (PR-NET-ENV-501); and
- Biodiversity Net Gain Flow Chart, Guidance and Project Toolkit (FC-NET-ENV-500).

The guidance develops a process which aims to balance environmental, engineering and economic considerations throughout a staged Route Options process.

The principal Routeing stages are:

- Stage 0: Routeing Strategy Development;
- Stage 1: Corridor Selection;
- Stage 2: Route Selection; and
- Stage 3: Alignment Selection.

For certain projects, such as Carn Fearna Wind Farm connection, Stage 0 or 1 is not required due to the small scale of the project. As a result, this consultation document presents the appraisal completed at Stage 2 – Route Selection.

In consideration of the above, the method of identifying a Preferred Route Option in this study has involved the following four key tasks:

- Identification of the baseline;
- Identification of alternative Route Options;
- Environmental, engineering and economic analysis of Route Options; and
- Identification of a Preferred Route Option.

3.2 Study Area

The Study Area for the Route Options is located in the northwest Highlands, between the proposed connection point within the proposed Carn Fearna Wind Farm, and the existing Corriemoillie Substation east of Lochluichart. The Study Area was developed to be sufficiently broad to allow for a range of connection options to be considered, responding to environmental, technical, and economic considerations. The Route Options within the Study Area have been developed and assessed to identify potential environmental impacts ahead of the alignment stage.

3.3 Baseline Conditions

The following information sources have informed the desk-based baseline study to identify potential environmental constraints within and adjacent to the Route Options. The Study Area applied for natural heritage features was 10 km, for landscape and visual 15 km, and for cultural heritage 2 km. The desktop survey has involved the following:

- Identification of environmental designated sites and other constraints, utilising GIS datasets available via NatureScot SiteLink[2] and other sources. These include:
  - Special Areas of Conservation (SAC);
  - Special Protection Areas (SPA)
  - National Nature Reserves (NNR);
  - Proposed Special Protection Areas (pSPA);

[2] Nature Scot (2024) SiteLink Home [online] Available at: https://sitelink.nature.scot/home [Accessed: July 2024]

- Sites of Special Scientific Interest (SSSI);
- National Park;
- National Scenic Area (NSA);
- Wild Land Areas (WLA);
- Royal Society for the Protection of Birds (RSPB) reserves;
- Land Capability for Agriculture[3];
- Geological Conservation Review Sites;
- Carbon-rich soil, deep peat and priority peatland habitats[4]; and
- Areas at risk of flooding[5].

- Identification of archaeological designations and other recorded sites, utilising GIS datasets available via Historic Environment Scotland Data Services[6] and local Historic Environment Scotland teams; these include:
  - World Heritage Sites (WHS) and buffers;
  - Scheduled Monuments and Battlefield Sites;
  - Category A, B and C Listed Buildings; and
  - Gardens and Designed Landscapes.
- Review of the Highland-wide Council Local Development Plan 2012[7] to identify local policies and further environmental constraints and opportunities, such as Local Nature Conservation Sites (LNCS), core paths or other locations important to the public;
- Review of landscape character assessments of relevance to the Study Area;
- Review of Ordnance Survey (OS) mapping (1:50,000 and 1:25,000) and online GIS data sources from OS Open Data[8] and aerial photography (where available) to identify other potential constraints such as settlement, properties, walking routes, cycling routes etc.; and
- Review of other local information through online and published media such as tourism sites.

Vantage point surveys will be undertaken to understand the interaction between birds and potential overhead lines along the Preferred Route.

3.3.1 Site Appraisals

A series of high-level site appraisals were carried out by experienced professionally qualified individuals in the various specialist fields to enable an informed combined opinion on how the potential environmental effects identified during the baseline studies could influence potential Route Options.

Site appraisals were also undertaken by SSEN Transmission Engineers, Forestry specialists and other project team members to help inform the technical and economic appraisal of Route Options.

[3] The Scottish Government (2024) Scotland's Soils [online] Available at: https://map.environment.gov.scot/Soil_maps/?layer=5 [Accessed July 2024]

[4] NatureScot (2024) Carbon and peatland 2016 map [online] Available at: https://soils.environment.gov.scot/maps/thematic-maps/carbon-and-peatland-2016-map/ [Accessed: July 2024]

[5] SEPA (2024) Flood Maps [online] Available at: https://scottishepa.maps.arcgis.com/apps/webappviewer/index.html?id=3098bbef089c4dd79e5344a0e1e7c91c&showLayers=FloodMapsBasic_2743;FloodMapsBasic_2743_0;FloodMapsBasic_2743_1;FloodMapsBasic_2743_2;FloodMapsBasic_2743_3;FloodMapsBasic_2743_4;FloodMapsBasic_2743_5;FloodMapsBasic_2743_6;FloodMapsBasic_2743_7;FloodMapsBasic_2743_8;FloodMapsBasic_2743_9;FloodMapsBasic_2743_10;FloodMapsBasic_2743_11 [Accessed: July 2024]

[6] Historic environment Scotland (2024) Historic Environment Scotland Data Services [online] Available at: https://portal.historicenvironment.scot/downloads [Accessed: July 2024]

[7] Highland Council (2012) Highland-wide Local Development Plan [online] Available at: https://www.highland.gov.uk/info/178/development_plans/199/highland-wide_local_development_plan [Accessed: July 2024]

[8] OS (2024) Open Data [online] Available at: https://osdatahub.os.uk/downloads/open [Accessed: July 2024]

3.4 Route Identification and Selection Methods

Route Options were identified following site appraisals, taking into account the most notable constraints identified during the baseline studies. Considerations have included a review of the steps outlined in the Holford Rules and SSEN Transmission's approach to Routeing. In summary, the following have been taken into account as far as is practicable at this Routeing stage and will be considered in more detail during Stage 3 (Alignment Selection):

- Avoid if possible major areas of highest amenity value (including those covered by national and international designations and other sensitive landscapes);
- Avoid by deviation, smaller areas of high amenity value;
- Try to avoid sharp changes of direction and reduce the number of larger angle towers required;
- Avoid skylining the Route in key views and where necessary, cross ridges obliquely where a dip in the ridge provides an opportunity;
- Target the Route towards open valleys and woods where the apparent height of towers will be reduced and views broken by trees (avoid slicing through landscape types and try to keep to edges and landscape transitions);
- Consider the appearance of other lines in the landscape to avoid a dominating or confusing wirescape effect; and
- Approach urban areas through industrial zones and consider the use of undergrounding in residential and valued recreational areas.

Indicative Route Options have been identified at 600 m widths to allow for subsequent identification of alignments during the next stage of the process (Stage 3).

3.5 Appraisal Method

Appraisal of Route Options has involved systematic consideration against the following environmental, technical and economic topic areas:

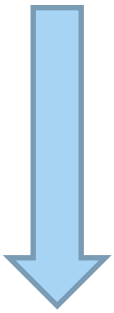
3.5.1 Environmental

The following environmental topics have been assessed:

- Natural Heritage (Designations, Protected Species, Habitats, Ornithology and Geology, Hydrogeology and Hydrology);
- Cultural Heritage (Designations and Cultural Heritage Assets);
- People (Settlements, Visual and Physical Effects);
- Landscape (Designations and Character); and
- Land Use (Agriculture, Forestry and Recreation).

Environmental sensitivity has been considered qualitatively, based on professional judgement and utilising the Red, Amber, Green (RAG) rating. It has been applied to each topic area indicating potential impacts. This rating is based on a four-point scale as described in **Table 3.1** below. SSEN Transmission guidance "Procedures for Routeing Overhead Lines of 132 kV or above" (**Section 3.1**) has been followed.

Table 3.1. RAG Rating for Comparative Analysis

Performance	Appraisal
Most Preferred  Least Preferred	No potential for the infrastructure design development to be constrained
	Low potential for the infrastructure design development to be constrained
	Moderate potential for the infrastructure design development to be constrained
	High potential for the infrastructure design development to be constrained

3.5.2 Engineering

The purpose of this assessment is to evaluate the route options using the methodology and engineering categories in Table A7 of SSEN document PR-NET-ENV-501: Procedures of Routeing Overhead Lines of 132kV and above. These categories are as follows:

- Infrastructure crossings – major crossings, road crossings;
- Environmental design – elevation, atmospheric pollution, contaminated land, flooding;
- Ground conditions – terrain, peat;
- Construction/Maintenance – access; and
- Proximity – clearance distance, communication masts, metallic pipelines.

Engineering sensitivity has been considered qualitatively, based on professional judgement and utilising the RAG rating. It has been applied to each topic area indicating potential impacts. This rating is based on a four-point scale as described in **Table 3.1**. SSEN Transmission guidance "Procedures for Routeing Overhead Lines of 132 kV or above" (**Section 3.1**) has been followed.

3.5.3 Cost

To allow comparative appraisal a RAG rating has been applied using the criteria described in **Table 3.2.**

Table 3.2. Cost RAG Rating for Comparative Analysis

Red	Amber	Green
>140% of least cost option	120 - 140% of least cost option	<120% of least cost option

3.5.4 Identification of a Preferred Route

Following review of all the potential Route Options, these have been considered in combination to arrive at a Preferred Route Option. The overall objective throughout the appraisal of Route Options has been to take full consideration of all environmental factors to minimise any potential adverse impacts on the environment whilst taking into account technical and cost considerations. Where possible, sections of the lowest risk have been combined to form a complete Route Option. However, where it is not possible to join up all sections of lowest risk rating, the section of next best rating has been selected, using professional judgement.

4. DESCRIPTION OF ROUTES

4.1 Identification of Route Options

This section provides a summary of the three Route Options, Route Options 1, 2 and 3 (as shown on **Figure 4.1**, **Appendix A**). The appraisal uses the environmental criteria set out in **Section 3** to identify a Preferred Route Option.

4.1.1 Route Option 1

Route Option 1 begins at the proposed Carn Fearna Wind Farm Substation and travels west for approximately 2 km. The Route then crosses the A835 and continues north-west running parallel to the forestry plantation at Garve. The Route diverts south-west for approximately 0.5 km towards the existing Corriemoillie Substation. Route Option 1 is approximately 8 km in length.

4.1.2 Route Option 2

Route Option 2 begins at the proposed Carn Fearna Wind Farm Substation and travels west for approximately 2 km. The Route then crosses the A835 and continues west following the existing access tracks within the forestry plantation at Garve. The Route diverts south-west for approximately 0.5 km towards the existing Corriemoillie Substation. Route Option 2 is approximately 7 km in length.

4.1.3 Route Option 3

Route Option 3 begins at the proposed Carn Fearna Wind Farm Substation and travels west for approximately 2 km. The Route then crosses the A835 and travels in a south westerly direction towards Little Garve. The Route follows the A832 and railway line west towards the existing Corriemoillie Substation. Route Option 3 is approximately 8 km in length.

5. COMPARATIVE ANALYSIS

This section provides a summary of the potential environmental, technical and economic constraints identified for each Route Option. A detailed review of potential environmental and technical constraints is presented in **Appendix B** and **C.**

5.1 Route Option 1

5.1.1 Natural Heritage Context

The natural heritage constraints present within the Route Option 1 are illustrated in **Figure 5.1**.

Designations

Route Option 1 does not pass through any internationally, nationally, locally or non-statutory designated sites. The proximity to the Ben Wyvis SPA, SAC, NNR and SSSI means there is the potential to disturb nationally important population of breeding dotterel (*Charadrius morinellus*). Within Route Option 1 there are multiple areas of ancient woodland throughout the whole route, including native pinewood woodland in the east and upland birchwood in the central and western areas. Route Option 1 is given a Red RAG rating due to the proximity to the designated sites and passing directly through ancient woodland.

Protected Species

European protected species likely to be present within Route Option 1 include otter (*Lutra lutra*), wildcat (*Felis silvestris grampia)* and bat species. There is potential for UK Biodiversity Action Plan (BAP) species including red squirrel (*Sciurus vulgaris*), pine marten (*Martes martes*), badger (*Meles meles*), and adder *(Vipera berus)* to be present along the Route. In addition, there is potential for Scottish Biodiversity List (SBL) species including slow worm (*Anguis fragilis)*, common lizard (*Zootoca vivipara*), common toad (*Bufo bufo*), hedgehog (*Erinaceus europaeus*), mountain hare *(Lepus timidus)* and brown hare (*Lepus europaeus*), to be present.

A Green RAG Rating is applied but further surveys are scheduled to be undertaken along the Preferred Route in due course, which will inform the assumptions made above.

Habitats

Route Option 1 crosses ancient woodland, grassland and blanket bog habitats which may include Annex 1 habitats and groundwater dependent terrestrial ecosystems (GWDTE) habitats. There will be direct impacts to these habitats from tower placement and access road construction. Indirect effects may also be experienced due to nearby construction activities e.g. disturbance to water supply, erosion of peat or deposition of dust. A Red RAG Rating is applied as the project is likely to compromise the conservation status of Annex 1 habitats including blanket bog and ancient woodland e.g. by passing directly through them.

Ornithology

Schedule I, Birds of Conservation Concern (BoCC) or nesting bird species may be present within Route Option 1, including black grouse (*Lyrurus tetrix*) and hen harriers *(Circus cyaneus)*. There is therefore the potential for barrier or collision impacts during operation and an Amber RAG rating is applied.

Geology Hydrology and Hydrogeology

The geology across Route Option 1 includes Crom Psammite Formation, the Vaich Pelite Formation, Garve Psammite Formation and the Glenfinnan Group Formation. The quality and type of bedrock underlying the Route Option will influence the specification of tower foundation design.

Route Option 1 is predominantly underlain by a Class 2C low productivity aquifer. Impacts resulting from construction and operation of the Proposed Development are likely to be limited to pollution events or localised disturbance to flows. There are three private water supplies (PWS) within Route Option 1 and mitigation to protect these PWS will be required. The Route Option crosses over three WFD designated watercourses including the Allt Coire Mhuilidh (ID: 20198), the Allt a Mhuilinn (ID: 20184), and the Black Water (ID: 20180)

which may require a WFD assessment to be completed as part of any EIA. A Green RAG rating is applied as this Route Option passes near a surface water drinking protected area but is unlikely to compromise the quality and/or quantity of surface waters which provide public supply.

5.1.2 Cultural Heritage Context

The cultural heritage constraints present within the Route Option 1 are illustrated in **Figure 5.2**.

There are no Scheduled Monuments within Route Option 1. There are no Registered Battlefields, Gardens and Designed Landscapes or World Heritage Sites within or within 5 km of Route Option 1.

Within 5 km of Route Option 1 there is one Scheduled Monument (SM2720, Little Garve, bridge over Black Water). There are three non-designated assets identified from the Canmore Database, located within the Route Option. There are no direct impacts to designated assets anticipated for this route. However, there remains the potential to introduce direct effects to non-designated assets. This can be mitigated through the use of avoidance and micro sitting where possible. There remains the potential to introduce effects to setting for designated assets as a result of changes to the visual sphere and character of the area. Particularly, SM2720 (Little Garve, bridge over Black Water) is located within approximately 400 m south of the Route Option. An Amber RAG rating has been applied to account for the close proximity and likely setting effect on Little Garve, bridge over Black Water.

