Strathy South Wind Farm Grid Connection

EIA Report:
Non-Technical Summary

February 2025

Scottish & Southern Electricity Networks

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1. INTRODUCTION AND BACKGROUND

1.1 Overview

1.1.1 This Non-Technical Summary (NTS) forms part of the Environmental Impact Assessment Report ('EIA Report') that has been prepared on behalf of Scottish Hydro Electric Transmission plc ("the Applicant") who, operating and known as Scottish and Southern Electricity Networks Transmission ("SSEN Transmission"), own, operate, and develop the high voltage electricity transmission system in the north of Scotland and remote islands.

1.1.2 The EIA Report has been prepared to accompany an application for consent under section 37 of the Electricity Act 1989 ("the 1989 Act") to construct and operate a new double circuit 132 kV overhead line (OHL), to initially connect the consented Strathy South Wind Farm[1] to the electricity transmission network at Connagill 275/132 kV substation. To allow for futureproofing, it is proposed that a section of the new double circuit OHL would be capable of operating at 275 kV in the future, if required.

1.1.3 Strathy South Wind Farm requires a connection to the electricity transmission network by April 2027, this is in accordance with agreements between SSEN Transmission, National Grid Electricity System Operator (as operator of the National Grid) and SSE Renewables (as developers of the consented Strathy South Wind Farm).

1.1.4 The Applicant is also seeking deemed planning permission under section 57(2) of the Town and Country Planning (Scotland) Act 1997 (as amended) for certain elements of the project, or ancillary development required to facilitate its construction and operation. These ancillary works would include the installation of a cable sealing end (CSE) compound, temporary and permanent access tracks, tree and vegetation clearance, temporary working measures / areas, and dismantling and removal of redundant parts of the existing 132 kV OHL infrastructure that the new double circuit OHL would replace.

1.1.5 Certain elements of the project would fall under the Applicant's permitted development rights[2]. This includes two short sections of underground cables (UGC). These elements are considered within the EIA Report for completeness.

1.1.6 The electricity transmission project is referred to as the "Strathy South Wind Farm Grid Connection" (and hereafter also referred to interchangeably as "the Proposed Development"). The Proposed Development comprises a Proposed Alignment, and due to interaction with Melvich Wind Energy Hub as described in Section 1.4, an Alternative Alignment. Both the Proposed Alignment and the Alternative Alignment are shown on **Figure 1: Overview of the Proposed Development**.

1.1.7 The Proposed Alignment would consist of approximately 10.5 km of 132 kV double circuit OHL supported by steel lattice towers from Strathy North tee off point (referred to as Strathy North 'T') (near Dallangwell) to a new CSE compound, prior to connecting into Connagill 275/132 kV substation via two short sections of single circuit 132 kV UGC.

1.1.8 Other associated works are required to complete the connection of the Proposed Development that form part of a wider connection strategy for renewable generation in the area referred to as the Connagill Cluster Grid Connections These associated works do not form part of the Proposed Development and are subject to separate applications for consent, as discussed further in Section 1.3.

[1] Received consent from the Scottish Government in November 2021 (Reference ECU00002133).

[2] Town and Country Planning (General Permitted Development) (Scotland) Order 1992

1.1.9 Once the Proposed Development is constructed and commissioned, redundant parts of the existing Strathy North 132 kV trident 'H' wood pole OHL, which currently transports electricity generated by the operational Strathy North Wind Farm and is proposed to temporarily transport electricity generated by the consented Strathy Wood Wind Farm[3] (see Section 1.3), would be dismantled and removed. Thereafter, the Proposed Development would act as 'shared infrastructure' for the Strathy Wood and Strathy North wind farms.

1.1.10 Electricity transmission infrastructure (such as the Proposed Development) is recognised in Scotland's fourth National Planning Framework (NPF4) as a National Development[4] under 'ND3 Strategic Renewable Electricity Generation and Transmission Infrastructure'. It therefore forms a vital element to deliver network and grid infrastructure required to deliver the Government's legally binding targets for net zero emissions and renewable energy electricity generation objectives.

1.1.11 An Environmental Impact Assessment ("EIA") has been undertaken for the Proposed Development in accordance with the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 to assess the likely significant effects of the Proposed Development. The findings of the EIA are presented in the EIA Report, including the measures which would be taken to prevent, reduce and, where possible, offset predicted likely significant adverse effects. The purpose of this document is to provide a summary of the EIA Report findings on a topic-by-topic basis as structured in the EIA Report, in non-technical language.

1.2 Project History

1.2.1 In 2013, SSEN Transmission sought consent for the construction of two parallel 132 kV trident wood pole OHLs; one to connect the consented Strathy North Wind Farm to the electricity transmission network and the other to provide a connection for the then proposed Strathy South Wind Farm. These connections were collectively referred to as Strath Halladale to Dallangwell 132 kV Connection (see **Plate 2.1**).

