Scottish & Southern Electricity Networks

TRANSMISSION

Report on Consultation (Routeing Stage)

Connagill Cluster Grid Connections

April 2024

REF: LT559, LT560, LT319, LT522, PT961 and LT421

Scottish & Southern Electricity Networks

TRANSMISSION

CONTENTS

Figures

GLOSSARY

Term	Definition
Alignment	A centre line of an overhead line (along with location of key angle structures) or underground cable.
Alignment (optimal)	An alignment for the overhead line or underground cable taken forward to stakeholder consultation following a comparative appraisal of alignment options.
Alignment (proposed)	An alignment taken forward to consent application. It comprises a defined centre line for the overhead line (or underground cable) and includes an indicative support structure (tower or pole) schedule, also specifying access arrangements and any associated construction facilities.
Amenity	The natural environment, cultural heritage, landscape and visual quality. Also includes the impact of SSEN Transmission's works on communities, such as the effects of noise and disturbance from construction activities.
Biodiversity Net Gain (BNG)	A process intended to leave nature in a better state than it started using good practice principles established by the Business and Biodiversity Offset Programme (BBOP) and organisations including CIRIA, CIEEM and IEMA.
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.
Design Solution	The design of the transmission infrastructure (e.g. structure type).
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)	A unit of electrical power equal to one thousand watts.
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).
Megawatt (MW)	A unit of electrical power equal to one million watts.
Micrositing	The process of positioning infrastructure to avoid localised environmental or technical constraints.
Mitigation	Term used to indicate avoidance, remediation or alleviation of adverse impacts.
Overhead line (OHL)	An electric line installed above ground, usually supported by steel lattice towers or wood poles.
Plantation Woodland	Woodland of any age that obviously originated from planting.
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.
Route (optimal)	A route for the overhead line or underground cable taken forward to stakeholder consultation following a comparative appraisal of route options.

Term	Definition
Route (proposed)	A route taken forward following stakeholder consultation to the alignment selection stage of the overhead line or underground cable routeing process.
Routeing	The work undertaken which leads to the selection of a proposed alignment, capable of being taken forward into the consenting process.
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'.
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 Protection Area (SPA)	An area designated under the Wild Birds Directive (Directive74/409/EEC) to protect important bird habitats.
Special Landscape Area (SLA)	Landscapes designated by the Highland Council which are considered to be of regional/local importance for their scenic qualities.
Stakeholders	Organisations and individuals who can affect or are affected by SSEN Transmission works.
Study Area	The area within which the Corridor, route and alignment study takes place.
The National Grid	The electricity transmission network in the Great Britain.
Underground Cable (UGC)	An electric cable installed below ground, protected by insulating layers and marked closer to the surface to prevent accidental damage through later earthworks.
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 SSEN Transmission.

PREFACE

This Report on Consultation has been prepared by ASH design and assessment Ltd. (ASH) on behalf of Scottish and Southern Electricity Networks Transmission (SSEN Transmission) to provide a summary of the responses received from key stakeholders (including statutory and non-statutory consultees, local communities, and individual residents) during consultation undertaken between August 2023 and February 2024 in relation to the routeing of five consented and/or proposed wind farms in the Strathy area of Sutherland. Together, the projects are known as the 'Connagill Cluster Grid Connections'.

A Consultation Document[1] was published in December 2023 which sought comments on the proposals, the approach to route selection, the analysis of route options and the identification of optimal routes for the Strathy South, Strathy Wood and Armadale grid connections[2]. The Consultation Document is available from this website: www.ssen-transmission.co.uk/projects/project-map/Connagill-Cluster/.

Prior to this, a public consultation event was held at Strathy Village Hall in November 2023, where visitors were able to engage directly with the project team, to ask any questions they might have about the project and share their feedback on the current proposals. Exhibition materials remain available via the project website.

SSEN Transmission also undertook consultation with statutory consultees via a Teams meeting hosted by The Highland Council in August 2023 to introduce the project and seek preliminary feedback.

This Report on Consultation describes how the feedback from consultation has informed the identification of the proposed routes to be taken forward to the alignment selection stage of the project. This Report on Consultation also provides a summary of how SSEN Transmission have responded to comments received by key stakeholders during the consultation process and details the actions that will be taken as the project progresses through to the alignment stage.

[1] SSEN Transmission (December 2023), Connagill Cluster Grid Connections Consultation Document

[2] Due to the short section of 132 kV wood pole OHL required for the Melvich and Kirkton grid connections, only alignment options have been identified for these projects, which will be consulted on at alignment selection stage.

EXECUTIVE SUMMARY

Scottish Southern Electricity Networks Transmission (SSEN Transmission) is proposing to construct new transmission infrastructure in the Strathy area of Sutherland in the north of Scotland, that is required to connect five consented and/or proposed wind farms to the existing transmission network at Connagill 275/132 kV substation. Together the projects are known as the 'Connagill Cluster Grid Connections'. The wind farms include the consented Strathy South and Strathy Wood wind farms and the proposed Armadale, Melvich and Kirkton wind farms. The grid connection projects are recognised as National Development under National Planning Framework 4. To facilitate the five grid connections, a new switching station would also be required.

SSEN Transmission has aimed to streamline the pre-application consultation and routeing process of each connection to allow stakeholders the opportunity to review the Connagill Cluster as a whole, allowing the opportunity to consider the consolidation of infrastructure and construction practices where practicable.

A Consultation Document[1] was published in December 2023 which sought comments from stakeholders on the proposals, the approach to route selection, the analysis of route options and the identification of optimal routes for the consented Strathy South, Strathy Wood and proposed Armadale connections. Due to the short section of 132 kV wood pole OHL required for the Melvich and Kirkton grid connections, SSEN Transmission considered that route optioneering was not necessary. Instead, these connections will be consulted on at alignment optioneering stage. A separate site selection exercise will be undertaken and consulted upon for the proposed switching station.

Prior to the publication of the Consultation Document, a public exhibition was held in November 2023, providing attendees with an opportunity to view exhibition boards, maps, and a chance to share views and ask questions about the proposals by directly engaging with the project team.

The comments received throughout the consultation process have illustrated a general acceptance of the optimal routes and design solutions put forward for the Strathy Wood and Strathy South Grid Connections (both northern and southern extents, including the northern alternative).

Some concerns were expressed by Historic Environment Scotland (HES) with the optimal route for the Armadale grid connection and requested that this choice be revisited. Further consultation took place with HES in March 2024 to discuss the concerns raised in relation to potential impact on the setting of the Armadale Broch scheduled monument and allowed SSEN Transmission to further explain the engineering challenges associated with the crossing of the Armadale gorge using trident wood pole technology. To explore an alternative crossing point of the gorge would require a variation in design solution to steel lattice tower, thereby creating other environmental risks. SSEN Transmission agreed with HES that further justification would be recorded within this report for HES to formally respond upon. SSEN Transmission acknowledge HES' concerns and will endeavour to continue to engage with HES to minimise impacts on the monument, as far as possible, at alignment selection stage.

The optimal routes for each connection identified within the Consultation Document are shown on **Figure 1**. Following review and consideration of responses received during the consultation period (August 2023 to February 2024), SSEN Transmission confirm that each of the optimal routes identified will be taken forward as the Proposed Route to the alignment stage for the Strathy South, Strathy Wood and Armadale connections.

1. INTRODUCTION

1.1 Background and Purpose of Document

1.1.1 Scottish and Southern Electricity Networks (SSEN Transmission), operating under licence held by Scottish Hydro Electric Transmission plc, owns, operates and develops the high voltage electricity transmission system in the north of Scotland and remote islands.

1.1.2 SSEN Transmission is proposing to construct grid connections to connect five consented and/or proposed wind farm developments to the existing transmission network at Connagill 275/132 kV substation, all located within proximity to each other, in the Strathy area of Sutherland. Together, the projects are known as the 'Connagill Cluster Grid Connections project'. The wind farms include:

- Consented Strathy South Wind Farm (comprising 39 turbines with 208 MW capacity);
- Consented Strathy Wood Wind Farm (comprising 11 turbines with 62.4 MW capacity);
- Proposed Armadale Wind Farm and Battery Energy Storage System (BESS) (comprising 9 turbines with 85.4 MW capacity);
- Proposed Melvich Wind Farm and BESS (comprising 12 turbines with 99.6 MW capacity); and
- Proposed Kirkton Wind Farm and BESS (comprising 11 turbines with 72.8 MW capacity).

1.1.3 The proposed connections are in accordance with agreements between SSEN Transmission, National Grid Electricity System Operator (as operator of the National Grid), and each wind farm developer.

1.1.4 To facilitate the five grid connections, a new switching station, known as Strathy Switching Station, would also be required.

1.1.5 Although the connections are under separate connection agreements, SSEN Transmission has decided to streamline the pre-application consultation and routeing process in order to allow stakeholders to review the connections that make up the Cluster as a whole. This also provides the opportunity to consider the consolidation of infrastructure and construction practices where practicable.

1.1.6 This Report on Consultation documents the consultation process for the project between August 2023 and February 2024, during the route option stage of the project. The programme of consultation was designed to engage with key stakeholders including statutory and non-statutory consultees, local communities and individual residents in order to invite feedback on the rationale for and approach to, the selection of the optimal route option for each connection[3].

1.1.7 The report describes the key responses received and details the actions taken in response to the issues raised. The report also confirms the Proposed Routes to be taken forward to the alignment selection stage of the project.

1.2 Objectives

1.2.1 The objectives of this report are:

- To document the consultation process between August 2023 and February 2024;
- To summarise feedback received from stakeholders;
- To document actions undertaken in response to feedback where relevant; and

[3] Identified within the Connagill Cluster Grid Connections Consultation Document (May 2022), produced by SSEN Transmission

- To clearly set out how the optimal route for each connection has been informed by the consultation process, prior to confirming the Proposed Routes.

1.3 Document Structure

1.3.1 This Report on Consultation is structured as follows:

- Section 1: Introduction - setting out the purpose of the Report on Consultation;
- Section 2: Project Overview – outlines the background to the project and provides a description of the key elements;
- Section 3: Consideration of Route Options – describes how the optimal routes were identified for each connection;
- Section 4: The Consultation Process – describes the framework for consultation and methods which have been employed;
- Section 5: Consultation Responses from Statutory and Non-Statutory Consultees - summarises the responses from these bodies;
- Section 6: Community Consultation Responses from the Public Exhibition – summarises the range of responses and key comments and issues arising through the consultation process;
- Section 7: Summary of Responses – summarises the key comments and issues raised for each grid connection during consultation and how they will be addressed; and
- Section 8: Conclusions and Next Steps – provides a summary of the conclusions reached and actions going forward.

2. PROJECT OVERVIEW

2.1.1 A summary of the project history, the need for the project and the optimal technology solution is provided below. More detailed information is set out in the Consultation Document[1].