There are no Conservation Areas or Listed Buildings within Route Option 1. Within 5 km of Route Option 1 there are five Listed Buildings that will require an assessment of potential change to the landscape in long-distance from the assets, which has the potential to introduce an impact on the setting:

- LB1774, Category B, Burial Ground, Lochluichart Parish Church;
- LB1774, Category B, Lochluichart Parish Church;
- LB1775, Category C, Lochluichart Parish Manse;
- LB1775, Category C, Steading, Lochluichart Parish Manse; and
- LB51705, Category C, Conon Valley, Hydro Electric Scheme, Achanalt Power Station and Dam.

There are no direct impacts to designated Listed Buildings anticipated for Route Option 1. There remains the potential to introduce impacts to setting for Listed Buildings, as a result of changes to the visual sphere and character of the area, however, no Listed Buildings are located within 2.9 km of this route and as such, settings impact to Listed Buildings is low. Therefore, a Green RAG rating has been applied to the route.

5.1.3 Landscape and Visual Context

The landscape and visual constraints present within the Route Option 1 are illustrated in **Figure 5.3**.

Route Option 1 does not pass through any National Scenic Areas (NSAs) or Wild Land Areas (WLAs). The eastern extent of the Route Option 1 overlaps with the Ben Wyvis Special Landscape Area (SLA), located to the north-east. Although Route Option 1 does overlap with the Ben Wyvis SLA, it is anticipated that avoidance and micrositing will be applied at alignment stage. Therefore, Route Option 1 has the potential to impact the special qualities of nationally and/or regionally designated landscapes and therefore an Amber RAG rating is applied.

Route Option 1 is located within the Rounded Rocky Hills, Rounded Mountain Massi and Rounded Hills and Moorland Slopes and Strath landscape character types (LCTs). There are few settlements adjacent to the Route Option and there are no inventoried Garden and Designed Landscapes. For this reason, a Green RAG rating has been applied to landscape character and visual amenity.

5.1.4 Land Use

Agriculture

Route Option 1 is located within agricultural land scored between 5.3 and 7, therefore a Green RAG Rating has been applied.

Forestry

There are large areas of commercial forestry within Route Option 1 with the potential to compromise forestry operations resulting of loss in commercial returns. Therefore, an Amber RAG Rating has been applied.

Recreation

Route Option 1 intersects two core paths in the east of the Route, the Silverbridge Circuit and the Tor Breao. However, Route Option 1 is unlikely to compromise the recreational amenity of the core paths in the area, therefore, a Green RAG Rating is applied.

5.1.5 Planning

There are numerous policies within the current LDP on the protection of the natural and built environments that will be relevant in the consideration of the development of electricity infrastructure. The Route Option is in full compliance with national, regional and local applicable planning policy. An Amber RAG rating has been applied as the Route Option may be inconsistent with other third party proposals known to the planning system.

5.1.6 RAG Impact Rating Summary

Table 5.1 Summary Environmental RAG Rating Table for Route Option 1

Route Option	RAG Impact Rating - Environmental															
	Natural Heritage					Cultural Heritage		People	Landscape			Land Use			Planning	
	Designations	Protected Species	Habitats	Geology, Hydrology and Hydrogeology	Ornithology	Designations	Cultural Heritage Assets	Proximity to People	Designations	Character	Visual	Agriculture	Forestry	Recreation	Policy	Planning
1	H	L	H	L	M	M	L	L	M	L	L	L	M	L	M	M

5.1.7 Engineering Constraints

Major Crossings

Major crossings include other OHLs of 132 kV and above, railways, rivers/loch 200 m+, navigable waterways, motorways and other major roads, major pipelines and other significant infrastructure. These crossing require specific OHL solutions and can greatly constrain a design. There is no major crossing for Route Option 1 but there are 33 kV UGC and OHL crossings. Therefore, an Amber RAG rating is applied.

Road Crossings

Road crossings include all road crossing excluding those considered under major crossings. Private tracks and driveways may also be included where the need for access to be maintained is present or where relatively high traffic volumes are anticipated. Whilst the impact on OHL design is less for these crossings, measures are still required and collectively they can greatly constrain an Option. Route Option 1 crosses one road, the A835, which is the fewest number of crossings of all the Route Options and therefore a Green RAG rating is applied.

Elevation

High elevations increase wind and ice loading on the lines resulting in the need for shorter spans or stronger structures. This can constrain routeing options and increase cost. Additionally, access for construction and maintenance tends to be more difficult at altitude and the risk of severe weather is greater.

Using Google Earth Profile option, the Route Option 1 has approximately 3.93 km route above 200 m AOD, which makes it 53% of the total 7.4 km route length, with a maximum elevation of 346 m AOD. Therefore, a Red RAG rating is applied.

Contaminated Land

Contaminated land poses a significant health risk to construction and maintenance operatives, and is potentially expensive to mitigate, dispose of or remediate. As such, the presence of contaminated land in a Route Option would be a significant constraint. For assessment purposes, the presence of unexploded ordnance, is also considered in this section as it has similar implications.

At this time an initial desktop study has been carried out looking at possible unexploded ordinance (UXO) within the areas surrounding the routes. A Green RAG Rating has been applied as there are no known UXO in the areas within and surrounding the Route Option 1.

Flooding

Areas vulnerable to flooding pose a potential risk during construction, may prevent maintenance and can pose a physical risk to structures during flood events. As such, Route Options with large areas vulnerable to flooding would have a high risk of constraint.

Using the SEPA flood map, it is shown that Route Option 1 has a short length (less than 150 m) in flood with width more than 80%. There are traces of flood at three locations along the route, however the route length falling inside flood risk areas is small, which can easily be adjusted at alignment stage. Therefore, a Green RAG Rating is applied.

Terrain

Steep or mountainous slopes present a significant difficulty for routeing, access, construction and maintenance. Options with a large proportion of steep or mountainous slopes are more likely to be constrained and thus more difficult and costly to build and maintain.

The terrain has been assessed by reviewing the average gradient and maximum gradients of the terrain along the Route Option using Google Earth elevation profile. All Route Options have gradients below 40%, however the routes are not flat and are gently undulated, therefore Route Option 1 is classified as Amber RAG rating. All routes have similar average slopes and have a maximum slope no greater than ±30%.

Route Option 1 is designated Amber RAG Rating due to the undulating terrain throughout with slopes up to 20.3% gradient. Anything greater than a 20% gradient will result in constructability issues for wood poles. For the majority of the Route Option 1, the terrain is undulating with slopes up to ±20%. The significant terrain difference occurs as the route approaches near A835 crossing and near Carn Fearna Wind Farm Substation, where the maximum slope of 19.7% occurs.

Peatland

Peat, particularly deep peat, represents a significant difficulty for access, construction and maintenance. Route Options with a large proportion peatland are more likely to be constrained and thus more difficult and costly to build and maintain. Peatland is also an important habitat and construction of new OHLs can cause lasting damage.

The NatureScot Peatland Mapping has been used to determine peat superficial deposits along each route. All three Route Options have less than 50% of the route width within Class 1 (Nationally important carbon-rich soils, deep peat and priority peatland habitat. Areas likely to be of high conservation value) and Class 2

(Nationally important carbon-rich soils, deep peat and priority peatland habitat. Areas of potentially high conservation value and restoration potential) Peat. There are two locations of potential peat Class 1 within Route Option 1 with a maximum 0.1 km length inside this peat area. Therefore, an Amber RAG Rating is applied.

Access

Construction of temporary access for construction are a significant project cost and a Route Option that is remote from existing tracks and the public road network has the potential to incur large access costs. Furthermore, access for inspection and maintenance is necessary throughout the life of the asset. A Route Option remote from existing access routes represents a significant risk and has a high potential to be constrained.

Access has been evaluated by reviewing the Ordnance Survey maps and using satellite imagery to identify the density of existing roads and access tracks within the proposed Route Options. Based on the number of existing access tracks and distances between each one, the areas in each Route Option have been identified and the appropriate rating then given. Route Option 1 has limited access tracks through majority of route and most of the route is within 1 km distance from the existing A832 and A835. Therefore, a Green RAG Rating is applied.

Angle Supports

OHLs with a high number of angle supports tend to be more difficult to construct, due to the number of angle pull throughs, and often require more extensive access. As such, a Route Option with a large number of angle supports is at a greater risk of being constrained.

The approximate number of angle towers has been assessed for each Route Option. Route Option 1 has slightly more challenging terrain than the other routes and appears to require 16 number of angle supports inclusive of failure containment poles.

Although the calculation of number of angle poles is very high level at this stage. There could be more angle poles added to each route as the design progresses. Therefore, a Red RAG Rating is applied.

Clearance

Dispersed buildings and properties are a common feature of the Scottish landscape. Placing OHLs in close proximity to these features is rarely well received and best avoided. Options with numerous areas in close proximity to buildings and properties have significant risk of constraining routing.

Although clearances are more applicable during the alignment stage, an assessment has been carried out to see if there are any properties within or near the Route Option boundaries. This category has been interpreted to mean the distance it would be possible to maintain to properties/buildings with an alignment through each of the corridors (e.g. if there were properties within the route boundary, where it would be possible to maintain 250 m to them with the alignment design, the route would still be given Green RAG rating).

Route Option 1 has some of dispersed buildings near the Black Waterfalls and across the A835 and near Corriemoillie Substation. Considering the width of the Route Option, properties may fall within 100 - 250m distance. Therefore, an Amber RAG Rating is applied.

Wind Farms

Windfarms pose a risk to OHLs due to disruption of airflows and need to be routed around.

Route Option 1 travels to the east of Corriemoillie Substation to connect to the Carn Fearna Wind Farm Substation, with the closest wind turbine being 800 m from the furthest possible point of the Route Option. Therefore, a Red RAG Rating is applied.

Communication Masts

OHLs can block existing line of sights for telecommunication masts and thus the line of sights from mast can constrain structure locations.

The OS map and cell mapper website have been assessed to check if any communication masts are present near the Route Options. From the desktop study survey, there is only one mast east of the proposed Carn Fearna Wind Farm, at a distance of more than 2 km. Therefore, a Green RAG Rating is applied.

Urban Developments

As with dispersed buildings and properties, urban areas represent a significant constraint that will often need to be routed around.

Route Option 1 is in vicinity to a small town, and while there are some settlements along the Route Option there is no real urban environments within it. Therefore, a Green RAG Rating is applied.

Metallic Pipes

Metallic pipes have to be both avoided by individual supports, as they are often expensive to reroute, and, ideally, the final alignment should avoid running parallel, to avoid electrical impacts on the pipelines. As such it represents a constraint on routeing options.

At the stage in the project this report was written (Gate 1), detailed survey will be arranged at post Gate 1 Stage. Therefore, a Green RAG Rating is applied for Route Option 1.

Route Lengths

The length of the routes affects the numbers of structures/accesses required, the extent of visual impact from the OHL and project cost.

Alignment and tower locations are not determined at this stage therefore the centreline of each Route Option was used for the assessment. Despite following different routes, all routes within 10% of the shortest route, and therefore are all categorised as Green RAG Rating.

DNO Crossings

Existing Distribution Network Operator/Operations (DNO) crossings are generally undergrounded or diverted to avoid creating a construction and maintenance hazard. There is a cost and programme requirement associated with this activity and Route Options with a large number of DNO crossings could find minimising such crossing a significant routeing constraint.

Data provided by SSEN Distribution in ArcGIS & Electrical Office shows that there is possibility of 33 kV UGC & OHL Distribution line crossings in all Route Options. All routes will cross existing 33 kV distribution line along A835. Route Option 1 will intersect the 33 kV UGC three times and the OHL once. Therefore, a Green RAG Rating is applied.

The Electricity Safety, Quality and Continuity Regulations (ESQCR) assessment

Based on the ESQCR assessment Route Option 1 is identified as intermediate Risk (Amber RAG Rating). Further assessment for ESQCR will be carried out at the Alignment stage.

Table 5.2 Summary Engineering RAG Rating Table for Route Option 1

Route Option	Infrastructure Crossing		Environmental Design				Ground Condition		Construction and Maintenance		Proximity					
	Major Crossings	Minor Roads	Elevation	Atmospheric Pollution	Contaminated Land	Flooding	Terrain	Peatland	Access	Angle Towers	Clearance Distance	Windfarms	Communication Masts	Urban Developments	Metallic Pipes	Route Lengths
1	I	L	H	I	L	L	I	I	L	H	I	H	L	L	L	L

5.1.8 Economic Considerations

Costs were not assessed in detail as part of this route selection process. These will be considered in more detail at the alignment stage when the technical and engineering specifications required become clearer.

Capital

The preferred technology solution is anticipated to be a new 132kV single circuit OHL supported on a trident wood pole. This is the most cost effective solution in comparison to other technology. The differences in cost in comparing the three route options are all within 120%, therefore all routes have been provided a Green RAG rating.

Operational

Compared to other overhead line technologies, a single circuit OHL supported on a trident wood pole is relatively straightforward technology to inspect and maintain. As such, all Route Options have been allocated a Green RAG rating.

Table 5.3 Summary RAG Rating Table for Capital and Operational Costs of Route Option 1

Route Option	RAG Impact Rating - Cost	
	Capital	**Operational**
	Construction, Diversions, Public Road Improvements, Felling, Land Assembly and Consent Mitigations	Inspections and Maintenance
1	L	L

5.2 Route Option 2

5.2.1 Natural Heritage Context

The natural heritage constraints present within the Route Option 2 are illustrated in **Figure 5.1**.

Designations

Route Option 2 does not pass through any internationally, nationally, locally or non-statutory designated sites. The proximity to the Ben Wyvis SPA, SAC, NNR and SSSI means there is the potential to disturb nationally important population of breeding dotterel (*Charadrius morinellus*).

Within Route Option 2 there are multiple areas of ancient woodland throughout the whole route, including native pinewood woodland in the east and upland birchwood in the central and western areas. Route Option 2 is given a Red RAG rating due to the proximity to the designated sites and passing directly through a number of areas designated as ancient woodland.

Protected Species

European protected species likely to be present within Route Option 2 include otter (*Lutra lutra*), wildcat (*Felis silvestris grampia)* and bat species. There is potential for UK BAP species including red squirrel (*Sciurus vulgaris*), pine marten (*Martes martes*), badger (*Meles meles*), and adder *(Vipera berus)* to be present along the Route. In addition, there is potential for SBL species including slow worm (*Anguis fragilis)*, common lizard (*Zootoca vivipara*), common toad (*Bufo bufo*), hedgehog (*Erinaceus europaeus*), mountain hare *(Lepus timidus)* and brown hare (*Lepus europaeus*), to be present. A Green RAG Rating is applied but further surveys are scheduled to be undertaken along the Preferred Route Option in due course, which will inform the assumptions made above.

Habitats

Route Option 2 crosses ancient woodland of semi-natural origin with low biodiversity value species present (a mix of young conifers and beech), grassland and blanket bog habitats which may include Annex 1 and GWDTE habitats. There will be direct impacts to these habitats from tower placement and access road construction. Indirect effects may also be experienced due to nearby construction activities e.g. disturbance to water supply, erosion of peat or deposition of dust. A Red RAG rating is applied as the project is likely to compromise the conservation status of Annex 1 habitats including blanket bog and ancient woodland e.g. by passing directly through them.

Ornithology

Schedule I BoCC or nesting bird species may be present within Route Option 2, including black grouse (*Lyrurus tetrix*) and hen harriers *(Circus cyaneus)*. There is therefore the potential for barrier or collision impacts during operation and an Amber RAG rating is applied.

Geology, Hydrology and Hydrogeology

The geology across Route Option 2 includes: Crom Psammite Formation, Vach Pelite Formation, Garve Psammite Formation and Glenfinnan Group. The quality and type of bedrock underlying the Route will influence the specification of tower foundation design.

Route Option 2 is predominantly underlain by a Class 2C low productivity aquifer. Impacts resulting from construction and operation of the scheme are likely to be limited to unplanned pollution events or localised disturbance to flows. There are PWS within Route Option 2 and mitigation to protect these PWS will be required. The Route Option crosses over three WFD designated watercourses including the Allt Coire Mhuilidh (ID: 20198), the Allt a Mhuilinn (ID: 20184), and the Black Water (ID: 20180) which may require a WFD assessment to be completed as part of any EIA. A Green RAG rating is applied as this Route Option passes near a surface water drinking protected area but is unlikely to compromise the quality and/or quantity of surface waters which provide public supply.

5.2.2 Cultural Heritage Context

The cultural heritage constraints present within the Route Option 2 are illustrated in **Figure 5.2**.

There are no Scheduled Monuments within Route Option 2. There are no Registered Battlefields, Gardens and Designed Landscapes or World Heritage Sites within or within 5 km of Proposed Route Option 2.

Within 5 km of Route Option 2 there is one Scheduled Monument (SM2720, Little Garve, bridge over Black Water). There are five non-designated assets identified from the Canmore Database, located within the Route Option. There are no direct impacts to designated assets anticipated for this route. However, there remains the potential to introduce direct effects to non-designated assets. This can be mitigated through the use of avoidance and micro sitting where possible. There remains the potential to introduce effects to setting for designated assets as a result of changes to the visual sphere and character of the area. Particularly, SM2720 is located within approximately 330 m south of the Route Option. An Amber RAG rating has been applied to account for the close proximity and likely setting effect on Little Garve, bridge over Black Water.

There are no Conservation Areas or Listed Buildings within Proposed Route Option 2. Within 5 km of Proposed Route Option 2 there are five Listed Buildings that will require an assessment of potential change to the landscape in long-distance from the assets, which has the potential to introduce an impact on the setting:

- LB1774, Category B, Burial Ground, Lochluichart Parish Church;
- LB1774, Category B, Lochluichart Parish Church;
- LB1775, Category C, Lochluichart Parish Manse;
- LB1775, Category C, Steading, Lochluichart Parish Manse; and
- LB51705, Category C, Conon Valley, Hydro Electric Scheme, Achanalt Power Station and Dam.

There are no direct impacts to designated Listed Buildings anticipated for this Route Option 2. There remains the potential introduce impacts to setting for Listed Buildings, as a result of changes to the visual sphere and character of the area, however, no Listed Buildings are located within 2.9 km of this route and as such, settings impact to Listed Buildings is low. Therefore, a Green RAG rating has been applied to the route.

5.2.3 Landscape and Visual Context

The landscape and visual constraints present within the Route Option 2 are illustrated in **Figure 5.3**.

Route Option 2 does not pass through any NSAs or WLAs. The eastern extent of the Route Option 2 overlaps with the Ben Wyvis Special Landscape Area, located to the north-east. Although Route Option 2 does overlap with the Ben Wyvis SLA, it is anticipated that avoidance and micrositing will be applied at alignment stage. Therefore, Route Option 2 has the potential to impact the special qualities of nationally and/or regionally designated landscapes and therefore an Amber RAG rating is applied.

Route Option 2 is located within the Rounded Rocky Hills, Rounded Mountain Massi and Rounded Hills and Moorland Slopes and Strath LCTs. There are few settlements adjacent to the Roue Option and there are no inventoried Garden and Designed Landscapes. For this reason, a Green RAG rating has been applied to landscape character and visual amenity.

5.2.4 Land Use

Agriculture

Route Option 2 is located within agricultural land scored between 5.3 and 7 therefore a Green RAG Rating has been applied.

Forestry

There are large areas of commercial forestry within Route Option 2 with the potential to compromise forestry operations resulting of loss in commercial returns. Therefore, an Amber RAG Rating has been applied.

Recreation

Route Option 2 intersects two core paths in the east of the route, the Silverbridge Circuit and the Tor Breao. However, Route Option 2 is unlikely to compromise the recreational amenity of the core paths in the area, therefore, a Green RAG Rating is applied.

5.2.5 Planning

There are numerous policies within the current LDP on the protection of the natural and built environments that will be relevant in the consideration of the development of electricity infrastructure. The Route Option is in full compliance with national, regional and local applicable planning policy. An Amber RAG rating has been applied as the Route Option may be inconsistent with other third party proposals known to the planning system.

5.2.6 RAG Impact Rating Summary

Table 5.4 Summary RAG Rating Table for Route Option 2

Route Option	RAG Impact Rating - Environmental															
	Natural Heritage					Cultural Heritage		People	Landscape			Land Use			Planning	
	Designations	Protected Species	Habitats	Geology, Hydrology and Hydrogeology	Ornithology	Designations	Cultural Heritage Assets	Proximity to People	Designations	Character	Visual	Agriculture	Forestry	Recreation	Policy	Planning
2	H	L	H	L	M	M	L	L	M	L	L	L	M	L	M	M

5.2.7 Engineering Constraints

Major Crossings

Major crossings include other OHLs of 132kV and above, railways, rivers/loch 200 m+, navigable waterways, motorways and other major roads, major pipelines and other significant infrastructure. These crossings require specific OHL solutions and can greatly constrain a design. There are two major crossings for Route Option 2 and there are 33 kV UGC and OHL crossings. Therefore, a Red RAG rating is applied.

Road Crossings

Road crossings include all road crossing excluding those considered under major crossings. Private tracks and driveways may also be included where the need for access to be maintained is present or where relatively high traffic volumes are anticipated. Whilst the impact on OHL design is less for these crossings, measures are still required and collectively they can greatly constrain an Option. Route Option 2 crosses only the A835, and therefore a Green RAG rating is applied.

Elevation

High elevations increase wind and ice loading on the lines resulting in the need for shorter spans or stronger structures. This can constrain routeing options and increase cost. Additionally, access for construction and maintenance tends to be more difficult at altitude and the risk of severe weather is greater.

Using Google Earth Profile option, Route Option 2 has 1.37 km route above 200 m AOD, which makes it 18% of the total 7.43 km route length with a maximum elevation of 341 m AOD. Therefore, an Amber RAG Rating is applied.

Contaminated Land

Contaminated land poses a significant health risk to construction and maintenance operatives, and is potentially expensive to mitigate, dispose of or remediate. As such, the presence of contaminated land within a Route Option would be a significant constraint. For assessment purposes, the presence of unexploded ordnance, is also considered in this section as it has similar implications.

At this time an initial desktop study has been carried out looking at possible UXO within the areas surrounding the routes. A Green RAG Rating has been applied as there are no known UXO within the areas surrounding the Route Option.

Flooding

Areas vulnerable to flooding pose a potential risk during construction, may prevent maintenance and can pose a physical risk to structures during flood events. As such, Route Options with large areas vulnerable to flooding would have a high risk of constraint.

Using the SEPA flood map, it is shown that Route Option 2 has a short length (less than 150 m) in flood with width more than 80%. Although there are traces of flood at three locations, the route length falling inside flood risk area is small so can easily be avoided at alignment stage. Therefore, a Green RAG Rating is applied.

Terrain

Steep or mountainous slopes present a significant difficulty for routeing, access, construction and maintenance. Options with a large proportion of steep or mountainous slopes are more likely to be constrained and thus more difficult and costly to build and maintain.

The terrain has been assessed by the reviewing the average gradient and maximum gradients of the terrain along the Route Option using Google Earth elevation profile. All Route Options have gradients below 40% however are not flat and are gently undulated so are therefore classified as Amber RAG. All routes have similar average slopes and have a maximum slope no greater than ±30%.

For Route Option 2, the first 1.5 km from Carn Fearna Wind Farm has significant terrain difference as the route approaches the A835, where the maximum slope is -25.8%. The difference in maximum slope is due to the options approaching the A835 and crossing the Black Waterfalls, creating a significant change in terrain. The remaining portion of the route appears to have some sections of undulating terrain. Route Option 2 is rated Amber RAG rating.

Peatland

Peat, particularly deep peat, represents a significant difficulty for access, construction and maintenance. Route Options with a large proportion peatland are more likely to be constrained and thus more difficult and costly to build and maintain. Peatland is also an important habitat and construction of new OHLs can cause lasting damage.

The NatureScot Peatland Classes mapping has been used to determine peat areas along each route. All three Route Options have less than 50% of route within Class 1 and Class 2 Peat. There is one location of Peat Class 2 within Route Option 2 with a maximum 0.5 km length. Therefore, a Green RAG Rating is applied.

Access

Construction of temporary access for construction are a significant project cost and a Route Option that is remote from existing tracks and the public road network has the potential to incur large access costs. Furthermore, access for inspection and maintenance is necessary throughout the life of the asset. A Route Option remote from existing access routes represents a significant risk and has a high potential to be constrained.

Access has been evaluated by reviewing the ordnance survey maps and using satellite imagery to identify the density of existing roads and access tracks within the proposed route corridors. Based on the number of

existing access tracks and distances between each one, the areas in each route have been identified and the appropriate rating then given. Route Option 2 has limited access tracks through majority of route and most of the route is within 1 km from the existing A832 and A835. Therefore, a Green RAG Rating is applied.

Angle Supports

OHLs with a high number of angle supports tend to be more difficult to construct, due to the number of angle pull throughs, and often require more extensive access. As such, a Route Option with a large number of angle supports is at a greater risk of being constrained.

The approximate number of angle towers has been assessed for each Route Option. Route Option 2 has 14 number of angle supports inclusive of failure containment poles.

Although the calculation of number of angle poles is very high level at this stage. There could be more angle poles added to each route as the design progresses. Therefore, a Green RAG Rating is applied.

Clearance

Dispersed buildings and properties are a common feature of the Scottish landscape. Placing OHLs in close proximity to these features is rarely well received and best avoided. Options with numerous areas in close proximity to buildings and properties have significant risk of constraining routing.

Although clearances are more applicable during the alignment stage, an assessment has been carried out to see if there are any properties within or near the route boundaries. This category has been interpreted to mean the distance it would be possible to maintain to properties/buildings with an alignment through each of the corridors (e.g. if there were properties within the route boundary, where it would be possible to maintain 250 m to them with the alignment design, the route would still be given Green RAG rating).

Similarly, Route Option 2 also has several dispersed buildings, which could be avoided at alignment stage. Therefore, a Green RAG Rating is applied.

Wind Farms

Windfarms pose a risk to OHLs due to disruption of airflows and need to be routed around.

Route Option 2 travels to the east of Corriemoillie Substation to connect to the Carn Fearna Wind Farm Substation, with the closest wind turbine being 670 m from the furthest possible point of the route section. Therefore, a Red RAG Rating is applied.

Communication Masts

OHLs can block existing line of sights for telecommunication masts and thus the line of sights from mast can constrain structure locations.

The OS map and cell mapper website have been assessed to check if any communication masts are present near the Route Options. From the desktop study survey, there is only one mast east of Carn Fearna Wind Farm, at a distance of more than 2 km. Therefore, a Green RAG Rating is applied.

Urban Developments

As with dispersed buildings and properties, urban areas represent a significant constraint that will often need to be routed around.

Route Option 2 passes in vicinity to a small town, and while there are some settlements along the Route Option there is no real urban environments within it. Therefore, a Green RAG Rating is applied.

Metallic Pipes

Metallic pipes have to be both avoided by individual supports, as they are often expensive to reroute, and, ideally, the final alignment should avoid running parallel, to avoid electrical impacts on the pipelines. As such it represents a constraint on routeing options.

At the stage in the project this report was written (Gate 1), detailed survey will be arranged post Gate 1 Stage. Therefore, a Green RAG Rating is applied for Route Option 2.

Route Lengths

The length of the routes affects the numbers of structures/accesses required, the extent of visual impact from the OHL and project cost.

Alignment and tower locations are not determined at this stage therefore the centreline of each Route Option was used for the assessment. Despite following different routes, all routes within 10% of the shortest route, and therefore are all categorised as Green RAG Rating.

DNO Crossings

Existing DNO crossings are generally undergrounded or diverted to avoid creating a construction and maintenance hazard. There is a cost and programme requirement associated with this activity and options with a large number of DNO crossings could find minimising such crossing a significant routeing constraint.

Using data provided by SSEN Distribution from ArcGIS & Electrical Office it shows that there is possibility of 33 kV UGC & OHL Distribution line crossings in all Route Options. All routes will cross existing 33 kV distribution line along A835. Route Option 2 will intersect the 33 kV UGC three times and the OHL once. Therefore, a Green RAG Rating is applied.

The Electricity Safety, Quality and Continuity Regulations (ESQCR) assessment

Based on the ESQCR assessment Route Option 2 is identified as intermediate Risk (Amber RAG Rating). Further assessment for ESQCR will be carried out at the Alignment stage.

Table 5.5 Summary Engineering RAG Rating Table of Route Option 2

Route Option	Infrastructure Crossing		Environmental Design				Ground Condition		Construction and Maintenance		Proximity					
	Major Crossings	Minor Roads	Elevation	Atmospheric Pollution	Contaminated Land	Flooding	Terrain	Peatland	Access	Angle Towers	Clearance Distance	Windfarms	Communication Masts	Urban Developments	Metallic Pipes	Route Lengths
2	H	L	I	I	L	L	I	L	L	L	L	H	L	L	L	L

5.2.8 Economic Considerations

Costs were not assessed in detail as part of this route selection process. These will be considered in more detail at the alignment stage when the technical and engineering specifications required become clearer.

Capital

The preferred technology solution is anticipated to be a new 132kV single circuit OHL supported on a trident wood pole. This is the most cost effective solution in comparison to other technology. The differences in cost in comparing the three route options are all within 120%, therefore all routes have been provided a Green RAG rating.

Operational

Compared to other overhead line technologies, a single circuit OHL supported on a trident wood pole is relatively straightforward technology to inspect and maintain. As such, all routes have been allocated a Green RAG rating for Operational Costs.

Table 5.6 Summary RAG Rating Table for Capital and Operational Costs of Route Option 2

Route Option	RAG Impact Rating - Cost	
	Capital	**Operational**
	Construction, Diversions, Public Road Improvements, Felling, Land Assembly and Consent Mitigations	Inspections and Maintenance
2	L	L

5.3 Route Option 3

5.3.1 Natural Heritage Context

The natural heritage constraints present within the Route Option 3 are illustrated in **Figure 5.1**.

Designations

Route Option 3 does not pass through any internationally, nationally, locally or non-statutory designated sites. The proximity to the Ben Wyvis SPA, SAC, NNR and SSSI means there is the potential to disturb nationally important population of breeding dotterel (*Charadrius morinellus*). Within Route Option 3 there are multiple areas of ancient woodland throughout the whole route, including native pinewood woodland in the east and upland birchwood in the central and western areas. Route Option 3 is given a Red RAG rating due to the proximity to the designated sites and passing directly through ancient woodland.

Protected Species

European protected species likely to be present within Route Option 3 include otter (*Lutra lutra*), wildcat (*Felis silvestris grampia)* and bat species. There is potential for UK BAP species including red squirrel (*Sciurus vulgaris*), pine marten (*Martes martes*), badger (*Meles meles*), and adder *(Vipera berus)* to be present along the Route. In addition, there is potential for SLB species including slow worm (*Anguis fragilis)*, common lizard (*Zootoca vivipara*), common toad (*Bufo bufo*), hedgehog (*Erinaceus europaeus*), mountain hare *(Lepus timidus)* and brown hare (*Lepus europaeus*), to be present. A Green RAG Rating is applied but further surveys are scheduled to be undertaken along the Preferred Route Option in due course which will inform the assumptions made above.