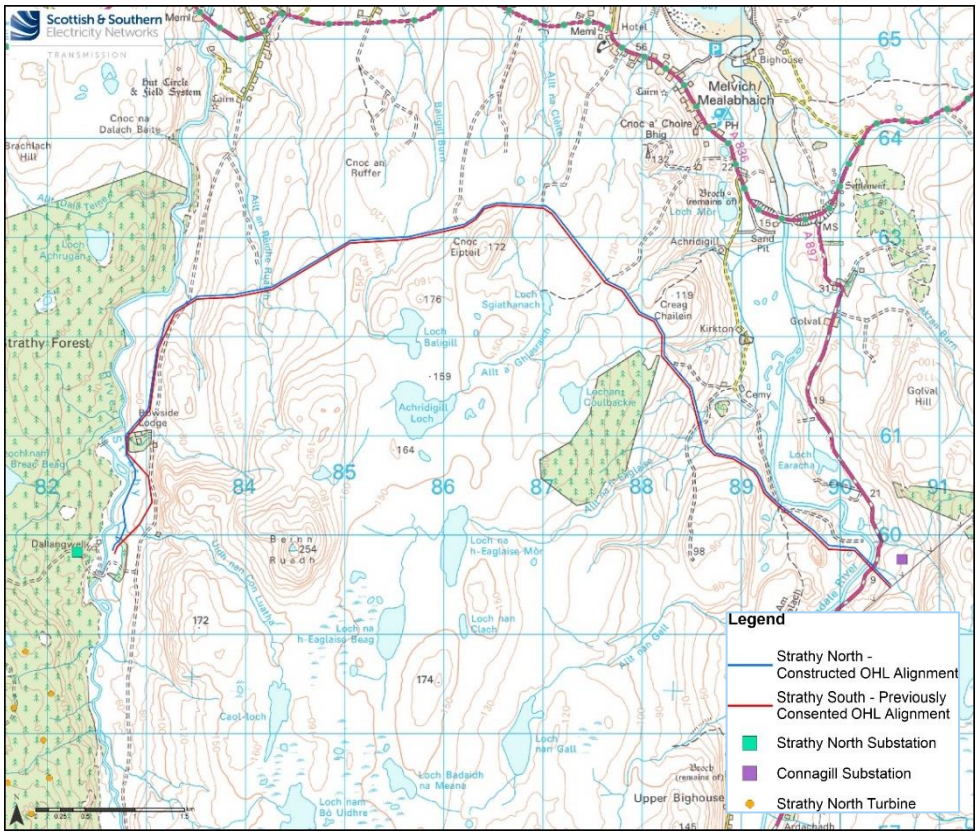
2.1 Project History

2.1.1 In 2013, SSEN Transmission sought consent for the construction of two parallel 132 kV trident wood pole OHL's; one to connect the consented Strathy North Wind Farm to the National Grid and the other to provide a connection for the (at the time) proposed Strathy South Wind Farm. These connections were collectively referred to as Strath Halladale to Dallangwell 132 kV Connection (see **Plate 2.1**).

2.1.2 Consent was granted by the Energy Consents Unit in February 2014 and construction of one of the OHLs (to connect Strathy North Wind Farm to the national grid) was completed in 2015. The second consented OHL was not constructed due to delays in consenting of Strathy South Wind Farm, and as such, the Section 37 consent for the second OHL has now lapsed.

2.1.3 The point of connection consented in 2013 for the Strathy South OHL was to Strathy North Wind Farm, near Dallangwell. The wind farm developer has since opted to change the point of connection to the on-site Strathy South wind farm substation which has resulted in additional studies being required.

Plate 2.1: Consented Strath Halladale to Dallangwell 132 kV Grid Connection



2.1.4 In 2021, SSEN Transmission commenced optioneering studies to connect the consented Strathy Wood and Strathy South wind farms and proposed Armadale wind farm to the transmission network at Connagill 275/132 kV substation. The optimal technological solution for each of these connections was initially via

OHL's supported by trident H-wood pole, and it was on this basis that SSEN Transmission completed a routeing exercise, which was presented at a virtual consultation event in February 2022.

2.1.5 Since the February 2022 consultation, SSEN Transmission have received requests to provide two further connections in the area; for the proposed Melvich and Kirkton projects, both of which would also connect into Connagill 275/132 kV substation. It became clear that the addition of two further OHLs, alongside the Strathy Wood, Strathy South and Armadale connection proposals, as well as the existing Strathy North trident H-wood pole 132 kV OHL, would not be the optimal solution from a technical or environmental perspective, particularly where all connections would converge within the vicinity of Connagill 275/132 kV substation. As such, a review of the connection requirements for each project was undertaken with the aim of identifying a rationalised approach across the five connections.

2.2 Optimal Technology Solution

2.2.1 As part of the review to find a rationalised approach, SSEN Transmission considered various technology options, including the potential use of underground cable in areas more constraining to OHL, such as in the vicinity of proposed or consented wind turbines or areas where sensitive bird species are known to be present.

2.2.2 The review concluded that a rationalised approach could be achieved across the five connection projects as follows:

Table 2.1: Optimal Technology Solutions

Project	Technology Solution	Description
Strathy South and Strathy Wood Wind Farms	132 kV underground cable	From Strathy South Wind Farm on-site substation to a point in the vicinity of Strathy Wood Wind Farm on-site substation.
	132 kV OHL supported by steel structure	From Strathy Wood substation, a new 4.25 km double circuit 132 kV OHL supported by steel structures would be constructed to a 'T' on to the existing Strathy North to Connagill trident H-wood pole OHL near Dallangwell. This would transport electricity generated by Strathy Wood wind farm initially. This arrangement of tee-ing onto the existing wood pole OHL would be a temporary arrangement until the next section of connection (as described below) is constructed, at which point electricity generated by Strathy South wind farm would also utilise the OHL.
	132 kV OHL supported by steel structure	A new 12 km double circuit 132 kV OHL supported by steel structures would be constructed to continue the connection between the Strathy North 'T' (at Dallangwell) to Connagill substation. The structures would be capable of operating at 275 kV in the future, if required. Following completion of this section, Strathy Wood and Strathy North would be transferred over to the new structure and redundant parts of the existing trident H-wood pole OHL removed.
Armadale Wind Farm	132 kV trident wood pole OHL	The works would include a single circuit 15 km 132 kV trident H-wood pole OHL between Armadale wind farm substation to a 'T' onto the proposed double circuit 132 kV OHL. The proposed 132 kV OHL (set out above) would complete the connection into Connagill 275/132 kV substation.

Project	Technology Solution	Description
Melvich and Kirkton Wind Farms	132 kV trident wood pole OHL	These works would include a short span (<1 km) of single circuit 132 kV trident wood pole OHL between each wind farm substation and a 'T' on the existing Strathy North to Connagill trident H-wood pole OHL.
Existing Strathy North OHL	132 kV trident wood pole OHL	Once the 132 kV double circuit OHL is constructed, to further rationalise the project, the existing Strathy North to Connagill trident H-wood pole OHL would be removed between Strathy North substation, to a point, yet to be determined, but likely in proximity of Melvich substation. The section of wood pole OHL that would remain in place would be re-purposed for use by the Melvich and Kirkton connections into Connagill 275/132 kV substation.

2.2.3 To facilitate the five connections, a new switching station would also be required to collect all incoming circuits onto a double busbar before taking these through the 132 kV OHL supported by steel structure. The new switching station is currently at optioneering stage and SSEN Transmission will consult on this proposal separately.

2.3 Proposals Overview

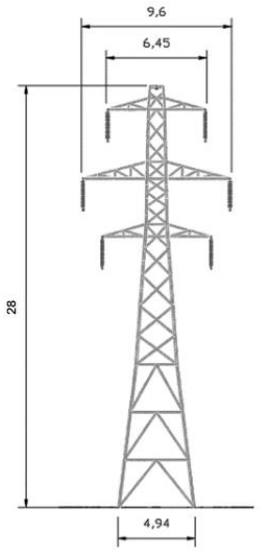
Overhead Line Design

2.3.1 Where steel structures are proposed, these will be of a lattice design and would comprise a 'L7' series of steel lattice tower. The span length (distance between towers) would vary slightly depending on topography and land usage. The span lengths for the Proposed Development would be between approximately 200 - 280 m. Tower heights would also vary, depending on local topography, but would typically be 27 m in height.

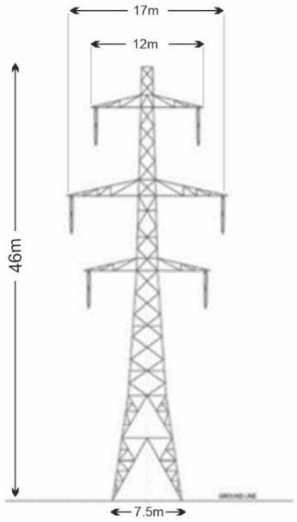
2.3.2 The proposed new H wood pole would have a nominal height of between approximately 13 – 16 m (including insulators and support), depending on ground conditions. The spacing between the poles would be approximately 80 m, subject to topography, altitude and further survey. This will also be confirmed prior to submission of an application for consent.

2.3.3 A schematic of the proposed steel lattice towers and wood poles is shown in **Plate 2.2** below.

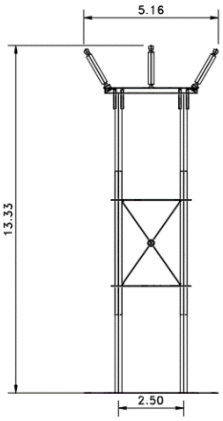
Plate 2.2: Proposed L7 and L8 Steel Lattice Tower and Proposed Wood Pole Typical Schematic



L7 Steel Lattice Tower



L8 Steel Lattice Tower



Trident 'H' Wood Pole

Underground Cable

2.3.4 A 132 kV UGC would be utilised for the connection from Strathy South Wind Farm on-site substation to a point in the vicinity of Strathy Wood Wind Farm on-site substation.

3. CONSIDERATION OF ROUTE OPTIONS

3.1 Introduction

3.1.1 The Consultation Document[4] sets out the approach to the consideration and appraisal of route options, in line with SHE Transmission's routeing guidance[5]. The guidance sets out SSEN Transmission's approach to selecting a route for an OHL.

3.1.2 In line with the principles outlined in the guidance document, the method of identifying an optimal route for each connection has involved the following 4 key tasks:

- identification of the baseline situation;
- identification of alternative route options;
- environmental, technical and economic analysis of route options; and
- identification of an optimal route.

3.2 Identification of Optimal Routes

3.2.1 The optimal routes for the Connagill Cluster Grid Connections have been selected on the basis that they are considered to provide an optimum balance of environmental, technical and economic factors. The optimal routes are shown on **Figure 1**.

[4] SSEN Transmission (December 2023). Connagill Cluster Grid Connections Consultation Document
[5] SSEN Transmission (September 2020), Procedures for Routeing Overhead Lines and Underground Cables of 132kV and above

4. THE CONSULTATION PROCESS

4.1 Overview

4.1.1 In accordance with SSEN Transmission's guidance[6], a process of combined consultation on the optimal routes for each connection has been undertaken.

4.2 Methods of Consultation

4.2.1 The following methods were used to consult on the optimal routes, as set out below.

Meeting with Statutory Consultees

4.2.2 SSEN Transmission attended a virtual Major Pre-application Meeting arranged by The Highland Council (THC) on 22nd August 2023. At this meeting, SSEN Transmission delivered a presentation on the route options (being considered at the time) to the representatives in attendance. This was followed with a round table discussion of each consultee's comments and suggested actions in relation to the proposals.

4.2.3 While no statutory consultees (i.e. NatureScot, Scottish Environment Protection Agency, Historic Environment Scotland or Transport Scotland) were able to attend the meeting, they did provide input into a Major Pre-application Response Pack that was issued by THC on 20th September 2023.

Public Consultation Event

4.2.4 To engage stakeholders on the project, SSEN Transmission undertook a public consultation event on the 30th November 2023 at Strathy Village Hall, between 15:00 – 19:00.

4.2.5 Visitors were able to engage directly with the project team where they could ask any questions, they might have about the project and share their feedback on the current proposals.