Habitats

Route Option 3 crosses ancient woodland, grassland and blanket bog habitats which may include Annex 1 habitats and GWDTE habitats. There will be direct impacts to these habitats from tower placement and access road construction. Indirect effects may also be experienced due to nearby construction activities e.g. disturbance to water supply, erosion of peat or deposition of dust. A Red RAG rating is applied as the project is likely to compromise the conservation status of Annex 1 habitats including blanket bog and ancient woodland e.g. by passing directly through them.

Ornithology

Schedule I, BoCC or nesting bird species may be present within Route Option 3, including black grouse (*Lyrurus tetrix*) and hen harriers *(Circus cyaneus)*. There is therefore the potential for barrier or collision impacts during operation and an Amber RAG rating is applied.

Geology, Hydrology and Hydrogeology

The geology across Route Option 3 includes Crom Psammite Formation, Vaiche Pelite Formation, Garve Psammite Formation and Glenfinnan Group. The quality and type of bedrock underlying the Route will influence the specification of tower foundation design.

Route Option 3 is predominantly underlain by a Class 2C low productivity aquifer. Impacts resulting from construction and operation of the scheme are likely to be limited to pollution events or localised disturbance to flows. There are three PWS within Route Option 3 and mitigation to protect these PWS will be required. The Route Option crosses over three WFD designated watercourses including the Allt Coire Mhuilidh (ID: 20198), the Allt a Mhuilinn (ID: 20184), and the Black Water (ID: 20180) which may require a WFD assessment to be completed as part of any EIA. A Green RAG rating is applied as this Route Option passes near a surface water drinking protected area but is unlikely to compromise the quality and/or quantity of surface waters which provide public supply.

5.3.2 Cultural Heritage Context

There are no Scheduled Monuments within Route Option 3. There are no Registered Battlefields, Gardens and Designed Landscapes or World Heritage Sites within or within 5 km of Proposed Route Option 3. Within 5 km of Route Option 3 there is one Scheduled Monument (SM2720, Little Garve, bridge over Black Water). There are five non-designated assets identified from the Canmore Database, located within Route Option 3. There are no direct impacts to designated assets anticipated for this route. However, there remains the potential to introduce direct effects to non-designated assets. This can be mitigated through the use of avoidance and micro sitting where possible. There remains the potential to introduce effects to setting for designated assets as a result of changes to the visual sphere and character of the area. Particularly, SM2720 is located within approximately 100 m south of the Route Option 3. An Amber RAG rating has been applied to account for the close proximity and likely setting effect on Little Garve, bridge over Black Water.

There are no Conservation Areas or Listed Buildings within Route Option 3. Within 5 km of Route Option 3 there are five Listed Buildings that will require an assessment of potential change to the landscape in long-distance from the assets, which has the potential to introduce an impact on the setting:

- LB1774, Category B, Burial Ground, Lochluichart Parish Church;
- LB1774, Category B, Lochluichart Parish Church;
- LB1775, Category C, Lochluichart Parish Manse;
- LB1775, Category C, Steading, Lochluichart Parish Manse; and
- LB51705, Category C, Conon Valley, Hydro Electric Scheme, Achanalt Power Station and Dam.

There are no direct impacts to designated Listed Buildings anticipated for this route. There remains the potential to introduce impacts to setting for Listed Buildings, as a result of changes to the visual sphere and character of the area. However, no Listed Buildings are located within 2.9 km of this route and as such, settings impact to Listed Buildings is low. Therefore, a Green RAG rating has been applied to Route Option 3.

5.3.3 Landscape and Visual Context

The landscape and visual constraints present within the Route Option 3 are illustrated in **Figure 5.3.**

Route Option 3 does not pass through any NSAs or WLAs. The eastern extent of the Route Option 3 overlaps with the Ben Wyvis SLA, located to the north-east. Although Route Option 3 does overlap with the Ben Wyvis SLA, it is anticipated that avoidance and micrositing will be applied. Therefore, Route Option 3 has the potential to impact the special qualities of nationally and/or regionally designated landscapes and therefore an Amber RAG rating is applied.

Route Option 3 is located within the Rounded Rocky Hills, Rounded Mountain Massi and Rounded Hills and Moorland Slopes and Strath LCTs. There are few settlements adjacent to the Roue Option including the hamlets of Gorstan and Little Garve and there are no inventoried Garden and Designed Landscapes. For this reason, a Green RAG rating has been applied to landscape character and visual amenity.

5.3.4 Land Use

Agriculture

Route Option 3 is located within agricultural land scored between 5.1 and 7 therefore a Green RAG Rating has been applied.

Forestry

There are large areas of commercial forestry within Route Option 3 with the potential to compromise forestry operations resulting of loss in commercial returns. Therefore, an Amber RAG Rating has been applied.

Recreation

Route Option 3 intersects two core paths in the east of the Route, the Silverbridge Circuit and the Tor Breao. However, Route Option 3 is unlikely to compromise the recreational amenity of the core paths in the area, therefore, a Green RAG Rating is applied.

5.3.5 Planning

There are numerous policies within the current LDP on the protection of the natural and built environments that will be relevant in the consideration of the development of electricity infrastructure. The Route Option is in full compliance with national, regional and local applicable planning policy. An Amber RAG rating has been applied as the Route Option may be inconsistent with other third party proposals known to the planning system.

5.3.6 RAG Impact Rating Summary

Table 5.7 Summary RAG Rating Table for Route Option 3

Route Option	RAG Impact Rating - Environmental															
	Natural Heritage					Cultural Heritage		People	Landscape			Land Use			Planning	
	Designations	Protected Species	Habitats	Geology, Hydrology and Hydrogeology	Ornithology	Designations	Cultural Heritage Assets	Proximity to People	Designations	Character	Visual	Agriculture	Forestry	Recreation	Policy	Planning
3	H	L	H	L	M	M	L	L	M	L	M	L	M	M	M	M

5.3.7 Engineering Constraints

Major Crossings

Major crossings include other OHLs of 132 kV and above, railways, rivers/loch 200 m+, navigable waterways, motorways and other major roads, major pipelines and other significant infrastructure. These crossing require specific OHL solutions and can greatly constrain a design. There are two major crossings for Route Option 3 and there are 33 kV UGC and OHL crossings. Therefore, a Red RAG rating is applied.

Road Crossings

Road crossings include all road crossing excluding those considered under major crossings. Private tracks and driveways may also be included where the need for access to be maintained is present or where relatively high traffic volumes are anticipated. Whilst the impact on OHL design is less for these crossings, measures are still required and collectively they can greatly constrain an Option. Route Option 3 crosses the A835, and the A382 twice, near Corriemoillie Substation in addition to the A835 crossing. Therefore, a Red RAG Rating is applied.

Elevation

High elevations increase wind and ice loading on the lines resulting in the need for shorter spans or stronger structures. This can constrain routeing options and increase cost. Additionally, access for construction and maintenance tends to be more difficult at altitude and the risk of severe weather is greater.

Using Google Earth Profile option, the Route Option 3 has 0.77 km route above 200 m AOD, which makes it 10.3% of the total 7.5 km route length with a maximum elevation of 348 m AOD. Therefore, an Amber RAG rating is applied.

Contaminated Land

Contaminated land poses a significant health risk to construction and maintenance operatives, and is potentially expensive to mitigate, dispose of or remediate. As such, the presence of contaminated land within a Route Option would be a significant constraint. For assessment purposes, the presence of unexploded ordnance, is also considered in this section as it has similar implications.

At this time an initial desktop study has been carried out looking at possible UXO within the areas surrounding the routes. A Green RAG Rating has been applied as there are no known UXO in the areas surrounding Route Option 3.

Flooding

Areas vulnerable to flooding pose a potential risk during construction, may prevent maintenance and can pose a physical risk to structures during flood events. As such, Route Options with large areas vulnerable to flooding would have a high risk of constraint.

Using the SEPA flood map, it is shown that Route Option 3 has a length of approximately 700 m at flood risk with a route width of more than 80% affected. Therefore, a Red RAG Rating is applied.

Terrain

Steep or mountainous slopes present a significant difficulty for routeing, access, construction and maintenance. Options with a large proportion of steep or mountainous slopes are more likely to be constrained and thus more difficult and costly to build and maintain.

The terrain has been assessed by the reviewing the average gradient and maximum gradients of the terrain along the Route Option using Google Earth elevation profile. All Route Options have gradients below 40%, however are not flat and are gently undulated therefore classified as Amber RAG rating. All Route Options have similar average slopes and have a maximum slope no greater than ±30%. For Route Option 3, the first 1.5 km from Carn Fearna Wind Farm Substation has significant terrain difference as the route approaches the A835, where the maximum slope is -25.3%.

Peatland

Peat, particularly deep peat, represents a significant difficulty for access, construction and maintenance. Route Options with a large proportion peatland are more likely to be constrained and thus more difficult and costly to build and maintain. Peatland is also an important habitat and construction of new OHLs can cause lasting damage.

The NatureScot Peatland Classes mapping has been used to determine peat areas along each route. All three Route Options have less than 50% of route width inside Class 1 and Class 2 Peat. There are four locations of Class 1 and Class 2 in Route Option 3 with a maximum 2 km length within it. Therefore, an Amber RAG Rating is applied.

Access

Construction of temporary access for construction are a significant project cost and a Route Option that is remote from existing tracks and the public road network has the potential to incur large access costs. Furthermore, access for inspection and maintenance is necessary throughout the life of the asset. A Route Option remote from existing access routes represents a significant risk and has a high potential to be constrained.

Access has been evaluated by reviewing the ordnance survey maps and using satellite imagery to identify the density of existing roads and access tracks within the proposed route corridors. Based on the number of existing access tracks and distances between each one, the areas in each route have been identified and the appropriate rating then given. Route Option 3 has limited access tracks through majority of route and most of the route is within 1 km from existing A832 and A835. Therefore, a Green RAG Rating is applied.

Angle Supports

OHLs with a high number of angle supports tend to be more difficult to construct, due to the number of angle pull throughs, and often require more extensive access. As such, a Route Option with a large number of angle supports is at a greater risk of being constrained.

The approximate number of angle towers has been assessed for each Route Option. Route Option 3 has 15 number of angle supports inclusive of failure containment poles.

Although the calculation of number of angle poles is very high level at this stage. There could be more angle poles added to each route as the design progresses. Therefore, a Red RAG Rating is applied.

Clearance

Dispersed buildings and properties are a common feature of the Scottish landscape. Placing OHLs in close proximity to these features is rarely well received and best avoided. Options with numerous areas in close proximity to buildings and properties have significant risk of constraining routing.

Although clearances are more applicable during the alignment stage, an assessment has been carried out to see if there are any properties within or near the route boundaries. This category has been interpreted to mean the distance it would be possible to maintain to properties/buildings with an alignment through each of the corridors (e.g. if there were properties within the route boundary, where it would be possible to maintain 250 m to them with the alignment design, the route would still be given Green RAG rating).

Similarly, Route Option 3 also have the same Black Water buildings, but at the edge of route boundary which could be avoided at alignment stage with a distance of more than 250 m. There is also one building inside the route near Corriemoillie Substation which can be avoided at alignment stage.

Route Option 3 has got couple of buildings within a distance of 100 m to 250 m from the centreline. There is a dense population near Gorstan area within the Route Option 3, which may fall within 100 m of the potential alignments. Therefore, a Red RAG Rating has been assigned to Route Option 3.

Wind Farms

Windfarms pose a risk to OHLs due to disruption of airflows and need to be routed around.

Route Option 3 travels to the east of Corriemoillie Substation to connect to the Carn Fearna Wind Farm Substation, with the closest wind turbine being 690 m from the furthest possible point of the route. Therefore, a Red RAG Rating is applied.

Communication Masts

OHLs can block existing line of sights for telecommunication masts and thus the line of sights from mast can constrain structure locations.

The OS map and cell mapper website have been assessed to check if any communication masts are present near the Route Options. From the desktop study survey, there is only one mast east of the proposed Carn Fearna Wind Farm, at a distance of more than 2 km. Therefore, a Green RAG Rating is applied.

Urban Developments

As with dispersed buildings and properties, urban areas represent a significant constraint that will often need to be routed around.

Route Option 3 passes near a small town, and while there are some settlements along the Route Option there is no real urban environments within them. Therefore, a Green RAG Rating is applied.

Metallic Pipes

Metallic pipes have to be both avoided by individual supports, as they are often expensive to reroute, and, ideally, the final alignment should avoid running parallel, to avoid electrical impacts on the pipelines. As such it represents a constraint on routeing options.

At the stage in the project this report was written (Gate 1), detailed survey will be arranged post Gate 1 Stage. Therefore, a Green RAG Rating is applied for Route Option 3.

Route Lengths

The length of the routes affects the numbers of structures/accesses required, the extent of visual impact from the OHL and project cost.

Alignment and tower locations are not determined at this stage therefore the centreline of each Route Option was used for the assessment. Despite following different routes, all routes within 10% of the shortest route, and therefore are all categorised as Green RAG Rating.

DNO Crossings

Existing DNO crossings are generally undergrounded or diverted to avoid creating a construction and maintenance hazard. There is a cost and programme requirement associated with this activity and options with a large number of DNO crossings could find minimising such crossing a significant routeing constraint.

Using data provided by SSEN Distribution from ArcGIS & Electrical Office it shows that there is possibility of 33 kV UGC & OHL Distribution line crossings in all Route Options. All routes will cross existing 33 kV distribution line along A835. Route Option 3 will intersect the 33 kV UGC two times and the OHL twice. Therefore, an Amber RAG Rating is applied.

The Electricity Safety, Quality and Continuity Regulations (ESQCR) assessment

Based on the ESQCR assessment Route Option 3 is identified as intermediate Risk (Amber RAG Rating). Further assessment for ESQCR will be carried out at the Alignment stage.

Table 5.8 Summary Engineering RAG Rating Table of Route Option 3

Route Option	Infrastructure Crossing		Environmental Design				Ground Condition		Construction and Maintenance		Proximity					
	Major Crossings	Minor Roads	Elevation	Atmospheric Pollution	Contaminated Land	Flooding	Terrain	Peatland	Access	Angle Towers	Clearance Distance	Windfarms	Communication Masts	Urban Developments	Metallic Pipes	Route Lengths
3	H	H	I	I	L	H	I	I	L	H	H	H	L	L	L	L

5.3.8 Economic Considerations

Costs were not assessed in detail as part of this route selection process. These will be considered in more detail at the alignment stage when the technical and engineering specifications required become clearer.

Capital

The preferred technology solution is anticipated to be a new 132kV single circuit OHL supported on a trident wood pole. This is the most cost effective solution in comparison to other technology. The differences in cost in comparing the three route options are all within 120%, therefore all routes have been provided a Green RAG rating.

Operational

Compared to other overhead line technologies, a single circuit OHL supported on a trident wood pole is relatively straightforward technology to inspect and maintain. As such, all routes have been allocated a Green RAG rating for Operational Costs.