The consultation event was advertised on SSEN Transmission's social media channels and the dedicated project website were also used to advertise the consultation event. In addition, a letter mail drop letter informing of the event was also carried out to over 500 households within the vicinity of the Connagill Cluster Grid Connections proposals.

4.2.6 A total of 17 visitors attended the consultation event. A feedback form was distributed to visitors at the event to provide comments, and feedback was requested to be returned to SSEN Transmission by 12th January 2024. A total of five feedback forms were received by SSEN Transmission during or following the consultation event.

Consultation Document

4.2.7 The Connagill Cluster Grid Connections Consultation Document[1] was produced detailing the selection process for the optimal route for each connection, taking account of environmental, economic and technical factors. The Consultation Document was made available for download on 12th December 2023 from www.ssen-transmission.co.uk/projects/project-map/Connagill-Cluster/

4.2.8 The stakeholders in receipt of the Consultation Document or otherwise informed of the website include:

[6] SSEN Transmission (September 2020), Procedures for Routeing Overhead Lines and Underground Cables of 132kV and above

Statutory Consultees

- The Highland Council
- NatureScot
- Scottish Environment Protection Agency (SEPA)
- Historic Environment Scotland (HES)
- Transport Scotland
- The Scottish Government's Energy Consents Unit (ECU)

Non-Statutory Consultees

- RSPB Scotland (RSPB)

Councillors and Ward Councillors

- Various Councillors
- Strathy and Armadale Community Council
- Bettyhill, Strathnaver and Altnaharra Community Council

4.2.9 Feedback on the Consultation Document was initially requested by 26th January 2024. However, a two week extension was agreed with NatureScot until 9th February 2024.

4.2.10 Stakeholders were invited to provide feedback through the following methods:

- A series of questions were asked within the Consultation Document requesting comments on specific aspects of the project as follows:
    - Have we adequately explained the need for these Projects?
    - Do you feel sufficient information has been provided to enable you to understand what is being proposed on and why?
    - Are you satisfied that our approach taken to select our optimal routes and design solutions have been adequately explained?
    - Do you have any particular concerns or queries on the proposed connection projects?
    - Are there any factors, or environmental features, that you consider may have been overlooked during the optimal route selection processes?

5. CONSULTATION RESPONSES FROM STATUTORY AND NON-STATUTORY CONSULTEES

5.1 Introduction

5.1.1 The following part of this report sets out a summary of the feedback received from statutory and non-statutory consultees following the consultation period (August 2023 to February 2024), together with the response by SSEN Transmission, summarising any actions to be taken, where relevant.

Table 5.1: Statutory and Non-Statutory Consultee Feedback on Grid Connections

Stakeholder	Summary of Feedback	Response by SSEN Transmission
Statutory Consultees		
The Highland Council (THC)	**Strathy South and Strathy Wood Grid Connections – Southern Section**	
	The preferred route options appear to have not changed significantly from those presented at the Major Pre-application Meeting on 22 August 2023. As such, THC have no further comments.	This has been noted.
	Strathy South and Strathy Wood Grid Connections – Northern Section	
	The preferred route option appears to have not changed significantly from those presented at the Major Pre-application Meeting on 22 August 2023. As such, THC have no further comments.	This has been noted.
	Strathy South and Strathy Wood Grid Connections – Alternative Northern Section	
	It would be worthwhile considering an iteration of Route Option SN-C ALT 1, but with an underground cable section in the northern part of the route, where it runs closest to the A836 and settlements.	While SSEN Transmission consider OHL technology as a starting point for all connections, the use of UGC is also considered where appropriate, for example to mitigate a likely significant effect. However, it should be acknowledged that an UGC does not come without its own constraints. The installation of an UGC would comprise a working corridor of approximately 30 m, centred on the cable centreline, with new access track(s) created for construction and areas for spoil and storage created within the working corridor; this can result in additional land take and the potential for environmental effects, particularly during construction but also during the operational lifetime of UGC assets, particularly on habitats (including peatland) and hydrology. SSEN Transmission acknowledge that Route Option SN-C ALT 1 falls within the proposed Flow Country World Heritage Site and intend to minimise impacts, where possible, on this sensitive receptor. As OHLs cross over peatland, tower locations can be microsited to minimise impacts on peat, and the footprint of other infrastructure can also be designed to reduce impacts on peat, compared to an UGC. For UGCs longer than 1 – 2 km in length, additional above ground infrastructure would be needed, enlarging the connections footprint. For example, the lengths of cable that

		can be safely spooled and transported on a cable drum for installation, along with the maximum tensions that the cables can withstand during cable pulling operations during installation, are restricted in length to sections of around 750 m – 1 km, due to their weight and dimensions. At each point where these sections of cable are jointed or connected together, there is a requirement for intermediate joint bays. These cable joint bays would result in some permanent above ground infrastructure in the form of manholes and link boxes which would be installed in a free-standing pillar arrangement to allow for ongoing maintenance access. For protection of the assets at these locations, the manholes and pillars would be contained within small, fenced compounds, with a footprint of approximately 5 m x 5 m and with one compound for each circuit. At each point, where an UGC transitions to an OHL, there is a requirement for a Cable Sealing End (CSE) compound. This would consist of a stoned hard standing platform with a security fence around its perimeter where the underground cabling would transition and connect to an overhead steel tower. The footprint of these compounds is estimated to be around 70 m x 70 m. As such, overground elements of infrastructure would still be required (and visible) for an underground connection. Using UGC limits the future flexibility of the network, adding additional connections or increasing circuit ratings is more intrusive than with the equivalent amendments to an OHL. UGCs also present challenges in maintenance and power restoration, especially if a fault occurs. Restoring power in the event of a cable fault can take significantly longer than for an OHL and often require extensive works, specialist resource and significant civil works to complete. Given these constraints and SSEN Transmission's responsibility for an economical and efficient transmission network, it is considered that OHL is the most appropriate choice of technology for this connection. Nevertheless, further environmental and engineering studies will be undertaken at alignment selection stage to seek to find an acceptable alignment, and to consider whether further mitigation is required to minimise potential effects.
	Armadale Grid Connection	
	The preferred route option, Route Option A4, appears to represent the optimal balance in terms of the environmental, cultural heritage, engineering, and cost constraints.	This has been noted.

NatureScot (NS)	NS are satisfied that the need for the Projects has been adequately explained, sufficient information has been provided to enable an understating as to what is being proposed and why; and NS are satisfied that the approach taken has been adequately explained.	These comments are welcomed.
	NS provided links to advice on the NS website: 'Advising on peatland, carbon rich soils and priority peatland habitats in development management' and 'Enhancing biodiversity'.	This comment is acknowledged.
	Caithness and Sutherland Peatlands SAC: The most likely habitats to be affected of the SAC are wet heathland with cross-leaved heath and blanket bog. There are several options for the Strathy South and Strathy Wood Grid Connection – Southern Section, with one avoiding the SAC (Route Option SS-SN3) and the others all within it. NS advises that any disturbance should take place outside the SAC to maintain the SAC Conservation Objectives. A proposed OHL through the SAC would be very challenging and NS would encourage alternative routes.	While SSEN Transmission acknowledge the environmental benefits of Route Option SS-SN3; technically, this route option would be very challenging to construct as it passes through Strathy North wind farm. If constructed as an OHL, this route would fall within the wind wake effect of the wind turbines and would not meet the required spacing between wind turbines and the OHL and, therefore, undergrounding Route Option SS-SN3 would be required. To support an UGC here, two double-circuit cable sealing end (CSE) compounds would be required at either end of the cable to convert to OHL. The compounds would include a stone hard-standing platform with a permitter palisade security fence, allowing the UGC to transition and connect to an overhead steel tower. The estimated footprint of these compounds is approximately 70 m x 70 m and they would also require permanent access tracks for operations and maintenance. These additional infrastructure elements would likely increase the potential environmental impacts of this option. The construction of an UGC through an operational wind farm would be very challenging due to the need to avoid interface with existing wind turbine UGC that would require adequate clearance to provide the required width of the working construction corridor. Similarly, future access for maintenance and operations would require third party permission through the wind farm to access and carry out works. From a technical and safety perspective, this route option is therefore not considered to be viable. Route Options SS-SN 2a and 2b have reduced presence within the natural heritage designations compared with other route options, and they both offer opportunities at alignment stage to avoid adverse effects on the qualifying habitats of the Caithness and Sutherland SAC by selecting an alignment which closely follows the existing access track and associated disturbed land adjacent to the track. Further discussion will be

		undertaken with NatureScot during the alignment selection stage of the project on the opportunities to minimise potential impacts on the SAC.
	NS require further information to be able to comment with regards to National Planning Framework (NPF)4: • Habitat (NVC) survey maps identifying areas/features mentioned in Annex 1 of NS guidance document. • Construction management plan detailing how construction methods will minimise impacts on peatland including direct disturbance and changes in hydrology. This should also include information on how maintenance and fault resolution will likely impact on the habitat. • Peat management plan. • Habitat management plan.	National Vegetation Classification (NVC) surveys have been carried out across the optimal routes and will be used to inform the alignment optioneering stage for each connection. The section 37 submissions for each grid connection will include further details on construction methodologies, a Peat Management Plan and a Habitat Management Plan.
	Caithness and Sutherland Peatlands SPA: Consideration must be given to SPA species so that conservation objectives of the site can be maintained. The proposals are likely to disturb and possibly displace SPA species through construction activity. There may also be significant effects on other species which would have to avoid OHLs whist flying to and from the sea to feed during the breeding season.	Ornithology surveys have been carried out across the cluster between October 2018 and August 2023 comprising flight surveys, moorland breeding bird surveys, scarce bird surveys, raptor surveys, black-throated diver focal watches and breeding diver surveys. In addition, a range of bird surveys have been completed for other existing, consented and proposed developments in the area, and the survey areas for some of these partially overlap the grid connections. These datasets will be used to inform an understanding of the baseline environment and will inform the alignment optioneering stage for each connection. Further consideration of the potential for impacts to the qualifying species of the Caithness and Sutherland Peatlands SPA species will be undertaken as the project progresses.
	The proposed and consented wind farms which are to be connected by this project will provide useful information with respect to SPA species distribution and movement and recommend they are consulted.	SSEN Transmission has approached the wind farm developers connected to the Connagill Cluster grid connection projects to request bird data collected to inform the alignment selection and EIA stages. Some of these datasets have been shared and will be drawn upon to inform the ornithological impact assessment, to support future applications of consent.
	Proposed Flow Country World Heritage Site (WHS): The proposed connections lie within and adjacent to the proposed WHS. As the proposals lie within Class 1 and Class 2 peatland habitats, we advise that:	Comment acknowledged. Peat depth probing and NVC habitat surveys have been undertaken and will be used to inform alignment selection and to minimise impacts on priority peatland habitats as far as possible.

	• The projects may result in loss of blanket bog and wet heath habitat within the proposed WHS. • The projects may result in impacts on the population and distribution of birds within the proposed WHS without mitigation. THC has produced a toolkit for developers to use to assess impacts to the WHS along with a Planning Position Statement.	SSEN Transmission has received a copy of the Draft Flow Country Toolkit template from THC. This will be used to assess the impacts on the WHS and will be reported in each section 37 submission documentation.
	NS advise that NVC habitat survey within the projects route corridors will provide a greater understanding of likely impacts with respect to the WHS.	Comment acknowledged. NVC habitat surveys have been undertaken and the data will be drawn upon to inform alignment optioneering. Upon confirmation of a proposed alignment, should further survey work be required to inform the impact assessment, this will be undertaken.
Historic Environment Scotland (HES)	HES consider that the consultation document adequately sets out the need for the project and that there is sufficient information to understand what is being proposed and why.	These comments are welcomed.
	HES are content that the methodology used to appraise the routes for the OHL is adequately explained, however, more detailed assessment of impacts on the historic environment will be required to gain a clear understanding of the potential level of those impacts.	These comments are acknowledged.
	At this stage, HES are concerned that the preferred Route Option A4 for the Armadale wind farm connection may lead to significant adverse impacts on the integrity of the setting of a scheduled monument which may require us to object to an application. Other routes in the cluster do not raise such significant issues.	This is noted. SSEN Transmission approached HES to arrange a meeting to discuss these concerns further (noted below).
	Armadale Grid Connection	
	HES previously gave advice on five route options (A1a, A1b, A2, A3a, and A3b) to THC's Major Pre-application Service on 04 September 2023. Two of these route options; Route Option A1a and A2, were routed across the Armadale Burn close to the A836. The other three route options were routed further to the south, traversing the burn at a point closer to the Armadale Burn Broch scheduled monument (SM13678). HES have only recently removed an objection to the proposed Armadale wind farm following amendments to the wind farm scheme to reduce impacts on the setting of Armadale Burn broch. HES' concerns are particularly with the more southerly three	A meeting between SSEN Transmission and HES took place on 11th March 2024 to discuss HES' concerns regarding the optimal route for the Armadale Grid Connection. The meeting was also attended by SSEN Transmission's archaeology consultant. SSEN Transmission provided further explanation as to the engineering challenges and technical risks faced with finding an optimal crossing point of the Armadale Gorge. Due to the width and gradient of the Armadale gorge, while not impossible, a crossing using trident H-wood pole technology is extremely challenging. The optimal route is located at the site of an historical ford, making the crossing point achievable via wood pole. Further engineering studies has confirmed that for all other route options considered,

	route options. Visualisations showing the potential impacts of all route options on the setting of the broch would be necessary in order to understand the impacts. HES note that a sixth route option, A4, has now been added to the potential route options for this OHL. Route Option A4 crosses the Armadale Burn to the south of the monument and is much closer to the broch than any of the other options. It is also the preferred route option at this stage. *Armadale Burn Broch Scheduled Monument:* Armadale Burn broch can be considered typical of others of this type. The broch has clearly been sited to take advantage of its prominent location, and the strong natural defences it provides, as well as clear views overlooking the Blàr Dubh to the west and the north / south gorge carrying the Armadale Burn. Setting: The Blàr Dubh forms a key part of the broch's setting. The landscape here is markedly lower than that of the flanking upland moors of and around Beinn Chuldail, and contains evidence of settlement and agricultural activity, some of which is likely to be contemporaneous with the broch. Several hut circles, burnt mounds, and cairn fields have been identified across the Blàr Dubh. Evidence for cultivation is limited to lynchets close to some of the hut circles, suggesting the land has been used largely to sustain the grazing of livestock. Armadale Burn broch will have formed a key component of this local economy in the Iron Age, and this is reflected in the commanding views it has over the Blàr Dubh and the economic support the plain will have provided. This setting mirrors that of other more densely populated areas of Iron Age settlement to the east and west at Strath Naver and Strath Halladale, though Armadale Burn broch is noteworthy as the lone broch in this landscape. Straths Naver and Halladale each contain several brochs, though these are much larger north-south straths which likely served as important communication routes and farming economies in the Iron Age. The smaller scale of the Blàr Dubh landscape suggests the area sustained a smaller community than those in Strath Naver or Strath Halladale, though the similar setting (adjacent to a watercourse, overlooking good agricultural land) expresses wider societal and communal ties and trends across the north of Scotland in the Iron Age. These aspects of the broch and its significance are readily appreciated on approaches to it and views out from it. Located midway between Strath Naver and Strath	the use of larger steel structures, which allow a greater span between towers, would be required to cross the gorge elsewhere. The use of steel structures could result in a number of additional environmental constraints. For example, in comparison to wood poles, steel lattice towers would require a larger operational corridor, which would have a greater impact on native birch woodland present at the gorge, as well as requiring a larger footprint, increased working areas (around the towers) and requirement for additional infrastructure (i.e. permanent access tracks), which may also lead to greater direct habitat loss and further loss, damage or fragmentation of habitats including peatland. Additionally, the increased height of the towers compared with wood poles may increase the risk of collision to some bird species. While SSEN Transmission have considered the use of an UGC, it has been confirmed that this would not be a viable option for crossing of the gorge. While HES state a preference for route options that would cross the Armadale broch scheduled monument to the north (of the optimal route); this would bring development in closer proximity to the A836 and settlement along it, with an OHL supported by steel towers at the gorge crossing point, appearing more prominent in views from built and outdoor receptors, particularly users of the North Coast 500 compared to a wood pole supported OHL at what SSEN Transmission consider the optimal crossing point. Moving the route further south (of the optimal route) is limited by the positioning of the proposed Armadale wind turbines. From an operational perspective, SSEN Transmission's guidance avoids locating transmission infrastructure within the wake zone of turbines due to the effects on the lifespan of the OHL. In addition, to the south of the optimal route lies the Caithness and Sutherland Peatlands SAC, SPA and Ramsar and Lochan Buidhe Mires SSSI; extending development to within these designated sites would result in the potential for direct impacts on qualifying species and features. In relation to Armadale Broch scheduled monument, a visualisation of an indicative OHL supported by trident H-wood pole within the optimal route, was prepared by SSEN Transmission and shared with HES ahead of the meeting in March (see **Figures 2.1-2.2 and 2.3 to 2.5**). The visualisation displays that there would be limited views to the west (across Blàr Dubh), which was flagged as an important part of the broch's setting by HES, albeit the

	Halladale, Armadale Burn broch points to links between these areas and may suggest broader community interests at the time of their construction and use. National importance: The monument is of national importance because it makes a significant addition to our understanding of the past, particularly Iron Age society in Sutherland, and the function, use, and development of brochs. Armadale Burn broch is a well-preserved example with identifiable architectural features including an entrance passage, internal features, and outerworks. Significant archaeological deposits are likely to survive in and around the broch, indicating activity and materials used in the broch's construction, use, and abandonment. The broch's location on a prominent knoll and the associated outerworks demonstrate how topography was exploited and accentuated by those who built brochs. The site can also add to our understanding of settlement patterns, social structure, and economic circumstances prevalent during the Iron Age in northern Scotland. The rationale given in the Consultation Document for the choice of Route Option A-4 is that the view north from the broch, along the gorge of the Armadale Burn, would be left open and this was identified as a key view. It also states that views to the west, from which the OHL would approach the broch, are not significant. HES disagree with this assessment. The flatter, lower-lying land to the west across the Blàr Dubh is a key aspect of the broch's setting and is considered important. The preferred route would be in very close proximity to the broch, with the corridor indicated for Route Option A-4 putting the OHL between 20 m and 230 m from the southern edge of the monument. At this distance, the proposals could have a significant adverse effect on the integrity of the monument's setting by introducing a distracting and imposing structure into a landscape in which the broch is currently both dominant and striking in its isolation. Route A4 also takes a path across the Blàr Dubh. Consequently, it would be very visible in views out from the broch and, because of its orientation, would likely appear to divide the Blàr Dubh in two. Views towards the broch would also be significantly affected, particularly as the trackways currently crossing the Blàr Dubh towards the broch would pass under the OHL at various points. The OHL would therefore seriously disrupt the currently unobstructed view towards the broch from across this plain, undermining its prominence and stature as a lone and imposing structure overlooking this landscape. Given the proximity of the proposals to the scheduled monument and the impacts on key aspects of the setting of the broch, it is likely that they would have an adverse	area is limited in recorded heritage assets. While contemporary historic assets (including hut circles and a burnt mound) are located to the south-west of the broch, these appear concealed in views from the (now reduced in height) broch behind intervening knolls, with no wood pole structures located between these assets and the broch (based on the indicative alignment shown on the visualisation) that would intrude visually. Similarly, there would be limited views eastwards due to intervening landform, with no wood pole structures visible in a key vista through the gorge to the north, from the broch. To the south-east of the broch there is a hut circle located on a promontory at the gorge crossing; careful placement of a pole structures would be required here to avoid any visual intrusion from the broch. These findings were substantiated by SSEN Transmission's consultant archaeologist who has visited the broch several times and is familiar with the locale having been involved in renewable and transmission schemes in the wider area for over a decade. SSEN Transmission acknowledge the concerns that HES have raised in relation to the proximity of development to the scheduled monument. However, as to not compromise other environmental receptors further, it is SSEN Transmission's intention to progress the optimal route as the Proposed Route to alignment selection stage; this would enable an OHL connection supported by wood pole structures to be progressed. SSEN Transmission will continue to engage with HES with the aim of identifying a mutually acceptable alignment; keeping development as far from the broch as is technically feasible, while recognising the technical challenges of crossing the gorge.

	impact on the integrity of the setting of the monument and raise issues of national interest. We therefore recommend that other route options are explored as alternatives to Route Option A-4. The other routes considered in the Consultation Document would likely have a lesser impact on the setting of Armadale Burn broch. While all of the other routes would cross the Armadale Burn to the broch's north, the impact would be less severe and would be affecting a less important aspect of the broch's setting. Route A1a is furthest from the monument and would therefore likely have the least impact on the setting of the scheduled monument, followed by Route A2. Although Routes A1b, A3a, and A3b are closer to the monument, they are still further away than Route A4 and would affect a less sensitive part of the monument's setting. The potential impacts on the setting of Armadale Burn broch from any of the proposed routes should be assessed in detail by experienced heritage professionals. Visualisations will be required to demonstrate the impacts of the proposals in the setting of the scheduled monument. These should be taken from the summit of the broch and from a location on the Blàr Dubh plain at around NGR NC 79383 62628.	
	Strathy South and Strathy Wood Grid Connections – Northern 'Alternative' Section	
	Halladale Bridge Scheduled Monument Route Option SN-C ALT 4 of the Strathy North to Connagill Alternative connection passes in close proximity (approximately 100m) to the Halladale Bridge hut circles scheduled monument. While this route would be visible from parts of the monument, it is unlikely to significantly affect its setting, and the monument's relationship with Strath Halladale would still be readily understood, appreciated and experienced. The Consultation Document states much of the line along this route would be screened by existing topography and forestry, and we are content to accept this analysis. We also note that Route Option SN-C ALT 4 is not the preferred route option and we would advise against choosing SNC ALT 4 if possible. If route SN-C ALT 4 is taken forward, we would recommend exploring as far as possible micrositing individual poles to ensure the OHL is obscured wherever feasible when viewed from Halladale Bridge hut circles. The Preferred Alternative Route, Route Option SN-C ALT 1, would not affect the monument's setting and would not raise concerns for this element of our remit.	This has been noted. Route Option SN-C Alt 4 is not the optimal route option.