Table 5.9 Summary RAG Rating Table for Capital and Operational Costs of Route Option 3

Route Option	RAG Impact Rating - Cost	
	Capital	**Operational**
	Construction, Diversions, Public Road Improvements, Felling, Land Assembly and Consent Mitigations	Inspections and Maintenance
3	L	L

6. SELECTION OF PREFERRED ROUTE

6.1 Preferred Route

A comparison of the Route Options has identified similar environmental constraints for all Route Options. There are marginal differences outside of the RAG assessment for each topic. On balance and using professional judgement Route Option 1 is considered to be the environmentally Preferred Route.

Route Option 1 has a lower impact on irreplaceable habitats such as ancient woodland and impacts to commercial forestry operations. Route Option 1 is located further away from the settlements of Gorstan and Little Garve and the two recreation core paths in the area.

Route Option 2 and Route Option 3 are less preferable due to intersecting irreplaceable habitats such as ancient woodland and large areas of commercial forestry plantations and the proximity to existing road and network infrastructure.

From an engineering perspective, based upon on the RAG ratings developed in accordance with the methodology given in PR-NET-ENV-501, Route Option 2 appears to have the least risk of constraints. Among all the engineering features, elevation, ground conditions, access and proximity to wind turbines have more influence in determining the preferred engineering option specific for this project as these features may affect the technology, reliability and construction techniques for the proposed overhead line. This analysis has shown that while there are some challenges, there is a solution available that allows for an alignment through the area. In the following section the key factors shall be discussed for the Route Options and a comparison shall be made to aid in the decision behind the most appropriate route.

Route Option 1 and Route Option 2 intersect the A835 road and cross and follow an existing access track near the proposed Carn Fearna Wind Farm Substation and other existing access tracks, there are no other major road crossings for these Route Options. Route Option 2 runs approximately 3.3 km along an existing access track, and it also follows along A832 approximately 4.9 km within 1 km range. Similarly, Route Option 1 runs approximately 3 km along existing access tracks and it also follows along A832 approximately 4.9 km within 1 - 1.5 km range from southern edge of route corridor, but still the route requires the construction of significantly more access roads due to hilly/mountainous terrain. Route Option 3 crosses A835 and follows it approximately 1.9 km, and A832 road is also running parallel to the route for approximately 4.2 km.

The analysis in designation of rating also assumes the future tracks which will be built by the developer for the proposed Carn Fearna Wind Farm site will be used for access of all Route Options. All minor road crossings come down to access tracks which although will require greater clearances to be achieved when spanning, also provide the benefit of existing access for construction. It can therefore be said that although there is some variation in the number of minor road crossings, the difference between each Route Option on this factor is relatively insignificant and does not limit the Route Options.

The elevation for Route Option 1 remains above 200 m AOD for at least 53% of the length. This requires a more robust design due to extreme climatic loadings at this height. Route Option 2 and Route Option 3 do not have much difference in percentages of lengths around above 200 m AOD. Therefore, Route Option 1 is less preferable in comparison to the other two Route Options based on this factor.

There are no river crossing for all routes. There are some streams and waterfalls crossing the Route Options. Route Option 1 and Route Option 2 as per SEPA flood maps are less prone to flood areas as compared to Route Option 3. Route Option 3 is at higher risk to flooding and constructability, so along the floodplains could also prove challenging.

Ground conditions across the Route Options have been reviewed in detail, as the Route Options are still at corridor assessment the centre line of each route was used to determine the change in elevation across the terrain. All Route Options were rated Amber in the RAG assessment however there are some key differences that were observed. Although the maximum gradients were relatively similar on Route Option 2 and Route Option 3, the gradients of greater than 20% occurred in multiple areas with a significant undulating terrain the

Route Option 1. Due to the number of undulations within Route Option 1, it would be difficult to design this out and would therefore cause difficulty in construction and siting of poles potentially making this route unfeasible.

Another significant issue with all Route Options is forestry challenges as some sections of all routes are passing through forestry, so approximately similar amount of forestry felling works would be required for all three Route Options.

Alongside the terrain issues it is also observed that a significant proportion of the Route Option 1 and Route Option 3 pass through peatlands resulting in being assigned a Red RAG rating. To be able to construct a wood pole OHL suitable ground conditions are required so that the poles remain stable and to allow the construction to take place. Route Option 2 has less areas of Class 1 and Class 2 peatland as compared to other two Route Options.

The final key consideration when comparing the Route Options relates to their proximity to existing infrastructure, including residential properties. Route Option 1 has several dispersed properties and may fall within 250 m distance from most of these residential properties. Route Option 2 also has some dispersed properties and based on the route corridor width; properties could be avoided at the alignment stage. As Route Option 3 follows along the Gorstan and Garve comes into closer contact with a greater number of properties and will be more challenging to avoid. This factor should be considered as routing within close proximity to residential properties will impact on views and can also result in potential objections.

SSEN TG-NET-OHL-518 specifications states that new lines must maintain at least 3 x rotor diameter distance from the subject turbine. All the Route Options are within this distance at western edge of the Route Options near the proposed Carn Fearna Wind Farm Substation. The wake on the conductors needs to be calculated in this buffer zone to account for the change of elevation otherwise the OHL will need to be undergrounded for the section which is within the turbines wake.

From the comparison carried out certain aspects of each Route Option have some issues however, it is apparent that Route Option 3 has several issues that make the route unfeasible mainly due to existing lines, two major road crossings and being closer to residential properties. Route Option 1 has more undulating terrain as compared to Route Option 2. Therefore, Route Option 2 appear to have the least number of engineering constraints out of all the routes considered.

From an economical perspective, all Route Options are within 120% of the lowest capital and operational cost option, therefore all options are considered acceptable from a cost perspective.

The overall Preferred Route for the connection between the proposed Carn Fearna Wind Farm to the existing Corriemoillie 132 kV Substation is Route Option 2. This is achieved through consideration of environmental, engineering and economic appraisals for all Route Options (see **Table 6.1**). Although environmentally Route Option 1 is marginally preferrable, from a technical perspective, Route Option 2 is substantially more favourable due to elevation and access constraints.

Table 6.1. Summary of RAG Rating Table for all the Route Options

	Category	Sub-Topic	Route Option 1 Rating	Route Option 2 Rating	Route Option 3 Rating
Environmental	Natural Heritage	Designations	H	H	H
		Protected Species	L	L	L
		Habitats	H	H	H
		Geology, Hydrology and Hydrogeology	L	L	L
		Ornithology	M	M	M
	Cultural Heritage	Designations	M	M	M
		Cultural Heritage Assets	L	L	L
	People	Proximity to People	L	L	L
	Landscape and Visual	Designations	M	M	M
		Character	L	L	L
		Visual	L	L	M
	Land Use	Agriculture	L	L	L
		Forestry	M	M	M
		Recreation	L	L	M
	Planning	Policy	M	M	M
		Planning	M	M	M
Engineering	Infrastructure Crossings	Major Crossings (132kV, 275kV, Rail, 200+m wide river, navigable canal, gas or hydro pipeline)	M	H	H
		Minor Roads	H	L	L
	Environmental Design	Elevation	H	M	M
		Contaminated Land	L	L	L
		Flooding	L	L	H
	Ground Conditions	Terrain	M	M	M
		Peat	M	L	M
	Construction / Maintenance	Access	L	L	L
		Angle Towers	H	L	H
	Proximity	Clearance Distance	M	L	H
		Proximity to Windfarms	H	H	H
		Communication Masts	L	L	L
		Urban Environments	L	L	L
		Metallic pipes	L	L	L
	Other Considerations	Route Lengths*	L	L	L
		DNO Crossings*	L	L	M
		ESQCR Assessment*	M	M	M
Cost	Capital	Construction, Diversions, Public Road Improvements, Felling, Land Assembly and Consent Mitigations	L	L	L
	Operational	Inspections and Maintenance	L	L	L

7. CONSULTATION ON THE PROPOSALS

SSEN Transmission places great importance on, and is committed to, consultation and engagement with all parties and stakeholders likely to have an interest in proposals for new projects such as this. Stakeholder engagement is an essential part of an effective development process.

The proposals detailed in this report have been developed through environmental and technical analysis of various Route Options. The potential for environmental effects remains and further assessment and design will be important in giving detailed consideration to the development and integration of mitigation measures to address significant environmental effects identified.

When providing comment and feedback, SSEN Transmission would be grateful for your consideration of the questions below. We are keen to receive your views and comments in regard to the following:

- Do you feel sufficient information has been provided to enable you to understand what is being proposed and why?
- Which of the three Route Options would you consider the best option for SSEN Transmission to develop? Please provide an explanation of your answer.
- Which of the three Route Options would you consider the least preferable option for SSEN Transmission to develop? Please provide an explanation of your answer.
- Are there any potential risks or benefits associated with this project, that you believe have not been included in the Consultation Document?
- Do you have any other comments on the Proposed Development?

7.1 Next Steps

A public exhibition will be held in Summer 2024 (see **Preface**) and meetings will be arranged with statutory and other stakeholders. The responses received, and those sought from statutory consultees and other key stakeholders will inform further consideration and design of the Preferred Route leading to the identification of a Proposed Route to take forward to the alignment and consenting stages.

Please submit your comments to:

Lisa Marchi

Community Liaison Manager

SSEN Transmission

10 Henderson Road, Inverness IV1 1SA

Email: lisa.marchi@sse.com

Mobile: 07825 015 507

All comments are requested by 4th October 2024.

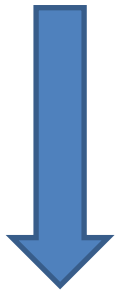
APPENDIX A ENVIRONMENTAL APPRAISAL OF ROUTE OPTIONS

Scottish & Southern Electricity Networks

APPENDIX B FIGURES

1.1.1 As discussed in **Section 3** of this report, the comparative appraisal of Route Options has involved systematic consideration against a number of environmental, technical and economic topic areas. This appendix provides further detail on the environmental topics under consideration.

1.1.2 A Red, Amber, Green (RAG) impact rating has been applied to each subject area indicating potential effects. This rating is based on a four point scale as follows:

Performance	Comparative Appraisal	
Most Preferred  Least Preferred	No Impact	The development is unlikely to be constrained
	Lower Impact	Low potential for the development to be constrained
	Moderate Impact	Intermediate potential for the development to be constrained
	Higher Impact	High potential for the development to be constrained.

Route Option 1

Description:		
Route Option 1 begins at the proposed Carn Fearna Substation and travels west for approximately 2 km. The Route crosses the A835 and continues northwest running parallel to the forestry plantation at Garve. The Route diverts south-west for approximately 0.5 km towards the existing Corriemoillie Substation.		
Review of Environmental Effects:		
Natural Heritage		
Topics	**Potential Impacts**	**RAG Impact Rating**
Designations	The Ben Wyvis SSSI, SPA and SAC are located to the north-east, 2.3 km from Route Option 1 at their closest. The SAC is designated for supporting a nationally important population of breeding dotterel (*Charadrius morinellus*), which represents at least 2% of the British population. The SSSI and SPA are designated for the Alpine heathland. Route Option 1 has the potential to result in collision risk and barrier effect for bird species. The Glen Affric to Strathconon SPA is located to the south-west, within 2 km of Route Option 1. Glen Affric to Strathconon SPA qualifies under Article 4.1 by regularly supporting a population of European importance of the Annex 1 species golden eagle *(Aquila chrysaetos*) (10 active territories in 2003, 2.2% of the GB population). Route Option 1 may compromise the qualifying features of the SPA by introducing collision risk and barrier effect for bird species. Beinn Dearg SPA is situated approximately 11.3 km of Route Option 1. It is designated for supporting a nationally important population of breeding dotterel (*Charadrius morinellus*), which represents at least 3% of the British population. Due to the SPA being located more than 10 km away from the Route Option, it is unlikely to compromise the value of the SPA. Cromarty Firth SPA is situated approximately 14.2 km east from Route Option 1. The SPA qualifies (in part) under Article 4.1 by regularly supporting populations of European importance of the Annex I species: osprey (*Pandion haliaetus)* forage throughout the SPA (2008 to 2012, five year mean of up to 25 territories within feeding range, 12.5% of the GB population, with 1 pair breeding within the site, 1% of the GB population). The Cromarty Firth SPA further qualifies under Article 4.2 by regularly supporting a population of European importance of the migratory species: greylag goose (*Anser anser)* (1992/93 to 1996/97 winter peak mean of 1,782 individuals; 2% of the Iceland/UK/Ireland biogeographic population). Inner Moray Firth SPA is situated 19.8 km east from Route Option 1 The SPA qualifies (in part) under Article 4.1 by regularly supporting populations of European importance of the Annex I species: osprey (*Pandion haliaetus)* forage throughout the SPA (2008 to 2012, up to 25 territories within feeding range, 12.5% of the GB population, with 4 pairs breeding within the site, 4% of the GB population). The foraging range for osprey can extend up to 28 km and hence is included. The Inner Moray Firth SPA further qualifies under Article 4.2 by regularly supporting populations of European importance of the migratory species (1992/93 to 1996/97 winter peak means): greylag goose (*Anser anser*) (2,651 individuals, 3% of the Iceland/UK/Ireland biogeographic population), which have a foraging range of 15 – 20 km from winter roost sites. Route Option 1 passes through multiple areas of ancient woodland throughout the whole route. There is native pinewood woodland in the east and upland birchwood in the central and western areas.	H

	Route Option 1 passes directly through ancient woodland and has the potential to cause barrier effects to qualifying SPA species, and a Red rating is applied.	
Protected Species	European protected species known to occur in the area, which may therefore be present across the route include otter (*Lutra lutra*), wildcat (*Felis silvestris grampia)* and bat species. include otter. There is a designated Wildcat Protection Area which is located 2 km south-east of the Route Option 1. UK BAP species including red squirrel (*Sciurus vulgaris*), pine marten (*Martes martes*), badger (*Meles meles*), and adder *(Vipera berus)*. SBL species including slow worm (*Anguis fragilis)*, common lizard (*Zootoca vivipara*), common toad (*Bufo bufo*), hedgehog (*Erinaceus europaeus*), mountain hare *(Lepus timidus)* and brown hare (*Lepus europaeus*). For the purposes of assessment and in the absence of survey, it is assumed that through design, licencing and best practice construction techniques the project is unlikely to compromise the conservation status or known presence or suitable habitats for EPS or BAP species. A Green rating is therefore applied.	L
Habitats	The presence of peatland near the substations and within the centre of the Route Option means there may be potential to compromise the integrity of Annex 1 habitats including blanket bog and Ground Water Dependent Terrestrial Ecosystem (GWDTE). SSEN defines irreplaceable ancient woodland as Categories 1a and 2a of the AWI. There is ancient woodland of category 2a within the central areas of the route. A Red rating is applied as the project is likely to compromise the conservation status of Annex 1 habitats including blanket bog and ancient woodland e.g. by passing directly through them.	H
Geology, Hydrology and Hydrogeology	There are three known private water supplies in Route Option 1 or within 250 m of Route Option 1. Route Option 1 crosses the Black Water and Allt Coire Mhuilidh hydrological features. Route Option 1 primarily has component soils made up of peaty gleyed podzols with dystrophic semi-confined peat. Humus-iron podzols with peaty gleyed podzols are recorded at the eastern extent of the route. Class 5 peatland is recorded along the route. The description of Class 5 peatland is that soil information takes precedence over vegetation data, no peatland habitat recorded, it may also include areas of bare soil and soils are carbon-rich and deep peat. There is a section of Class 1 and Class 2 peatland in the west at the Developer's Substation. A Green rating is applied as this Route Option passes near a surface water drinking protected area (the Allt Ceann Loch Luichairt small river) but is unlikely to compromise the quality and/or quantity of surface waters which provide public supply. Furthermore, the route avoids high value peat resources.	L
Ornithology	Known breeding Schedule I / Annex I and / or Birds of Conservation Concern (BoCC) red-list species within 10 km (and / or their maximum foraging range) of Route Option 1, and thereby with connectivity to the proposed development: • black grouse (*Lyrurus tetrix*) unknown number of leks,	M