	Bighouse, garden pavilion and walled garden (LB7160) Preferred Alternative Route Option SN-C ALT 1 has the potential to impact the east-west axial view from the Bighouse garden pavilion. There may also be potential for cumulative impacts alongside the proposed Melvich Wind Farm which should be taken into consideration. It is not yet clear whether these impacts on the setting of the category A listed building would be significant and further assessment should be undertaken.	This has been noted. Potential setting impacts on historic designated sites will continue to be reviewed as the project progresses through the alignment selection and EIA stages of the project.
	A photomontage showing the view from the garden pavilion looking west along the axial view towards the proposed OHL will be required to assist with the understanding of potential impacts on the setting of the buildings. It would be helpful if visualisations could also include the proposed Melvich Wind Farm to demonstrate potential cumulative impacts.	This has been noted. Following alignment selection stage, should this historic designated site be considered likely to be impacted by the OHL, further discussion will take place with HES regarding the requirement for a visualisation from this site.
	Other Grid Connections:	
	HES are content that all of the other Preferred and Alternative route options considered within the Consultation Document (for the Strathy South and Strathy Wood 'Southern' Section, Melvich Wind Farm and Kirkton Wind Farm) would not raise significant impacts for their interests.	Comments are welcomed and agreement with optimal route options is noted.
Scottish Environment Protection Agency (SEPA)	SEPA state that they have considered the Consultation Document and supporting information and have no site-specific comments. However, they are interested in the location of the proposed infrastructure within the proposed route corridors.	This has been noted and SEPA will be consulted further as the project progresses through alignment optioneering.
	SEPA refer to their pre-application response, dated August 2023, which is summarised below:	
	SEPA noted that as much of the site is likely to be peatland and/or wetland, NVC survey and peatland condition mapping should be carried out.	NVC and peat depth surveys have been carried out across the connections and results will be shared with SEPA during the alignment selection stage of the project to discuss opportunities to minimise potential impacts on peatland and/or wetland.
	To protect peatland and limit carbon emissions from carbon rich soils, the submission should demonstrate that: • Proposals avoid peatland in near neutral condition. • Minimise the total area and volume of peat disturbance.	This has been noted and detail will be provided in support of future applications for consent.

	• Clearly demonstrate how the infrastructure layout design has targeted areas where carbon rich soils are absent or the shallowest peat reasonably practicable and avoidance of peat >1 m depth. • Minimise impact on local hydrology. • Include adequate peat probing information to inform the site layout. As a minimum this should follow the requirements of the peatland survey – guidance on development on peatland (2017).	
	SEPA outline that the planning submission must be supported by a comprehensive site-specific Peat Management Plan (PMP) and Habitat Management Plan (HMP) including: • Proposals for re-use of disturbed peat in habitat restoration. • Details of restoration to compensate for the area of peatland habitat directly and indirectly impacted by the development. • Proposals for peatland enhancement in other areas. • Monitoring proposals.	Further consideration of potential impacts on peatland habitats will be undertaken as the project progresses. This will include a peat probing campaign, and the preparation of a Stage 1 Peat Management Plan, Peat Landslide Hazard and Risk Assessment and Habitat Management Plan, to support future applications of consent.
	Provided watercourse crossings are designed to accommodate 1 in 200 year flood event plus climate change and other infrastructure is located well away from watercourses, SEPA do not foresee, from current information, a need for detailed information on flood risk.	This has been noted.
	SEPA stated that where proposals are on peatland or carbon rich soils the following should be submitted to address the requirements of NPF4 Policy 5: a) Layout plans showing all permanent and temporary infrastructure, with extent of excavation required, which clearly demonstrates how the mitigation hierarchy outlined in NPF4 has been applied. These plans should be overlaid on: • Peat depth survey (showing peat probe locations, colour coded using distinct colours for each depth category and annotated at a useable scale) • Peat depth survey showing interpolated peat depths • Peatland condition mapping • NVC survey mapping	Further consideration of potential impacts on peatland habitats will be undertaken as the project progresses. This will include a peat probing campaign, and the preparation of a Stage 1 Peat Management Plan, Peat Landslide Hazard and Risk Assessment and Habitat Management Plan, to support future applications of consent.

	b) An Outline PMP. This plan should include: • Information on peatland condition • Information demonstrating avoidance and minimisation of peat disturbance. • Excavation volumes of acrotelmic, catotelmic and amorphous peat. These should include a contingency factor to consider the variable such as bulking and uncertainties in the estimation of peat volumes. • Proposals for temporary storage and handling. • Reuse volumes in different elements of site reinstatement and restoration. c) An Outline HMP. This plan should include: • Proposals for reuse of disturbed peat in habitat restoration, if relevant. • Details of restoration to compensate for the area of peatland habitat directly and indirectly impacted by the development. • Outline proposals for peatland enhancement in other areas of the site. • Monitoring proposals.	
Transport Scotland (TS)	Having reviewed the preferred route options for each connection, given the distance from the A9 trunk road (28 km west of Connagill substation), Transport Scotland has no particular concerns or queries on the proposed grid connection projects or any comment to make on the optimal routes.	This has been noted.
Non-Statutory Consultees		
RSPB Scotland	All grid connections are located within the sensitive Flow Country landscape, where there are a number of other operational, consented and in-planning wind farms. RSPB stated concerns about the increasing cumulative impacts on some of the qualifying features of the adjacent designated European sites.	This has been noted. Further work to consider the potential for cumulative impact on the qualifying features of the designated sites will be completed during the EIA stage of the projects to determine the potential for likely significant effects and inform appropriate mitigation measures.
	Due to the location, large scale and timeline of the project, there is significant scope for adverse impacts on habitats and species. Robust survey and assessment should be undertaken to inform the final design to avoid or minimise impacts where possible, as per the mitigation hierarchy.	Ornithology surveys have been carried out across the cluster between October 2018 and August 2023. Additionally, a range of bird surveys have been completed for other existing, consented and proposed developments in the area. As such, extensive and robust datasets are available to inform the ornithological and ecological impact assessments.

		Further work to consider potential for impacts on habitats and protected species will continue through the design and EIA stages of the project to determine the potential for likely significant effects and inform appropriate mitigation measures.
	RSPB agree in consolidating the routeing for these grid connections as it is likely to reduce environmental impacts, however we have objected or expressed concern about all of the wind farms that require this grid connection primarily due to impacts on the qualifying features of the Caithness and Sutherland Peatlands Special Protection Area (SPA) and other species of high conservation concern.	This has been noted.
	Bird Species of Conservation Concern and Designated Sites There are a number of nature designations within the proposed corridor. Many proposed routes pass through the Caithness and Sutherland Peatlands SPA, SAC and Ramsar site, as well as the Flow Country Candidate World Heritage Site (WHS). Some routes also pass through or are within connectivity distance to the West Halladale SSSI, East Halladale SSSI, North Caithness Cliffs SPA and the Armadale Gorge SSSI. These sites are designated for their internationally and nationally important populations of birds and habitats. The development has the potential to impact a number of the qualifying features of the designated sites. Negative impacts to birds associated with construction and operation of OHLs are collision, electrocution, displacement, habitat loss and disturbance, all of which must be considered.	This has been noted. Further consideration of potential impacts on the qualifying interests of the designated sites will be undertaken as the project progresses, to support future applications of consent.
	Survey and assessment requirements Due to the importance of the bird species and habitats present along the routes and the location of designated sites that this proposal passes through or close to, RSPB Scotland recommend undertaking two years of field surveys (vantage point, breeding bird and wintering bird). This will be needed to provide up-to-date information on bird distribution and activity to assess likely effects and inform any required mitigation. RSPB Scotland and the Highland Raptor Study Group should be contacted as soon as possible for relevant bird records.	Ornithology surveys have been carried out between October 2018 and August 2023 across the cluster, comprising flight activity surveys, moorland breeding bird surveys, scarce breeding bird surveys, raptor surveys, black throated-diver focal watches and breeding diver surveys based on the optimal route at the time and included surrounding areas with survey specific buffers (500 m for breeding birds, 1.5 km for breeding divers and 2 km for scarce breeding birds). A range of bird surveys have also been carried out for other existing, consented and proposed developments in the area and the survey areas for some of these partially overlap the various grid connection routes and will be drawn upon where possible. Consultation took place with NatureScot in December 2021 regarding the Strathy South Grid Connection, when it was confirmed that sufficient existing survey work related to the wind farms and associated grid connections give a reliable baseline for assessing the proposal and no extra fieldwork is required.

		A detailed review of available recent and historical ornithology survey data from all relevant developments will be completed as part of a desk-based study used to inform the ornithological impact assessment, to support future applications of consent. Relevant data will also be requested from relevant organisations such as RSPB Scotland and the Highland Raptor Study Group (HRSG) as part of the desk-based study.
	RSPB Scotland recommend that ornithological survey data should be requested from each of the consented and proposed wind farms (linked to this grid connection project). Peat depth and habitat surveys should also be undertaken along the preferred route in order to inform the final alignment deviation choices.	SSEN Transmission has approached the wind farm developers for which these grid connections are linked and has received some data. These datasets will be drawn upon to inform the ornithological impact assessment. Habitat surveys and a peat probing campaign have been undertaken and will be used to inform the design as the project progresses and to support future applications of consent.
	Caithness and Sutherland Peatlands SPA Appropriate surveys should be conducted for all of the Caithness and Sutherland SPA qualifying species: Red-throated Diver, Black-throated Diver, Hen Harrier, Golden Eagle, Merlin, Golden Plover, Wood Sandpiper, Short-eared Owl, Dunlin, Common Scoter, Greenshank and Wigeon in line with to NatureScot guidance. Both East and West Halladale SSSIs are also designated for these breeding species. Surveys should allow for analysis of negative impacts associated with both construction and operation of OHLs, including collision, displacement, habitat loss and disturbance.	Ornithology surveys have been carried out between October 2018 and August 2023 across the cluster comprising flight activity surveys, moorland breeding bird surveys, scarce breeding bird surveys, raptor surveys, black throated-diver focal watches and breeding diver surveys. These were based on the optimal route at the time and included surrounding areas with survey specific buffers (500 m for breeding birds, 1.5 km for breeding divers and 2 km for scarce breeding birds). Data collected will be used to inform the ornithological impact assessment, to support future applications of consent.
	North Caithness Cliffs SPA Peregrine, as a qualifying species of the North Caithness Cliffs SPA, must be considered as the Strathy South and Strathy Wood 'Northern Section' Grid Connection may be within foraging distance of (as they have a core range of 2 km, but ranges of up to 18 km has been recorded).	It is noted that the Strathy South and Strathy Wood 'Northern Alternative' Grid Connection lies within 2 km of the North Caithness Cliffs SPA, which is the core forging range of breeding peregrine (a designated feature of the SPA). As such this SPA will be considered in the shadow Habitat Regulations Appraisal process. However, no records of breeding peregrine have been identified within 2 km and recorded levels of flight activity during surveys completed have been low.
	Armadale Gorge SSSI Armadale Gorge SSSI is designated for scrub woodland and dry heath. On the ground habitat surveys are required to determine the location of qualifying habitats. RSPB Scotland has historic records of Merlin using this site and ornithological surveys will be required to determine the current bird use. RSPB also suggest contacting the Highland Raptor Study Group to request up-to-date records.	Habitat surveys have been undertaken and will be drawn upon to inform alignment optioneering through the SSSI with the aim of locating infrastructure within non-qualifying habitats of the SSSI, where possible. Bird surveys have been carried out in this area between 2021-2022 and included vantage point surveys (at locations agreed with NatureScot in February 2022), breeding diver surveys, breeding raptor surveys and upland moorland breeding bird surveys, all

		complete in accordance with specific-species methodologies. Substantial pre-existing baseline bird data also exists from surveys completed for developments that are either operational, consented or proposed in the wider area, and it is intended to draw upon this pre-existing collated data to inform to inform alignment optioneering and future ornithological impact assessments. Additionally, relevant data will be requested from relevant organisations such as RSPB Scotland and the HRSG as part of the desk-based study.
	Wider-countryside ornithological requirements RPSB Scotland have records of White-tailed Eagle (*Haliaeetus albicilla*) and Curlew (*Numenius arquata*) within the Corridor and should be included in any surveys. Data gathered in relation to Kirkton Energy Park includes Curlew data. The impact of the grid connections should be considered for both species. Data from Kirkton Energy Park also suggests that Greylag Geese, Pink-footed Geese and Whooper Swan transit the site. These species should also be considered in surveys.	SSEN Transmission has approached the wind farm developers connected to the Connagill Cluster grid connection projects to request bird data collected for each wind farm EIA. Some of these datasets have been shared and will be drawn upon to inform the ornithological impact assessment, to support future applications of consent. Additionally, relevant data will be requested from relevant organisations such as RSPB Scotland and the HRSG as part of the desk-based study.
	Peatland Many of the route options pass through significant areas of Class 1 deep peat according to the SNH Carbon and Peatland Map 2016. A peat depth survey should be undertaken in order to minimise impacts on peat by helping to avoid areas deeper than 0.5 m. Routes that use existing infrastructure should also be considered as a way of reducing further damage to peat.	Further consideration of potential impacts on peatland habitats will be undertaken as the project progresses. This will include a peat probing campaign, and the preparation of a Stage 1 Peat Management Plan, Peat Landslide Hazard and Risk Assessment and Habitat Management Plan, to support future applications of consent.
	Horizontal directional drilling through bedrock should be considered for sensitive peatland habitats that cannot be avoided.	Horizontal directional drilling (HDD) would be technically very challenging to undertake and would require a large laydown and construction compound at either of the HDD section(s) that could require large areas of peat in these areas to be cleared or disturbed. HDD has limits to its length and is typically best suited to narrow very sensitive constraints as opposed to large expansive habitats.
	Cumulative Assessment The impacts of this proposal should be assessed in combination with other proposed and consented developments within the area. The assessment should include the existing Strathy North OHL (as it may be retained as the grid connection to the Melvich and Kirkton wind farms) and any existing 33 kV and 11 kV distribution network infrastructure particularly in relation to collision risk to Red- and Black-	The ornithological impact assessment will consider potential direct, indirect and cumulative effects that the construction and operation of the proposed grid connections could have on identified important ornithological features.

	throated Divers, Common Scoter and Hen Harriers, noting that Common Scoters are likely to fly at night. The cumulative disturbance and displacement impact on birds from the increase in traffic and noise from the additional use of existing wind farm access tracks during construction and maintenance of this grid connection project should also be included. Any identified impacts should be assessed against the relevant SPAs and NHZ populations.	
	World Heritage Site The Highland Council's Flow Country Candidate WHS Planning Position Statement (April 2023) states that developments within the zone of influence of the WHS, must be assessed utilising the UNESCO Impact Assessment Guidance Toolkit. Therefore, we recommend that this is undertaken alongside the EIA.	SSEN Transmission has received a copy of the Draft Flow Country Toolkit template from THC. This will be used to assess the impacts on the WHS and will be reported in each section 37 submission documentation.
	Biodiversity Net Gain (BNG) / Biodiversity Enhancement RSPB Scotland welcomes the requirement in Policy 3 of NPF4 that all developments must deliver biodiversity enhancement. The proposal therefore needs to offer 'significant biodiversity enhancements' that can be 'secured within a reasonable timescale and with reasonable certainty'. We are pleased to read of SSEN Transmission's Biodiversity Ambition. Any plans need to clearly set out what elements are proposed as mitigation and/or compensation and what is considered enhancement.	This has been noted.
	Compensatory Planting We understand that compensatory planting may be required as a result of the development. Much of the proposed felling area is on deep peat. RSPB Scotland would request the Applicant considers whether compensatory planting is required in these areas in this instance or whether an exception would apply as per Scottish Forestry guidance regarding removal of woodland from deep peat. The Applicant should seek guidance on this and consider peatland restoration instead as this would maximise any biodiversity enhancement.	This has been noted and will be considered.
	Strathy South and Strathy Wood Grid Connections – Southern Section	
	We note that a 132 kV underground cable connection is proposed from Strathy South wind farm substation to a point in the vicinity of Strathy Wood wind farm substation.	Horizontal directional drilling (HDD) would be technically very challenging to undertake and would require a large laydown and construction compound at either of the HDD

	Since this route cannot avoid designated sites, Horizontal Directional Drilling should be seriously considered for the proposed undergrounding to avoid direct impacts on SAC qualifying habitats from laying cables in dug trenches.	section(s) that could require large areas of peat in these areas to be cleared or disturbed. HDD has limits to its length and is typically best suited to narrow very sensitive constraints as opposed to large expansive habitats.
	RSPB Scotland agrees that that Route Option SS-SN 3 is likely to be the least damaging option on environmental grounds due to it crossing the designated sites for the shortest length. It also passes through existing commercial forestry or non-designated open land east of the existing Strathy North wind farm. From the information available at this stage, this would be RSPB Scotland's preferred route, as it would avoid the designated sites for nature.	While SSEN Transmission acknowledge the environmental benefits of Route Option SS-SN3; technically, this route option would be very challenging to construct as it passes through Strathy North wind farm. If constructed as an OHL, this route would fall within the wind wake effect of the wind turbines and would not meet the required spacing between wind turbines and the OHL and, therefore undergrounding Route Option SS-SN3 would be required. To support an UGC here, two double-circuit cable sealing end (CSE) compounds would be required at either end of the cable to convert to OHL. The compounds would include a stone hard-standing platform with a permitter palisade security fence, allowing the UGC to transition and connect to an overhead steel tower. The estimated footprint of these compounds is approximately 70 m x 70 m and they would also require permanent access tracks for operations and maintenance. These additional infrastructure elements would likely increase the potential environmental impacts of this option. The construction of an UGC through an operational wind farm would be very challenging due to the need to avoid interface with existing wind turbine UGC that would require adequate clearance to provide the required width of the working construction corridor. Similarly, future access for maintenance and operations would require third party permission through the wind farm to access and carry out works. From a technical and safety perspective, this route option is therefore not considered to be viable. Route Options SS-SN 2a and 2b have reduced presence within the natural heritage designations compared with other route options, and they both offer opportunities at alignment stage to avoid adverse effects on the qualifying habitats of the Caithness and Sutherland SAC by selecting an alignment which closely follows the existing access track and associated disturbed land adjacent to the track.
	We note, however, that a combination of Route Options SS-SN1 and SS-SN2a and b are preferred over Route Option SS-SN3. This is concerning as the route will run through the Caithness and Sutherland Peatlands SPA, SAC and Ramsar site, when an option west of the river could avoid this. It would also run adjacent to two existing overhead lines. RSPB Scotland stated that the mitigation hierarchy must be followed and strongly suggest that Route Option SS-SN3 is further considered as the preferred route option, or Horizontal Directional Drilling used so that loss of qualifying habitats is avoided.	
	The preferred option appears to be very similar to the Strathy Wood Grid Connection that was consulted on at the scoping stage in 2020 (ECU reference ECU00002050). RSPB Scotland responded to this consultation at the time. Bird surveys that were	While this comment is acknowledged, given the extent of existing survey work collated for the cluster of grid connections, along with survey work related to the wind farms and other associated grid connections, a reliable baseline of data has been gathered to

	undertaken between 2018 and 2019 for this route option are now on the cusp of expiring so we would recommend that new surveys are undertaken as outlined above.	inform an ornithological impact assessment and therefore, SSEN Transmission do not intend to carry out any further fieldwork.
	Strathy South and Strathy Wood Grid Connections – Northern Section	
	RSPB Scotland welcome that the preferred optimal route and the optimal alternative route appear to avoid designated sites, however we note that the WHS boundary cannot be avoided in both cases.	This has been noted.
	RSPB Scotland is concerned that all alternative route options span an important area used by breeding SPA species to access feeding at sea. Surveys and assessment are therefore required to understand the risks to Common Scoter and both Red- and Black-throated diver flight paths. Existing collision risk calculations and assessment of barrier effect from wind farm EIAs should be considered, along with the cumulative impacts of these sites to inform the assessment. Further surveys need to be conducted before any route decisions are finalised.	Ornithology surveys were carried out in this area between 2022-2023 comprising flight activity surveys, moorland breeding bird surveys, scarce breeding bird surveys, raptor surveys, black throated-diver focal watches and breeding diver surveys, all complete in accordance with species-specific methodologies. Substantial pre-existing baseline bird data also exists from surveys completed for developments that are either operational, consented or proposed in the wider area. It is intended to draw upon the collated data to inform the alignment selection stage and future ornithological impact assessments in support of the section 37 submission for consent.
	Where high risks of collision are predicted, we request that undergrounding or HDD is considered (depending on the extent and quality of peatland habitats present) to reduce impacts over line-marking. Given the rarity and protected status of the Common Scoters and Black-throated Diver's breeding in the Flow Country and their inability to perceive fine detail in flight, RSPB Scotland is concerned that there is insufficient evidence that power line bird diverters will be effective in protecting these populations from collisions. These concerns relate to all weather conditions but are particularly pertinent to adverse weather and nocturnal conditions when the birds' perception of diverter objects, and the cables to which they are attached, will be poor at best. It is highly likely that such fast flying birds with low manoeuvrability will have insufficient response time to take evasive action.	This has been noted and will be considered when assessing potential collision risk to important ornithological features.
	If the Melvich wind farm is not consented, this would require replacing the existing Strathy North wood pole OHL (14-16m in height and a span of 60-80m) with a steel lattice OHL (28-44m in height and a span of 250m). This would increase both the height and span of the OHL and therefore has the potential for increased barrier effects and collision.	This comment is noted. The ornithological impact assessment will consider potential direct, indirect and cumulative effects that the construction and operation of the proposed OHL could have on identified important ornithological features.

	RSPB Scotland agree that aligning Route Option SN-C ALT2 away from the SPA should be considered in the event that the existing Strathy North OHL is replaced as explained above. RSPB Scotland also agree that Route Option SN-C ALT3 could be considered the worst choice as it encroaches most extensively into the designated sites. As Route Option SN-C ALT 1 is the most northerly route option considered, and completely outwith the Caithness and Sutherland Peatlands SPA, SAC and Ramsar site and the West Halladale SSSI, this may limit disturbance to qualifying bird species of the SPA. However, it would then be within distance of foraging for some qualifying species of the North Caithness Cliffs SPA and this must be considered during assessments.	These comments are welcomed. Route Option SN-C ALT1 is considered on balance, to be the overall optimal alternative route. It is acknowledged that this would be within 2 km of the North Caithness Cliffs SPA and this designated site would be considered in the ornithological impact assessment and shadow HRA process.
	Armadale Grid Connection	
	RSPB are concerned that as the Armadale grid connection spans an area that connects the Flow country breeding grounds to the sea, there is potential for collision and barrier effects to SPA species. Surveys are required to understand flight paths. Existing collision risk and barrier effect calculations from EIAs should be considered, along with the cumulative impacts of these sites to inform survey assessment. Further surveys need to be conducted before any route decisions are finalised. Once again, due to the already predicted high risk, RSPB Scotland request that undergrounding is considered on any route across this section.	Bird surveys have been carried out in this area between 2021-2022 which included vantage point surveys (at locations agreed with NatureScot in February 2022), breeding diver surveys, breeding raptor surveys and upland moorland breeding bird surveys, all completed in accordance with specific-species methodologies. Substantial pre-existing baseline bird data also exists from surveys completed for developments that are either operational, consented or proposed in the wider area, and it is intended to draw upon this pre-existing collated data to inform alignment optioneering and future ornithological impact assessments.
	Without prejudice to this position, RSPB Scotland agree that Route Option A3-a is the least optimal, as it crosses the largest area of designated sites. All other route options cross the Armadale Gorge SSSI. On the ground habitat surveys are required to determine the optimal route through the SSSI that avoids damage to and loss of protected habitats and species.	Habitat surveys have been undertaken and will be drawn upon to inform alignment optioneering through the SSSI with the aim to locate infrastructure within non-qualifying habitats of the SSSI, where possible.