	• dotterel (*Charadrius morinellus*), population unknown, qualifying feature of Ben Wyvis SPA, • osprey (*Pandion haliaetus*), 1 territory, • golden eagle (*Aquila chrysaetos*) 2 territories, and • and peregrine (*Falco peregrinus*), 2 territories. In addition, unknown, but expected breeding Schedule I / Annex I and / or Birds of Conservation Concern (BoCC) red-list species within 10 km (and / or their maximum foraging range), and thereby with connectivity to the proposed development: • Red kite (*Milvus milvus),* • goshawk (*Accipter gentilis),* • honey buzzard (*Pernis apivorus*), and • merlin, (*Falco columbarius*). There is the potential for barrier effects and collision risks to protected species during operation and an Amber rating is applied.	
Cultural Heritage		
Topics	**Potential Impacts**	**RAG Impact Rating**
Designations	A Moderate rating has been applied to account for the close proximity and likely setting effect on Little Garve, bridge over Black Water. Given the known archaeological presence in the wider area, there remains a risk to impact previously unknown / unidentified archaeology (extant or buried).	M
Cultural Heritage Assets	A Low rating is applied for Cultural Heritage assets as a result of the limited potential to introduce settings impacts to a cluster of listed buildings located to the southwest in Lochluichart.	L
People		
Topics	**Potential Impacts**	**RAG Impact Rating**
Proximity to dwellings	Route Option 1 does not pass any residential communities in close proximity, however there are scattered residential properties situated across the open landscape, including the hamlets of Gorstan and Little Garve. As Route Option 1 does not pass within close proximity to any residential dwellings, a Green rating is applied.	L

Landscape and Visual Amenity		
Topics	**Potential Impacts**	**RAG Impact Rating**
Designations	Route Option 1 does not pass through/fall within an inventoried Garden and Designed landscape. There are no inventoried Garden and Designed Landscapes located within 5 km of Route Option 1. The Route Option does not pass through a National Scenic Area. There are no National Scenic Areas within 5 km of Route Option 1. The eastern extent of the Route Option 1 overlaps with the Ben Wyvis Special Landscape Area, located to the north-east, designated by The Highland Council. Route Option 1 does not pass through a Wild Land Area (WLA). The Rhiddoroch – Beinn Dearg – Ben Wyvis WLA is located less than 1 km to the east of the Route Option. Fisherfield - Letterewe – Fannichs WLA is located within 5 km of Route Option 1. Although Route Option 1 does overlap with the Ben Wyvis SLA, it is anticipated that avoidance and micrositing will be applied. Therefore, Route Option 1 has the potential to impact the special qualities of nationally and/or regionally designated landscapes and therefore an Amber rating is applied.	M
Character	Route Option 1 passes through three landscape character types. These comprise 331 - Rounded Rocky Hills - Ross & Cromarty, 329 - Rounded Mountain Massif, and 330 - Rounded Hills and Moorland Slopes - Ross & Cromarty. The Route Option is unlikely to compromise the defining landscape features and/or key characteristics of the landscape character type, due to the existing infrastructure in the area, and therefore a Green rating is applied.	L
Visual Amenity	Visual receptors are likely to include: • Residents of scattered properties including Corriemoillie and small settlements including Gorstan and Little Garve. • Users of the A832 and the A835. Note that views from the A832 are likely to be partially screened by plantation woodland. • Users of/visitors to Forestry Land Scotland facilities at Little Garve in addition to the Black Water River. Route Option 1 is unlikely to result in significant adverse impacts on the visual amenity of people in the vicinity of the proposed Route Option and therefore a Green rating has been applied.	L
Land Use		
Topics	**Potential Impacts**	**RAG**
Agriculture	Agricultural land within Route Option 1 has a land capability between 5.3 and 7 and therefore a Green rating for low impact has been applied. The higher Class 5.3 - Land capable of use as improved grassland. Pasture deteriorates quickly.	L

Forestry	An Amber rating is applied as the route crosses conifer plantation woodland and there is potential to compromise forestry operations resulting of loss in commercial returns.	M
Recreation	Route Option 1 is unlikely to compromise the recreational amenity of the two core paths in the area. As such, a Green RAG rating is applied.	L
Planning		
Topic	**Potential Impact**	**RAG**
Planning	A planning appraisal against the Highland-Wide Local Development Plan 2012[1] has been conducted and is described below. Please note that the UGC benefits from PD rights and does not require a planning application to be made under the TCPA.	M

Policy /Document	Appraisal
Policy 28 – Sustainable Design	The Proposed Development will promote and enhance the social, economic and environmental wellbeing of the wider area through its support for renewable energy and therefore is in line with Policy 28.
Policy 30 – Physical Constraints	As part of the route optioneering process SSEN Transmission will undertake a full suite of environmental appraisals in order to select a route with the minimal level of impact on the surrounding environment and any physical constraints including flood risk areas and rights of way.
Policy 36 – Development in the Wider Countryside	The Proposed Development is deemed to not be significantly detrimental to the wider countryside and is therefore deemed to be in compliance with Policy 36.
Policy 47 – Safeguarding Inbye/Apportioned Croftland	The Proposed Development does not impact on any known croftland and therefore is in compliance with Policy 47.

[1] Highland_wide_Local_Development_Plan (1).pdf

Policy 51 – Trees and Development	As part of their commitment to replacement planting of any trees lost to development SSEN Transmission will undertake compensatory planting of any trees lost during the construction of the Route, ideally within the same geographical area if possible.	
Policy 52 – Principle of Development in Woodland	Whilst it is likely that loss of some woodland will be required as part of the proposed Development the construction of the Route offers clear and significant public development due to it allowing the Carn Fearna WF scheme to be developed, in line with Scotland's net zero carbon emission strategy for its electricity generation network. Where any woodland is removed SSEN Transmission commit to compensatory planting.	
Policy 72 – Pollution	SSEN Transmission will prepare a robust environmental appraisal prior to construction to assess and mitigate any potential pollutants.	
Policy 55 – Peat and Soils	During the Routeing and Alignment selection phases SSEN Transmission will seek to choose a final alignment that avoids all known areas of peat. In such cases where disturbance to known peat deposits is unavoidable SSEN Transmission will produce a peat management plan in consultation with the Scottish Environment Protection Agency (SEPA) to demonstrate how any impacts from the Proposed Development have been minimised and mitigated.	
Policy 57 – Natural, Built and Cultural Heritage	SSEN Transmission are of the view that the routeing selection process will lead to a chosen alignment that can satisfactorily demonstrate that the Proposed Development will not have an unacceptable impact on the natural environment, amenity and heritage resource. This will be assessed via an environmental appraisal of the OHL Route.	
Policy 58 – Protected Species	As part of the routeing selection process habitat surveys for protected species will be undertaken to establish the presence and if necessary a mitigation plan to avoid or minimise any impacts on the species at the alignment stage.	
Policy 59 – Other Important Species	As part of the routeing process an assessment of the impacts on other important species will be undertaken and effects will be avoided and/or mitigated at the alignment and environmental appraisal stages.	
Policy 60 – Other Important Habitats and Article 10 Features	As part of the routeing selection process habitat surveys will be undertaken to establish the presence and if necessary a mitigation plan to avoid or minimise any impacts on these at the alignment and environmental appraisal stages.	

Policy 61 – Landscape	The Proposed Development is primarily OHL with sections of UGC. The potential impacts on the landscape will be mitigated throughout the selection of a Route and Alignment.	
Policy 77 – Public Access	Should it prove necessary to impact upon a Core Path during the construction Stage SSEN Transmission will seek to divert it for as short a period as possible to allow for construction works to take place.	
Policy 78 – Long Distance Routes	The Proposed Development may have a direct or indirect adverse effects on the closest Long Distance Routes, namely elements of the National Cycle Network. A mitigation plan will be put in place by SSEN Transmission.	
Policy 63 - Water Environment	A hydrological appraisal will be undertaken to avoid and mitigate any impacts to the water environment.	
Policy 64 – Flood Risk	The Proposed Development is not located within known areas of river or coastal flooding according to the SEPA flood risk mapping. Any considerations of surface water flooding will be assessed and if required mitigated.	
Policy 65 – Surface Water Drainage	SSEN Transmission will propose a design that will limit potential for surface water drainage issues.	
Policy 69 – Electricity Transmission Infrastructure	The Proposed Development will not have an unacceptable significant impact on the environment, including natural, built and cultural heritage features, particularly as it is undergrounded and therefore should be supported by the Council in line with Policy 69.	
Route Option 1 is in full compliance with national, regional and local applicable planning policy. An Amber rating has been applied as the Route Option may be inconsistent with other third party proposals known to the planning system.		

Route Option 2

Description:		
Route Option 2 begins at the proposed Carn Fearna Substation and travels west for approximately 2 km. The Route crosses the A835 and continues west following the existing access tracks within the Forestry plantation at Garve. The Route diverts south-west for approximately 0.5 km towards the existing Corriemoillie Substation.		
Review of Environmental Effects:		
Natural Heritage		
Topics	**Potential Impacts**	**RAG Impact Rating**
Designations	The Ben Wyvis SSSI, SPA and SAC are located to the northeast, 2.3 km of Route Option 2. The SAC is designated for supporting a nationally important population of breeding dotterel (*Charadrius morinellus*), which represents at least 2% of the British population. The SSSI and SPA are designated for the Alpine heathland. Route Option 2 has the potential to result in collision risk and barrier effects. The Glen Affric to Strathconon SPA is located to the southwest within 2 km of Route Option 2. Glen Affric to Strathconon SPA qualifies under Article 4.1 by regularly supporting a population of European importance of the Annex 1 species golden eagle *(Aquila chrysaetos*) (10 active territories in 2003, 2.2% of the GB population). Route Option 2 may compromise the qualifying features of the SPA by passing close to it. Route Option 2 may compromise the qualifying features of the SPA by passing close to it. Beinn Dearg SPA is situated 11.3 km of Route Option 2. It is designated for supporting a nationally important population of breeding dotterel (*Charadrius morinellus*), which represents at least 3% of the British population. Due to the SPA being located more than 10 km away from the Route Option, it is unlikely to compromise the value of the SPA. Cromarty Firth SPA is situated 14.2 km east from Route Option 2. The SPA qualifies (in part) under Article 4.1 by regularly supporting populations of European importance of the Annex I species: osprey (*Pandion haliaetus)* forage throughout the SPA (2008 to 2012, five year mean of up to 25 territories within feeding range, 12.5% of the GB population, with 1 pair breeding within the site, 1% of the GB population). The Cromarty Firth SPA further qualifies under Article 4.2 by regularly supporting a population of European importance of the migratory species: greylag goose (*Anser anser)* (1992/93 to 1996/97 winter peak mean of 1,782 individuals; 2% of the Iceland/UK/Ireland biogeographic population). Inner Moray Firth SPA is situated 19.8 km east from Route Option 2 The SPA qualifies (in part) under Article 4.1 by regularly supporting populations of European importance of the Annex I species: osprey (*Pandion haliaetus)* forage throughout the SPA (2008 to 2012, up to 25 territories within feeding range, 12.5% of the GB population, with 4 pairs breeding within the site, 4% of the GB population). The foraging range for osprey can extend up to 28 km and hence is included. The Inner Moray Firth SPA further qualifies under Article 4.2 by regularly supporting populations of European importance of the migratory species (1992/93 to 1996/97 winter peak means): greylag goose (*Anser anser*) (2,651 individuals, 3% of the Iceland/UK/Ireland biogeographic population), which have a foraging range of 15 – 20 km from winter roost sites. Route Option 2 passes through multiple areas of ancient woodland throughout the whole route. There is native pinewood woodland in the east and upland birchwood in the central and western areas.	H

	Route Option 2 is given a Red rating as it passes directly through ancient woodland and has the potential to cause barrier effects to designated areas and qualifying SPA species.	
Protected Species	European protected species known to occur in the area, which may therefore be present across the route include otter (*Lutra lutra*), wildcat (*Felis silvestris grampia)* and bat species. There is a designated Wildcat Protection Area which is located 2 km southeast of the Route Option 2. UK BAP species including red squirrel (*Sciurus vulgaris*), pine marten (*Martes martes*), badger (*Meles meles*), and adder *(Vipera berus)*. SBL species including slow worm (*Anguis fragilis)*, common lizard (*Zootoca vivipara*), common toad (*Bufo bufo*), hedgehog (*Erinaceus europaeus*), mountain hare *(Lepus timidus)* and brown hare (*Lepus europaeus*). For the purposes of assessment and in the absence of survey, it is assumed that through design, licencing and best practice construction techniques the project is unlikely to compromise the conservation status or known presence or suitable habitats for EPS or BAP species. A Green rating is applied.	L
Habitats	There are areas of Class 1 and Class 2 throughout the Route Option, in the central section and the eastern section. It is unlikely to compromise the conservation status of Annex 1 Habitats means there may be potential to compromise the integrity of Annex 1 habitats including blanket bog and Ground Water Dependent Terrestrial Ecosystem (GWDTE). SSEN defines irreplaceable ancient woodland as Categories 1a and 2a of the AWI. There is ancient woodland of category 2a within the central and eastern areas the Route Options. Class 5 peatland is recorded along the vast majority of the route. The southern extent of the route corridor passes through isolated pockets of high value Class 1 and Class 2 peat in the central section of the route. A Red rating is applied as the project is likely to compromise the conservation status of Annex 1 habitats including blanket bog and ancient woodland e.g. by passing directly through them.	H
Geology, Hydrology and Hydrogeology	There are three known private water supplies in Route Option 2, there are five private water supplies within 250 m of Route Option 2. Route Option 2 crosses the Black Water and Allt Coire Mhuilidh hydrological features. Route Option 2 primarily has component soils made up of peaty gleyed podzols with dystrophic semi-confined peat. Humus-iron podzols with peaty gleyed podzols is recorded at the eastern extent of the route. A Green rating is applied as this Route Option passes near a surface water drinking protected area (the Allt Ceann Loch Luichairt small river) but is unlikely to compromise the quality and/or quantity of surface waters which provide public supply. Furthermore, the vast majority of the route avoids high value peat resources.	L
Ornithology	Known breeding Schedule I / Annex I and / or Birds of Conservation Concern (BoCC) red-list species within 10 km (and / or their maximum foraging range), and thereby with connectivity to the proposed development: • black grouse (*Lyrurus tetrix*) unknown number of leks,	M

	• dotterel (*Charadrius morinellus*), population unknown, qualifying feature of Ben Wyvis SPA, • osprey (*Pandion haliaetus*), 1 territory, • golden eagle (*Aquila chrysaetos*) 2 territories, and • and peregrine (*Falco peregrinus*), 2 territories. In addition, unknown, but expected breeding Schedule I / Annex I and / or Birds of Conservation Concern (BoCC) red-list species within 10 km (and / or their maximum foraging range), and thereby with connectivity to the proposed development: • Red kite (*Milvus milvus),* • goshawk (*Accipter gentilis),* • honey buzzard (*Pernis apivorus*), and • merlin, (*Falco columbarius*). There is the potential for barrier effects and collision risks to protected species during operation, therefore an Amber rating is applied.	
Cultural Heritage		
Topics	**Potential Impacts**	**RAG Impact Rating**
Designations	A Moderate rating has been applied to account for the close proximity and likely setting effect on Little Garve, bridge over Black Water. Given the known archaeological presence in the wider area, there remains a risk to impact previously unknown / unidentified archaeology (extant or buried).	M
Cultural Heritage Assets	A Low rating is applied for Cultural Heritage assets as a result of the limited potential to introduce settings impacts to a cluster of listed buildings located to the southwest in Lochluichart.	L
People		
Topics	**Potential Impacts**	**RAG Impact Rating**
Proximity to dwellings	Route Option 2 does not pass any residential communities in close proximity, however there are scattered residential properties situated across the open landscape, including the hamlets of Gorstan, Little Garve and Corriemoillie. As Route Option 2 does not pass within close proximity to any residential dwellings, a Green rating is applied.	L

Landscape and Visual Amenity		
Topics	**Potential Impacts**	**RAG Impact Rating**
Designations	Route Option 2 does not pass through/fall within an inventoried Garden and Designed landscape. There are no inventoried Garden and Designed Landscapes located within 5 km of Route Option 2. The Route Option does not pass through a National Scenic Area. There are no National Scenic Areas within 5 km of Route Option 2. The eastern extent of Route Option 2 overlaps with the Ben Wyvis Special Landscape Area designated by The Highland Council. Route Option 2 does not pass through a Wild Land Area (WLA). The Rhiddoroch – Beinn Dearg – Ben Wyvis WLA is located 300 m to the east of the Route Option. Fisherfield - Letterewe – Fannichs WLA is located within 5 km of Route Option 2. Although Route Option 1 does overlap the Ben Wyvis SLA, it is anticipated that avoidance and micrositing will be applied. Route Option 2 has the potential to impact the special qualities of nationally and/or regionally designated landscapes and therefore an Amber rating is applied.	M
Character	Route Option 2 passes through three landscape character types: 331 - Rounded Rocky Hills - Ross & Cromarty, 329 - Rounded Mountain Massif, and 330 - Rounded Hills and Moorland Slopes - Ross & Cromarty. The Route Option is unlikely to compromise the defining landscape features and/or key characteristics of the landscape character type, due to the existing infrastructure in the area, and therefore a Green rating is applied.	L
Visual Amenity	Visual receptors are likely to include: • Residents of scattered properties Corriemoillie and small settlements including Gorstan and Little Garve. • Users of the A832 and the A835. Note that views from the A832 are likely to be partially screened by plantation woodland. • Users of/visitors to Forestry Land Scotland facilities at Little Garve in addition to the Black Water River. Route Option 2 is unlikely to result in significant adverse impacts on the visual amenity of people in the vicinity of the proposed development and therefore a Green rating is applied.	L
Land Use		
Topics	**Potential Impacts**	**RAG Impact Rating**
Agriculture	Agricultural land within Route Option 2 has a land capability between 5.3 and 7 therefore a Green rating for low impact has been applied. The higher class is 5.3 - Land capable of use as improved grassland. Pasture deteriorates quickly.	L

Forestry	An Amber rating is applied as the route runs adjacent to and within conifer plantation woodland and is likely to result in sufficient loss of woodland to tree felling/ wayleave clearance activities so as to compromise the commercial viability of the forestry operation.	M
Recreation	Route Option 2 is unlikely to compromise the recreational amenity of the two core paths in the area. As such, a Green RAG rating is applied.	L
Planning		
Topic	**Potential Impacts**	**RAG**
Planning	A planning appraisal against the Highland-Wide Local Development Plan 2012[2] has been conducted and is described below. Please note that the UGC benefits from PD rights and does not require a planning application to be made under the TCPA.	M

Policy /Document	Appraisal
Policy 28 – Sustainable Design	The Proposed Development will promote and enhance the social, economic and environmental wellbeing of the wider area through its support for renewable energy and therefore is in line with Policy 28.
Policy 30 – Physical Constraints	As part of the route optioneering process SSEN Transmission will undertake a full suite of environmental appraisals in order to select a route with the minimal level of impact on the surrounding environment and any physical constraints including flood risk areas and rights of way.
Policy 36 – Development in the Wider Countryside	The Proposed Development is deemed to not be significantly detrimental to the wider countryside and is therefore deemed to be in compliance with Policy 36.

[2] Highland_wide_Local_Development_Plan (1).pdf

Policy 47 – Safeguarding Inbye/Apportioned Croftland	The Proposed Development does not impact on any known croftland and therefore is in compliance with Policy 47.	
Policy 51 – Trees and Development	As part of their commitment to replacement planting of any trees lost to development SSEN Transmission will undertake compensatory planting of any trees lost during the construction of the Route, ideally within the same geographical area if possible.	
Policy 52 – Principle of Development in Woodland	Whilst it is likely that loss of some woodland will be required as part of the proposed Development the construction of the Route offers clear and significant public development due to it allowing the Carn Fearna WF scheme to be developed, in line with Scotland's net zero carbon emission strategy for its electricity generation network. Where any woodland is removed SSEN Transmission commit to compensatory planting.	
Policy 72 – Pollution	SSEN Transmission will prepare a robust environmental appraisal prior to construction to assess and mitigate any potential pollutants.	
Policy 55 – Peat and Soils	During the Routeing and Alignment selection phases SSEN Transmission will seek to choose a final alignment that avoids all known areas of peat. In such cases where disturbance to known peat deposits is unavoidable SSEN Transmission will produce a peat management plan in consultation with the Scottish Environment Protection Agency (SEPA) to demonstrate how any impacts from the Proposed Development have been minimised and mitigated.	
Policy 57 – Natural, Built and Cultural Heritage	SSEN Transmission are of the view that the routeing selection process will lead to a chosen alignment that can satisfactorily demonstrate that the Proposed Development will not have an unacceptable impact on the natural environment, amenity and heritage resource. This will be assessed via an environmental appraisal of the OHL Route.	
Policy 58 – Protected Species	As part of the routeing selection process habitat surveys for protected species will be undertaken to establish the presence and if necessary a mitigation plan to avoid or minimise any impacts on the species at the alignment stage.	
Policy 59 – Other Important Species	As part of the routeing process an assessment of the impacts on other important species will be undertaken and effects will be avoided and/or mitigated at the alignment and environmental appraisal stages.	

Policy 60 – Other Important Habitats and Article 10 Features	As part of the routeing selection process habitat surveys will be undertaken to establish the presence and if necessary a mitigation plan to avoid or minimise any impacts on these at the alignment and environmental appraisal stages.	
Policy 61 – Landscape	The Proposed Development is primarily OHL with sections of UGC. The potential impacts on the landscape will be mitigated throughout the selection of a Route and Alignment.	
Policy 77 – Public Access	Should it prove necessary to impact upon a Core Path during the construction Stage SSEN Transmission will seek to divert it for as short a period as possible to allow for construction works to take place.	
Policy 78 – Long Distance Routes	The Proposed Development may have a direct or indirect adverse effects on the closest Long Distance Routes, namely elements of the National Cycle Network. A mitigation plan will be put in place by SSEN Transmission.	
Policy 63 - Water Environment	A hydrological appraisal will be undertaken to avoid and mitigate any impacts to the water environment.	
Policy 64 – Flood Risk	The Proposed Development is not located within known areas of river or coastal flooding according to the SEPA flood risk mapping. Any considerations of surface water flooding will be assessed and if required mitigated.	
Policy 65 – Surface Water Drainage	SSEN Transmission will propose a design that will limit potential for surface water drainage issues.	
Policy 69 – Electricity Transmission Infrastructure	The Proposed Development will not have an unacceptable significant impact on the environment, including natural, built and cultural heritage features, particularly as it is undergrounded and therefore should be supported by the Council in line with Policy 69.	
Route Option 2 is in full compliance with national, regional and local applicable planning policy. An Amber rating has been applied as the Route Option may be inconsistent with other third party proposals known to the planning system.		

Route Option 3

Description:		
Route Option 3 begins at the proposed Carn Fearna Substation and travels west for approximately 2 km. The Route crosses the A835 and travels in a south westerly direction towards Little Garve. The Route follows the A832 and railway line west towards the existing Corriemoillie Substation.		
Review of Environmental Effects:		
Natural Heritage		
Topics	**Potential Impacts**	**RAG Impact Rating**
Designations	The Ben Wyvis SSSI, SPA and SAC are located to the northeast, 2.3 km of Route Option 3. The SAC is designated for supporting a nationally important population of breeding dotterel (*Charadrius morinellus*), which represents at least 2% of the British population. The SSSI and SPA are designated for the Alpine heathland. Route Option 3 has the potential to result in collision risk and barrier effects. The Glen Affric to Strathconon SPA is located to the southwest, within 2 km of Route Option 3. Glen Affric to Strathconon SPA qualifies under Article 4.1 by regularly supporting a population of European importance of the Annex 1 species golden eagle *(Aquila chrysaetos*) (10 active territories in 2003, 2.2% of the GB population). Route Option 3 may compromise the qualifying features of the SPA by passing close to it. Beinn Dearg SPA is situated 11.3 km of Route Option 3. It is designated for supporting a nationally important population of breeding dotterel (*Charadrius morinellus*), which represents at least 3% of the British population. Due to the SPA being located more than 10 km away from the Route Option, it is unlikely to compromise the value of the SPA. Cromarty Firth SSSI, SPA is situated 14.2 km east from Route Option 3. The SPA qualifies (in part) under Article 4.1 by regularly supporting populations of European importance of the Annex I species: osprey (*Pandion haliaetus)* forage throughout the SPA (2008 to 2012, five year mean of up to 25 territories within feeding range, 12.5% of the GB population, with 1 pair breeding within the site, 1% of the GB population). The Cromarty Firth SPA further qualifies under Article 4.2 by regularly supporting a population of European importance of the migratory species: greylag goose (*Anser anser)* (1992/93 to 1996/97 winter peak mean of 1,782 individuals; 2% of the Iceland/UK/Ireland biogeographic population). Inner Moray Firth SPA is situated 19.8 km east from Route Option 3 The SPA qualifies (in part) under Article 4.1 by regularly supporting populations of European importance of the Annex I species: osprey (*Pandion haliaetus)* forage throughout the SPA (2008 to 2012, up to 25 territories within feeding range, 12.5% of the GB population, with 4 pairs breeding within the site, 4% of the GB population). The foraging range for osprey can extend up to 28 km and hence is included. The Inner Moray Firth SPA further qualifies under Article 4.2 by regularly supporting populations of European importance of the migratory species (1992/93 to 1996/97 winter peak means): greylag goose (*Anser anser*) (2,651 individuals, 3% of the Iceland/UK/Ireland biogeographic population), which have a foraging range of 15 – 20 km from winter roost sites. Route Option 3 passes through multiple areas of ancient woodland throughout the whole route. There is native pinewood woodland in the east and upland birchwood in the central and western areas.	H

	Route Option 3 passes directly through ancient woodland and has the potential to cause barrier effects to qualifying SPA species, and a Red rating is applied.	
Protected Species	European protected species known to occur in the area, which may therefore be present across the route include otter (*Lutra lutra*), wildcat (*Felis silvestris grampia)* and bat species. There is a designated Wildcat Protection Area which is located 2 km south- east of the Route Option 3. UK BAP species including red squirrel (*Sciurus vulgaris*), pine marten (*Martes martes*), badger (*Meles meles*), and adder *(Vipera berus)*. SBL species including slow worm (*Anguis fragilis)*, common lizard (*Zootoca vivipara*), common toad (*Bufo bufo*), hedgehog (*Erinaceus europaeus*), mountain hare *(Lepus timidus)* and brown hare (*Lepus europaeus*). For the purposes of assessment and in the absence of survey, it is assumed that through design, licencing and best practice construction techniques the project is unlikely to compromise the conservation status or known presence or suitable habitat for EPS or BAP species. A Green rating is therefore applied.	L
Habitats	The presence of peatland near the Developer's Substation and within the centre of the Route Option 3 means there may be potential to compromise the integrity of Annex 1 habitats including blanket bog and Ground Water Dependent Terrestrial Ecosystem (GWDTE). SSEN defines irreplaceable ancient woodland as Categories 1a and 2a of the AWI. There is ancient woodland of category 2a within the central areas route. Class 5 peatland is recorded along the majority of the route with only small, isolated pockets of high value Class 1 and Class 2 peat recorded along the route. An isolated area of Class 3 peat is also recorded within this route. A Red rating is applied as the project is likely to compromise the conservation status of Annex 1 habitats including blanket bog and ancient woodland e.g. by passing directly through them.	H
Geology, Hydrology and Hydrogeology	There are three private water supplies in Route Option 3. Route Option 3 crosses the Black Water and Allt Coire Mhuilidh hydrological features. Route Option 3 passes near a surface water drinking protected area (the Allt Ceann Loch Luichairt small river) but is unlikely to compromise the quality and/or quantity of surface waters which provide public supply. Route Option 3 primarily has component soils made up of peaty gleyed podzols with dystrophic semi-confined peat. Humus-iron podzols with peaty gleyed podzols is recorded at the eastern extent of the route with alluvial soils recorded in the vicinity of Little Garve. A Green rating is applied as this Route Option passes near a surface water drinking protected area (the Allt Ceann Loch Luichairt small river) but is unlikely to compromise the quality and/or quantity of surface waters which provide public supply. Furthermore, the route avoids high value peat resources.	L

Ornithology	Known breeding Schedule I / Annex I and / or Birds of Conservation Concern (BoCC) red-list species within 10 km (and / or their maximum foraging range), and thereby with connectivity to the proposed development: • black grouse (*Lyrurus tetrix*) unknown number of leks, • dotterel (*Charadrius morinellus*), population unknown, qualifying feature of Ben Wyvis SPA, • osprey (*Pandion haliaetus*), 1 territory, • golden eagle (*Aquila chrysaetos*) 2 territories, and • and peregrine (*Falco peregrinus*), 2 territories. In addition, unknown, but expected breeding Schedule I / Annex I and / or Birds of Conservation Concern (BoCC) red-list species within 10 km (and / or their maximum foraging range), and thereby with connectivity to the proposed development: • Red kite (*Milvus milvus),* • goshawk (*Accipter gentilis),* • honey buzzard (*Pernis apivorus*), and • merlin, (*Falco columbarius*). There is the potential for barrier effects and collision risks to protected species during operation and an Amber rating is applied.	M
Cultural Heritage		
Topics	**Potential Impacts**	**RAG Impact Rating**
Designations	A Moderate rating has been applied to account for the close proximity and likely setting effect on Little Garve, bridge over Black Water. Given the known archaeological presence in the wider area, there remains a risk to impact previously unknown / unidentified archaeology (extant or buried).	M
Cultural Heritage Assets	A Low rating is applied for Cultural Heritage assets as a result of the limited potential to introduce settings impacts to a cluster of listed buildings located to the southwest in Lochluichart.	L
People		
Topics	**Potential Impacts**	**RAG Impact Rating**
Proximity to dwellings	Route Option 3 does not pass any residential communities in close proximity, however there are scattered residential properties situated across the open landscape. Route Option 3 does pass within close proximity to the hamlets of Gorstan and Little Garve however, as per the assumptions of the assessment to use avoidance and micro-siting in all instances where possible, no direct impacts are anticipated for this route and a Green rating is applied.	L