6. COMMUNITY CONSULTATION RESPONSES FROM THE PUBLIC EXHIBITION EVENT

6.1 Introduction

6.1.1 The following part of this Report on Consultation sets out the feedback received from the local community and general public following a consultation event on 30th November 2023. Feeback received is summarised in **Table 6.1** along with responses by SSEN Transmission, setting out the action to be taken where relevant.

Table 6.1: Public and Local Community Feedback by Topic

Stakeholder	Summary of Feedback	Response by SSEN Transmission
Resident	Concerns about the potential detrimental impact of pylons on the 'fragile' community.	The comment is noted. Further environmental and engineering studies will be undertaken at alignment selection stage to seek to find an acceptable alignment together with appropriate mitigation. This will include detailed input by the project landscape architect. Visualisations will be produced from key viewpoint locations to demonstrate the likely effects of the proposals.
Resident	Queried why no information was provided on alternative options such as buried cables.	Consideration has been given to the potential use of underground cable in areas more constraining to OHL, such as in the vicinity of proposed or consented wind turbines or areas where sensitive bird species are known to be present. This has been considered for the route options presented in the Consultation Document.
Resident	Concerns raised that the existing proposed wind farms will severely impact the area and the addition of pylons will further denigrate the local environment.	Further environmental and engineering studies will be undertaken at alignment selection stage to seek to find an acceptable alignment together with appropriate mitigation to minimise impacts on the environment. As part of the EIA an appraisal of cumulative effects will be considered in relation to topics scoped into the EIA.
Resident	Queried what community benefit will be provided.	Under current licence obligations, SSEN Transmission are unable to provide community benefit. Community benefit is realised by enabling the connection of the wind farm(s) which may privately be able to offer local benefit.
Resident	More detail was requested on the sizing of the steel lattice towers and predicted noise levels.	Tower heights would vary depending on local topography but would typically be between 28 and 46 m in height. Exact heights of and distances between towers would be determined after a detailed line survey. During the detailed design stage of the project, proximity to residential properties will be taken into consideration and should operational noise effects be anticipated, an operational noise assessment will be included in the EIA.

Stakeholder	Summary of Feedback	Response by SSEN Transmission
Resident	More detail was requested on the conductivity of wet peat being an inferior transmitter to soil.	When an UGC is installed, the peat is typically moist and it conducts thermally and electrically, however, when cables are in operation mode they dissipate / radiate heat and create an isotherm of approximately 50'C which dries the soil/peat. Dried-out peat can have air voids and has poor thermal conductivity properties. When the peat is dried out the thermal resistivity exceeds our required limit.
Resident	Concerns that cost is the driver for the approach to rationalisation rather than community and landscape.	The assessment undertaken follows SSEN Transmission's internal guidance which looks to identify the least constrained option based on a number of environmental, technical and cost issues. Studies identified that separate grid connections would not be the optimal solution from a technical or environmental perspective, particularly where all connections would converge within the vicinity of Connagill substation; and this was the main driver to investigating a rationalised approach across the five connections.
Resident	Concerns were raised that the optimal route for the Strathy South and Strathy Wood 'Northern Section' Grid Connection is not clear.	SSEN Transmission has sought to identify an optimal route based on a comparative environmental, technical and cost analysis, as presented in the Consultation Document. Comments received from stakeholders, as set out within this report, will inform further consideration of route options prior to identification of a proposed route to take forward to alignment selection stage. A further public consultation event will be held in due course to provide an update on the proposed route and alignment options considered within.
Resident	In response to whether any potential environmental factors may have been overlooked, concerns were raised regarding salmon migratory routes and annual swan and geese migration.	Bird surveys have been carried out between October 2018 and August 2023 across the cluster, which have included surveys for wader species (i.e. swans and geese). A range of bird surveys have also been carried out for other existing, consented and proposed developments in the area, and the survey areas for some of these partially overlap the various grid connection routes and will be drawn upon, where possible, to inform alignment optioneering and future ornithological impact assessments. Consultation and data requests will be conducted with the Northern District Salmon Fisheries Board and Flow Country Rivers Trust as the project progresses. However, it is anticipated that at detailed design stage, a sufficient buffer will be maintained between construction works and watercourses, and with adherence to SSEN Transmissions

Stakeholder	Summary of Feedback	Response by SSEN Transmission
		General Environmental Management Plans (GEMPs), the risk of pollution to the surrounding watercourse would be minimised and direct and indirect effects on aquatic species, including fish species, would be avoided during construction.
Resident	Concerns around the materials required for the construction of infrastructure, including tonnes of concrete; with production and transport an anachronism in the pursuit of green energy.	This comment is acknowledged. Further environmental and engineering studies will be undertaken at the detailed design stage to seek to find an acceptable design that would minimise impacts on the environment.
Resident	Concerns on the heritage, conservancy, wildlife and culture/traditions of the Highlands, which is being targeted by development due to the sparse population.	This comment is acknowledged. Further environmental and engineering studies will be undertaken at the detailed design stage to seek to find an acceptable design that would minimise impacts on the environment.
Resident	One resident queried whether the optimal route for the Strathy South and Strathy Wood Grid Connection 'Northern Section' would avoid passing through the Melvich Energy Hub.	Assuming Melvich wind farm does not gain consent and is not constructed, the optimal route for this connection would be as per the 2014 section 37 consent for the Strathy South Grid Connection (which has now lapsed), which runs parallel to the existing Strathy North 132 kV wood pole OHL. This is SSEN Transmission's preference. However, should Melvich wind farm gain consent and is constructed, the optimal alternative route would navigate the wind farm to the north, along Route Option SN-C ALT 1. Both the optimal and alternative OHLs will be assessed to understand the potential for significant effects on the environment and will be presented in separate volumes of the EIA Report.
Resident	Queried if Melvich and Kirkton wind farms are not consented, whether the intention would still be to avoid passing through Melvich Energy Hub for the Strathy South and Strathy Wood Grid Connection 'Northern Section'. Suggestion raised that even if Melvich Energy Hub is not granted consent, it would be sensible to avoid the area in case a modified submission be made, whose location would prevent the optimal route passing through.	As noted above, should Melvich wind farm not be granted consent and is not constructed, the optimal route/alignment would be as per the 2014 section 37 consent for the Strathy South Grid Connection (which has now lapsed), which runs parallel to the existing Strathy North 132 kV wood pole OHL. Kirkton wind farm would not influence the selection of the optimal or optimal alternative route selected.
Resident	Query if Melvich and Kirkton grid connections are not required, is it still intended to construct a 275 kV OHL as part of the optimal route.	It is envisaged that the Melvich and Kirkton grid connections would connect onto the repurposed Strathy North 132 kV wood pole OHL for onward connection to Connagill 275/132 kV substation. The double circuit 132 kV OHL supported by steel lattice tower (proposed for the Strathy South and Strathy Wood Grid Connection) would still be capable of operating at 275 kV in the future, if required, regardless of whether

Stakeholder	Summary of Feedback	Response by SSEN Transmission
		Melvich and Kirkton grid connections are progressed.

7. SUMMARY OF RESPONSES

7.1 Overview

7.1.1 This part of the Report on Consultation provides a summary of the responses received from stakeholders and the decisions by SSEN Transmission on the progression to the next stages of the design process.

Strathy South and Strathy Wood Grid Connection 'Southern Section'

7.1.2 Comments received from NatureScot and RSPB Scotland noted a preference for Route Option SS-SN 3 (which was the environmental preference documented in the Consultation Document) as it largely avoids the Caithness and Sutherland Peatlands SAC, SPA and Ramsar site, compared to the optimal route (Route Options 2a and 2b), as it would be least damaging thereby helping to maintain the SAC and SPA conservation objectives. However, from a technical and safety perspective, Route Option SS-SN 3 is not considered viable. It is considered the optimal route, closely following disturbed ground alongside an existing access track, would offer opportunities at alignment stage to avoid adverse effects on the qualifying habitats and species of the designated sites.

7.1.3 Further consideration for impacts on the qualifying habitats and species of the designated sites (including the candidate WHS) will be undertaken as the project progresses.

7.1.4 On balance, it is considered that the optimal route for this section is taken forward as the proposed route which will comprise a combination of 132 kV underground cable and 132 kV double circuit OHL supported by steel lattice towers.

Strathy South and Strathy Wood Grid Connection 'Northern Section'

7.1.5 Responses received from statutory and non-statutory consultees provided general support for the optimal route identified for this section. While a comment received from the local community appeared to lack clarity as to the optimal route chosen in this section, and this will be made clearer during future consultation. No specific comments were received on preference of route options from the local community.

7.1.6 Whilst the environmental sensitivities are noted and will be considered further during the alignment selection stage of the project, on balance it is considered the optimal route for this section (as per 2014 section 37 consent for Strathy South Grid Connection (which runs parallel to the existing Strathy North 132 kV wood pole OHL)) is taken forward as the proposed route, comprising a 132 kV double circuit OHL supported by steel lattice tower (and capable of operating at 275 kV in the future, if required).

Strathy South and Strathy Wood Grid Connection 'Northern Alternative Section'

7.1.7 Responses received from statutory and non-statutory consultees provided general support for the Optimal Alternative Route (Route Option SN-C ALT 1).

7.1.8 THC suggested considering an iteration of the optimal alternative route utilising UGC in the northern part of the route, where it runs closest to the A836 and settlements. SSEN acknowledged that the use of UGC is considered to mitigate likely significant effects where appropriate but noted that an UGC does not come without its own constraints, including additional land take and the potential for environmental effects particularly on habitats and hydrology; the requirement for additional infrastructure (in the form of cable sealing end compounds and joint bays); and challenges in maintenance and power restoration. Given these constraints and SSEN Transmission's responsibility for an economical and efficient transmission network, it is considered that OHL is the most appropriate choice of technology for this connection. Nevertheless, further environmental and engineering studies will be undertaken at alignment selection stage to seek to find an acceptable alignment, and to consider whether further mitigation is required to minimise potential effects.

7.1.9 RSPB raised concerns that all route options span an important area used by qualifying species of the Caithness and Sutherland Peatlands SPA (located to the south) to access feeding at sea (to the north). Where high risks of collision are predicted, RSPB Scotland suggested that the use of UGC should be considered to reduce impacts. Ornithological surveys completed across the cluster, along with data collected from surveys for other developments in the area, will be drawn upon to inform the alignment selection and to minimise this risk, where possible.

7.1.10 Comments received from the local community queried the need for this connection, should Melvich wind farm not be granted planning consent. No specific comments were received on the route options.

7.1.11 Whilst the environmental sensitivities are noted and will be considered further during the alignment selection stage of the project, on balance it is considered the optimal alternative route (Route Option SN-C ALT1) is taken forward as the proposed alternative route, comprising a 132 kV double circuit OHL supported by steel lattice tower (and capable of operating at 275 kV in the future, if required).

Armadale Grid Connection

7.1.12 Responses received from the majority of statutory and non-statutory consultees provided general support for the optimal route identified for this section, with the exception of HES, who raised concerns with the proximity of the western extent of the optimal route in relation to the Armadale broch scheduled monument and advised they may object.

7.1.13 RSPB Scotland raised concerns that all route options considered would span an area that connects the Flow Country breeding grounds to the sea with potential for collision and barrier effects to the Caithness and Sutherland Peatlands SPA species. Similarly, all route options would cross the Armadale Gorge SSSI. Results from habitat and ornithological surveys (along with data collected from surveys for other developments in the area), will be drawn upon to inform the alignment selection and minimise risk of impact, where possible. Overall RSPB Scotland agreed that Route Option A-3a was least optimal.

7.1.14 No specific comments were received from the local community on route options.

7.1.15 Whilst the heritage sensitivities are noted and will be considered further during the alignment selection stage in consultation with HES, the technical challenges associated with crossing the Armadale gorge elsewhere limits SSEN Transmission on progressing an alternative option, unless the use of steel lattice tower technology is employed; and this would inevitably trigger other associated environmental risks, notably increased risk of collision to some bird species and would be visually more prominent. As such, it is considered that the optimal route (Route Option A-4) for this connection is taken forward as the proposed route, comprising a 132 kV OHL supported by trident H-wood pole.

7.2 Actions to be taken by the Project Team

7.2.1 The following actions are being undertaken to address the issues raised in relation to the optimal route and the next design stage of the project:

- Further environmental survey and assessment work will be undertaken to identify acceptable alignment and design solutions through the sensitive landscapes and environment. This will involve further survey effort and advice relating to landscape and visual, ecology, ornithology, peat and cultural heritage matters. The results of these studies will be reported during the alignment selection stage.
- Further targeted consultation will be undertaken, specifically with HES as the design progresses for the Armadale Grid Connection. A wider consultation, via a Consultation Document anticipated to be published in Spring 2024, will be undertaken on completion of alignment studies to seek comments from stakeholders, followed by a public consultation event.

7.3 Summary

7.3.1 The optimal routes identified within the Connagill Cluster Grid Connections Consultation Document, December 2023 is shown on **Figure 1**, and will all be taken forward as the proposed routes to the next stage of the routeing process (alignment stage).

8. CONCLUSIONS AND NEXT STEPS

8.1 Conclusion

8.1.1 This Report on Consultation documents the consultation process which has been undertaken for the project between November 2023 and February 2024. The programme of consultation was designed to engage with stakeholders including statutory and non-statutory consultees, local communities / resident and wider interested parties in order to invite feedback on the rationale for, and approach to, the selection of the optimal routes for the various Connagill Cluster Grid Connections.

8.1.2 This report has described the key responses received, in terms of the main issues raise, and provides detail on the actions proposed in response to the issues raised. This has included a requirement for further review of the Armadale Grid Connection to find an acceptable alignment and design solution which minimises potential likely significant adverse effects on the Armadale broch scheduled monument, where possible, while considering other environmental sensitivities and engineering challenges. For all other grid connections (Strathy South and Strathy Wood Grid Connection – Southern and Northern Sections) put forward in the Consultation Document are to be taken forward as the proposed routes.

8.2 Next Steps

8.2.1 The project will now be taken into Stage 3 (Alignment Selection), commencing with identification of alignment options within the proposed route for each connection. These will be informed by this and further consultation exercises, and through detailed surveys, which may identify any additional and / or currently unknown engineering, environmental or land use constraints. The alignment options will be presented to stakeholders in a similar manner to the consultation exercise carried out for the optimal routes prior to progressing to the EIA stage.

Scottish & Southern Electricity Networks

TRANSMISSION

132 kV trident overhead line (wood pole)

132 kV overhead line (steel structure)

132 kv overhead line (steel structure)

132 kV overhead line (steel structure)

132 kV underground cable

Scale - 1:65,000 @ A3

Legend

- Existing Strathy North 132 kV OHL (to be repurposed)
- Existing Strathy North 132 kV OHL (to be dismantled)
- Corridor

Substations

- Connagill Substation
- Strathy North Substation
- Strathy Wood Substation
- Strathy South Substation
- Armadale Substation
- Melvich Substation
- Kirkton Substation

Proposed, Consented and Operational Wind Farms

- Strathy North Wind Turbines (Operational)
- Strathy South Wind Turbines (Consented)
- Strathy Wood Wind Turbines (Consented)
- Armadale Wind Turbines (Proposed)
- Melvich Wind Turbines (Proposed)
- Kirkton Wind Turbines (Proposed)

Optimal Routes

- Strathy South and Strathy Wood Grid Connection 'Northern Section' Alternative Optimal Route Option
- Armadale Optimal Route Option
- Strathy South and Strathy Wood Grid Connection 'Northern Section' Optimal Route Option
- Strathy South and Strathy Wood Grid Connection 'Southern Section' Optimal Route Option

Other Works

- Switching Station search area

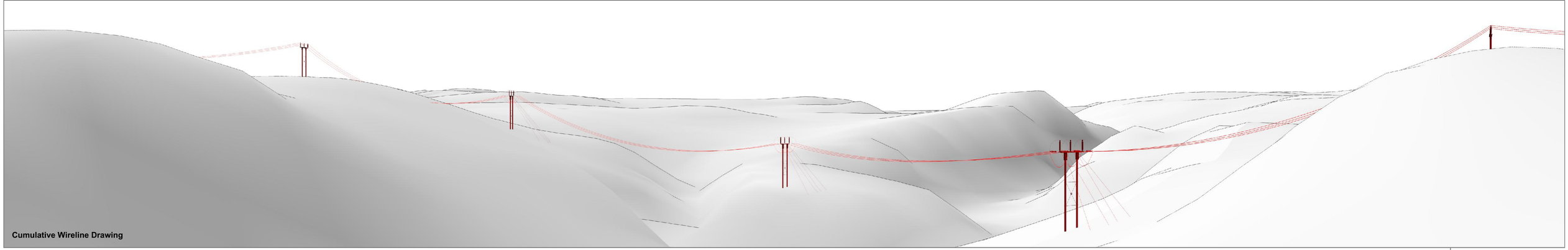
Project No: LT230 /LT319 /LT559 /LT560 / PT000969 /LT000421

Project: Connagill Cluster Report on Consultation

Title: Figure 1 - Combined Connagill Cluster Wind Farm Connections - Optimal Routes

Drawn by: LT/SK/CG Date: 15/04/2024

Drawing: 121008-D-ROC-1-0.1.0



LT319: Armadale Wind Farm Grid Connection

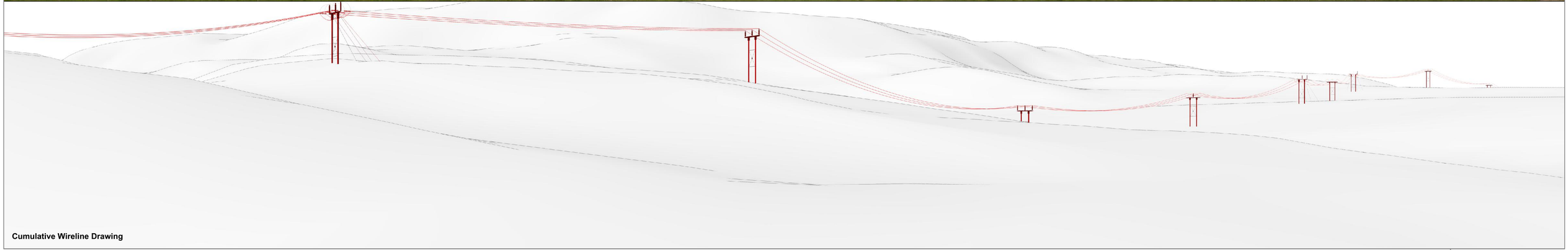
Figure 2.1 - Viewpoint from Armadale Broch Scheduled Monument

OS reference:	279943 E 962656 N	Camera:	Canon EOS 6D	Horizontal field of view:	90° (cylindrical projection)
Ground level:	64.8 m AOD	Lens:	50mm (Canon EF 50mm f/1.4)	Principal distance:	522 mm
Direction of view:	140°	Camera height:	1.5m AGL		
Nearest visible woodpole:	154.6 m	Date and time:	28/06/2023 10:37		

Drawing No. - 121020-D-ACD-2.1-1.0.0 **Date** - 16.04.2024

Scottish & Southern Electricity Networks TRANSMISSION

ash



LT319: Armadale Wind Farm Grid Connection

Figure 2.2 - Viewpoint from Armadale Broch Scheduled Monument

OS reference:	279943 E 962656 N	Camera:	Canon EOS 6D	Horizontal field of view:	90° (cylindrical projection)
Ground level:	64.8 m AOD	Lens:	50mm (Canon EF 50mm f/1.4)	Principal distance:	522 mm
Direction of view:	140°	Camera height:	1.5m AGL		
Nearest visible woodpole:	154.6 m	Date and time:	28/06/2023 10:37		

Drawing No. - 121020-D-ACD-2.2-1.0.0 **Date -** 16.04.2024

Scottish & Southern Electricity Networks TRANSMISSION

ash

LT319: Armadale Wind Farm Grid Connection

Figure 2.3 - Viewpoint from Armadale Broch Scheduled Monument

OS reference:	279943 E 962656 N	Camera:	Canon EOS 6D	Horizontal field of view:	53.5° (planar projection)
Ground level:	64.8 m AOD	Lens:	50mm (Canon EF 50mm f/1.4)	Principal distance:	812.5 mm
Direction of view:	158.25°	Camera height:	1.5m AGL	Paper size:	841 x 297 mm (half A1)
Nearest visible woodpole:	154.6 m	Date and time:	28/06/2023 10:37	Correct printed image size:	820 x 260 mm

Drawing No. - 121020-D-ACD-2.3-1.0.0 **Date** - 16.04.2024

Scottish & Southern Electricity Networks TRANSMISSION

ash

LT319: Armadale Wind Farm Grid Connection

Figure 2.4 - Viewpoint from Armadale Broch Scheduled Monument

OS reference:	279943 E 962656 N	Camera:	Canon EOS 6D	Horizontal field of view:	53.5° (planar projection)
Ground level:	64.8 m AOD	Lens:	50mm (Canon EF 50mm f/1.4)	Principal distance:	812.5 mm
Direction of view:	185°	Camera height:	1.5m AGL	Paper size:	841 x 297 mm (half A1)
Nearest visible woodpole:	154.6 m	Date and time:	28/06/2023 10:37	Correct printed image size:	820 x 260 mm

Drawing No. - 121020-D-ACD-2.4-1.0.0 **Date** - 16.04.2024

Scottish & Southern Electricity Networks TRANSMISSION

ash

LT319: Armadale Wind Farm Grid Connection

Figure 2.5 - Viewpoint from Armadale Broch Scheduled Monument

OS reference:	279943 E 962656 N	Camera:	Canon EOS 6D	Horizontal field of view:	53.5° (planar projection)
Ground level:	64.8 m AOD	Lens:	50mm (Canon EF 50mm f/1.4)	Principal distance:	812.5 mm
Direction of view:	211.75°	Camera height:	1.5m AGL	Paper size:	841 x 297 mm (half A1)
Nearest visible woodpole:	154.6 m	Date and time:	28/06/2023 10:37	Correct printed image size:	820 x 260 mm

Drawing No. - 121020-D-ACD-2.5-1.0.0 **Date** - 16.04.2024

Scottish & Southern Electricity Networks TRANSMISSION

ash