Landscape and Visual Amenity		
Topics	**Potential Impacts**	**RAG Impact Rating**
Designations	Route Option 3 does not pass through/fall within an inventoried Garden and Designed landscape. There are no inventoried Garden and Designed Landscapes located within 5 km of Route Option 3. The Route Option does not pass through a National Scenic Area. There are no National Scenic Areas within 5 km of Route Option 3. The eastern extent of Route Option 3 overlaps with the Ben Wyvis Special Landscape Area designated by The Highland Council. Route Option 3 does not pass through a Wild Land Area (WLA). The Rhiddoroch – Beinn Dearg – Ben Wyvis WLA is located 300 m to the east of the Route Option. Fisherfield - Letterewe – Fannichs WLA is located within 5 km of Route Option 3. Although Route Option 3 does overlap with the Ben Wyvis SLA, it is anticipated that avoidance and micrositing will be applied. Route Option 3 has the potential to impact the special qualities of nationally and/or regionally designated landscapes and therefore an Amber rating is applied.	M
Character	Route Option 3 passes through three landscape character types. These comprise 331 - Rounded Rocky Hills - Ross & Cromarty, 329 - Rounded Mountain Massif, and 330 - Rounded Hills and Moorland Slopes - Ross & Cromarty. The Route Option is unlikely to compromise the defining landscape features and/or key characteristics of the landscape character type, due to the existing infrastructure in the area, and therefore a Green rating is applied.	L
Visual Amenity	Visual receptors are likely to include: • Residents of scattered properties including Corriemoillie and small settlements including Gorstan and Little Garve.. • Users of the A832 and the A835. Note that Route Option 3 is likely to be prominent in views from the A832 as the corridor closely parallels the road alignment and partially aligns in close proximity to the A835. • Users of the Inverness to Kyle of Lochalsh railway line. • Users of/visitors to Forestry Land Scotland facilities at Little Garve in addition to the Black Water River. Owing to Route Option 3's proximity to key visual receptors the Route Option is likely to result in potentially significant adverse impacts on the visual amenity of people in the vicinity of the proposed Route Option and therefore an Amber rating has been applied.	M

Land Use		
Topics	**Potential Impacts**	**RAG Impact Rating**
Agriculture	Agricultural land within Route Option 3 has a land capability between 5.10 and 7 and therefore a Green rating for low impact has been applied. The higher class is 5.1 - Land capable of use as improved grassland. Few problems with pasture establishment and maintenance and potential high yields	L
Forestry	An Amber rating is applied as the route passes round conifer plantation woodland and avoids interaction with areas of commercial forestry.	M
Recreation	Route Option 3 may compromise the recreational amenity of the two core paths in the area, especially near the settlement of Little Garve. As such, an Amber RAG rating is applied.	M

Planning		
Topic	**Potential Impacts**	**RAG**
Planning	A planning appraisal against the Highland-Wide Local Development Plan 2012[3] has been conducted and is described below. Please note that the UGC benefits from PD rights and does not require a planning application to be made under the TCPA.	M

Policy /Document	Appraisal
Policy 28 – Sustainable Design	The Proposed Development will promote and enhance the social, economic and environmental wellbeing of the wider area through its support for renewable energy and therefore is in line with Policy 28.
Policy 30 – Physical Constraints	As part of the route optioneering process SSEN Transmission will undertake a full suite of environmental appraisals in order to select a route with the minimal level of impact on the surrounding environment and any physical constraints including flood risk areas and rights of way.

[3] Highland_wide_Local_Development_Plan (1).pdf

	Policy 36 – Development in the Wider Countryside	The Proposed Development is deemed to not be significantly detrimental to the wider countryside and is therefore deemed to be in compliance with Policy 36.	
	Policy 47 – Safeguarding Inbye/Apportioned Croftland	The Proposed Development does not impact on any known croftland and therefore is in compliance with Policy 47.	
	Policy 51 – Trees and Development	As part of their commitment to replacement planting of any trees lost to development SSEN Transmission will undertake compensatory planting of any trees lost during the construction of the Route, ideally within the same geographical area if possible.	
	Policy 52 – Principle of Development in Woodland	Whilst it is likely that loss of some woodland will be required as part of the proposed Development the construction of the Route offers clear and significant public development due to it allowing the Carn Fearna WF scheme to be developed, in line with Scotland's net zero carbon emission strategy for its electricity generation network. Where any woodland is removed SSEN Transmission commit to compensatory planting.	
	Policy 72 – Pollution	SSEN Transmission will prepare a robust environmental appraisal prior to construction to assess and mitigate any potential pollutants.	
	Policy 55 – Peat and Soils	During the Routeing and Alignment selection phases SSEN Transmission will seek to choose a final alignment that avoids all known areas of peat. In such cases where disturbance to known peat deposits is unavoidable SSEN Transmission will produce a peat management plan in consultation with the Scottish Environment Protection Agency (SEPA) to demonstrate how any impacts from the Proposed Development have been minimised and mitigated.	
	Policy 57 – Natural, Built and Cultural Heritage	SSEN Transmission are of the view that the routeing selection process will lead to a chosen alignment that can satisfactorily demonstrate that the Proposed Development will not have an unacceptable impact on the natural environment, amenity and heritage resource. This will be assessed via an environmental appraisal of the OHL Route.	
	Policy 58 – Protected Species	As part of the routeing selection process habitat surveys for protected species will be undertaken to establish the presence and if necessary a mitigation plan to avoid or minimise any impacts on the species at the alignment stage.	

Policy 59 – Other Important Species	As part of the routeing process an assessment of the impacts on other important species will be undertaken and effects will be avoided and/or mitigated at the alignment and environmental appraisal stages.	
Policy 60 – Other Important Habitats and Article 10 Features	As part of the routeing selection process habitat surveys will be undertaken to establish the presence and if necessary a mitigation plan to avoid or minimise any impacts on these at the alignment and environmental appraisal stages.	
Policy 61 – Landscape	The Proposed Development is primarily OHL with sections of UGC. The potential impacts on the landscape will be mitigated throughout the selection of a Route and Alignment.	
Policy 77 – Public Access	Should it prove necessary to impact upon a Core Path during the construction Stage SSEN Transmission will seek to divert it for as short a period as possible to allow for construction works to take place.	
Policy 78 – Long Distance Routes	The Proposed Development may have a direct or indirect adverse effects on the closest Long Distance Routes, namely elements of the National Cycle Network. A mitigation plan will be put in place by SSEN Transmission.	
Policy 63 - Water Environment	A hydrological appraisal will be undertaken to avoid and mitigate any impacts to the water environment.	
Policy 64 – Flood Risk	The Proposed Development is not located within known areas of river or coastal flooding according to the SEPA flood risk mapping. Any considerations of surface water flooding will be assessed and if required mitigated.	
Policy 65 – Surface Water Drainage	SSEN Transmission will propose a design that will limit potential for surface water drainage issues.	
Policy 69 – Electricity Transmission Infrastructure	The Proposed Development will not have an unacceptable significant impact on the environment, including natural, built and cultural heritage features, particularly as it is undergrounded and therefore should be supported by the Council in line with Policy 69.	
Route Option 3 is in full compliance with national, regional and local applicable planning policy. An Amber rating has been applied as the Route Option may be inconsistent with other third party proposals known to the planning system.		

Proposed Route Options

- Route Option 1
- Route Option 2
- Route Option 3
- Indicative Corriemoillie Substation Extension

Existing OHL

- Existing 132kV OHL

0 250 500 750 1,000 1,250 Metres

N

SCALE: See Scale Bar	VERSION: A01
SIZE: A3	DRAWN: DN
PROJECT: 0738456	CHECKED: LS
DATE: 15/08/2024	APPROVED: KG

Figure 1.1
Carn Fearna Proposed Routing Options

ERM

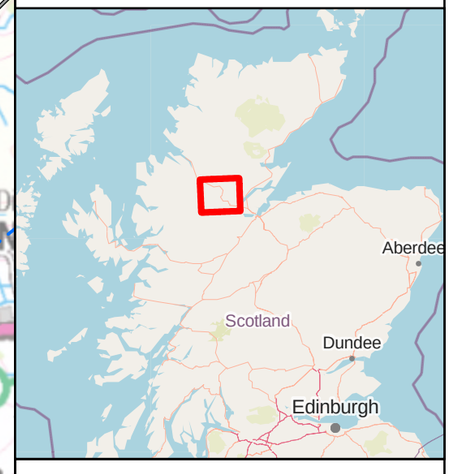
Scottish & Southern Electricity Networks TRANSMISSION

PROJECTION: British National Grid

Path: \\uksprdgisfs01\Data\London\Projects\0738903 - Abhainn Dubh & Carn Fearna\Map\0738903 - Carn Fearna.aprx

Proposed Route Options
- Route Option 1
- Route Option 2
- Route Option 3
- Indicative Corriemoillie Substation Extension
- Carn Fearna - Proposed Route Options - 10km Buffer
- Proposed Spittal to Loch Buidhe to Beauly OHL

Existing OHL
- Existing 132kV OHL
- Existing 275kV OHL



0 1 2 3 4 5
Kilometres

SCALE: See Scale Bar	VERSION: A01
SIZE: A3	DRAWN: DN
PROJECT: 0738456	CHECKED: LS
DATE: 09/08/2024	APPROVED: KG

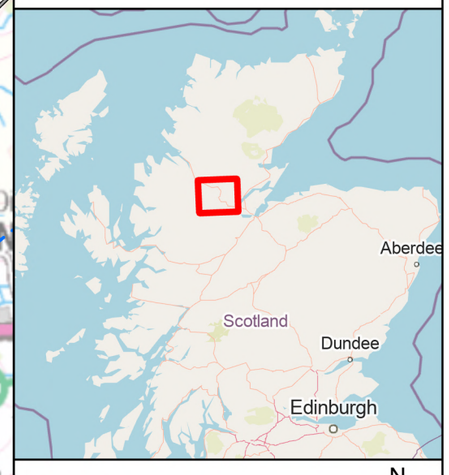
Figure 2.1
Carn Fearna Routeing Options Study Area

ERM

Scottish & Southern Electricity Networks TRANSMISSION

PROJECTION: British National Grid

Proposed Route Options
Route Option 1
Route Option 2
Route Option 3
Indicative Corriemoillie Substation Extension
Carn Fearna - Proposed Route Options - 10km Buffer
Proposed Spittal to Loch Buidhe to Beauly OHL
Existing OHL
Existing 132kV OHL
Existing 275kV OHL



0 1 2 3 4 5
Kilometres
N

SCALE: See Scale Bar	VERSION: A01
SIZE: A3	DRAWN: DN
PROJECT: 0738456	CHECKED: LS
DATE: 15/08/2024	APPROVED: KG

Figure 3.1
Carn Fearna Routeing Options Study Area

ERM

Scottish & Southern Electricity Networks TRANSMISSION

PROJECTION: British National Grid

Path: \\uksprdgisfs01\Data\London\Projects\0738903 - Abhainn Dubh & Carn Fearna\Map\0738903 - Carn Fearna.aprx / 0738903 - Carn Fearna - Fig 3.1 - Routeing Option Study Area - A01

Proposed Route Options

- Route Option 1
- Route Option 2
- Route Option 3
- Indicative Corriemoillie Substation Extension
- Proposed Spittal to Loch Buidhe to Beauly OHL

Existing OHL

- Existing 132kV OHL

0 250 500 750 1,000 1,250

Metres

N

SCALE: See Scale Bar	VERSION: A01
SIZE: A3	DRAWN: DN
PROJECT: 0738456	CHECKED: LS
DATE: 15/08/2024	APPROVED: KG

Figure 4.1
Carn Fearna Proposed Routeing Options

ERM

Scottish & Southern Electricity Networks TRANSMISSION

PROJECTION: British National Grid

Path: \\uksprdgisfs01\Data\London\Projects\0738903 - Abhainn Dubh & Carn Fearna\Map\0738903 - Carn Fearna.aprx / 0738903 - Carn Fearna - Fig 4.1 - Routeing Option - A01

Proposed Route Options

- Route Option 1
- Route Option 2
- Route Option 3
- Indicative Corriemoillie Substation Extension
- Carn Fearna Proposed Routes 5km Buffer

Natural Heritage Constraints

- Carbon And Peatland - Class 1 Importance
- Carbon And Peatland - Class 2 Importance
- Wildcat Protection Areas
- Ancient Woodland Inventory (AWI)
- Special Areas Of Conservation (SAC)
- Special Protection Areas (SPA)
- Sites Of Special Scientific Interest (SSSI)

0 1 2 3 Kilometres

N

SCALE: See Scale Bar	VERSION: A01
SIZE: A3	DRAWN: DN
PROJECT: 0738456	CHECKED: LS
DATE: 15/08/2024	APPROVED: KG

Figure 5.1
Carn Fearna Routeing
Natural Heritage Constraints

ERM

Scottish & Southern Electricity Networks TRANSMISSION

PROJECTION: British National Grid

Path: \\uksprdgisfs01\Data\London\Projects\0738903 - Abhainn Dubh & Carn Fearna\Map\0738903 - Carn Fearna.aprx / 0738903 - Carn Fearna - Fig 5.1 - Routeing Natural Heritage Constraints - A01

Proposed Route Options

- Route Option 1
- Route Option 2
- Route Option 3
- Indicative Corriemoillie Substation Extension
- Carn Fearna Proposed Routes 5km Buffer

Cultural Heritage Constraints

- Scheduled Monument
- Garden and Designed Landscape
- Category A Listed Building
- Category B Listed Building
- Category C Listed Building

0 1 2 3 Kilometres

N

SCALE: See Scale Bar	VERSION: A01
SIZE: A3	DRAWN: DN
PROJECT: 0738456	CHECKED: LS
DATE: 15/08/2024	APPROVED: KG

Figure 5.2
Carn Fearna Routeing
Cultural Heritage Constraints

ERM

Scottish & Southern Electricity Networks TRANSMISSION

PROJECTION: British National Grid

Path: \\uksprdgisfs01\Data\London\Projects\0738903 - Abhainn Dubh & Carn Fearna\Map\0738903 - Carn Fearna.aprx / 0738903 - Carn Fearna - Fig 5.2 - Routeing Cultural Heritage Constraints - A01

Proposed Route Options

- Route Option 1
- Route Option 2
- Route Option 3
- Indicative Corriemoillie Substation Extension
- Carn Fearna Proposed Routes 5km Buffer

Landscape and Visual Constraints

- Core Paths
- Garden and Designed Landscape
- Wild Land

0 1 2 3 Kilometres

N

SCALE: See Scale Bar	VERSION: A01
SIZE: A3	DRAWN: DN
PROJECT: 0738456	CHECKED: LS
DATE: 15/08/2024	APPROVED: KG

Figure 5.3
Carn Fearna Routeing
Landscape and Visual Constraints

ERM

Scottish & Southern Electricity Networks TRANSMISSION

PROJECTION: British National Grid

Path: \\uksprdgisfs01\Data\London\Projects\0738903 - Abhainn Dubh & Carn Fearna\Map\0738903 - Carn Fearna.aprx / 0738903 - Carn Fearna - Fig 5.3 - Routeing Landscape and Visual Constraints - A01