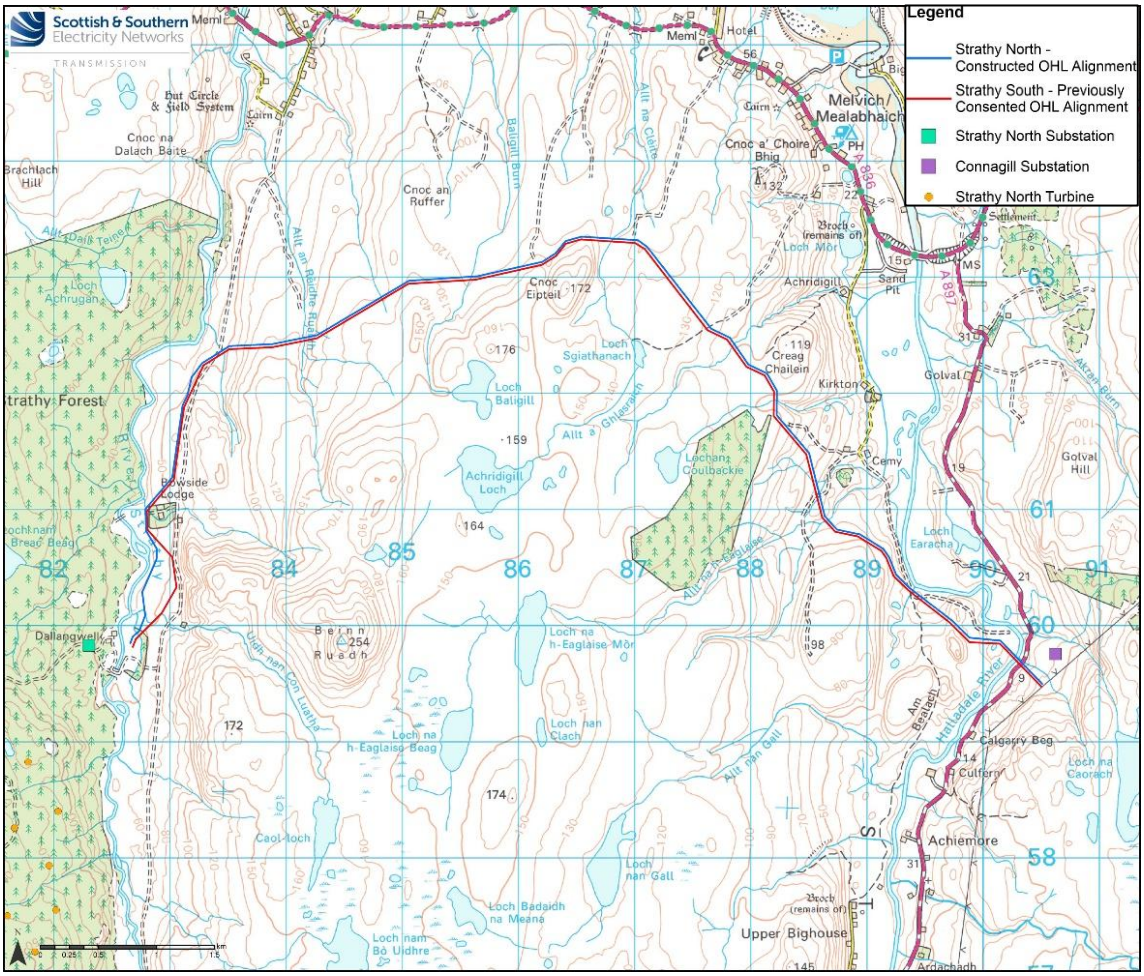
1.2.2 Consent for the Strath Halladale to Dallangwell 132 kV Connection was granted by Scottish Ministers in February 2014[5] and construction of one of the OHLs (to connect Strathy North Wind Farm to the electricity transmission network) was completed in 2015. The second consented OHL (to provide a connection for the then proposed, but not consented, Strathy South Wind Farm) was not constructed due to delays in consenting of the wind farm. The section 37 consent for the second OHL has now lapsed. Furthermore, the Strathy South Wind Farm developer has sought to change the point of connection from the Strathy North Wind Farm on-site substation, near Dallangwell, to the Strathy South Wind Farm substation. These factors, together with the requirement for the Applicant to consider other connection requirements in the wider area (see Section 1.3), have resulted in a new application for the Proposed Development being brought forward.

[3] Strathy Wood Wind Farm Grid Connection (ECU Reference ECU00005221)

[4] Given that this development is of a scale that would have otherwise been classified as 'Major' by the Town and Country Planning (Hierarchy of Developments) (Scotland) Regulations 2009.

[5] Received consent form the Scottish Ministers in February 2014 (ECU Reference 99/13-14 and 100/13-14).

Plate 2.1: Consented Strath Halladale to Dallangwell 132kV Connection



1.3 Connagill Cluster Grid Connections

1.3.1 The Proposed Development forms part of a wider connection strategy for renewable generation in the area referred to as the Connagill Cluster Grid Connections. The developments that make up the Connagill Cluster Grid Connections include the consented Strathy South Wind Farm, the consented Strathy Wood Wind Farm, the proposed Melvich Wind Energy Hub (comprising 12 turbines with 57.6 MW capacity plus 42 MW of battery storage) and the proposed Kirkton Energy Park (comprising 11 turbines with 52.8 MW capacity plus 20 MW of battery storage). To facilitate the Connagill Cluster Grid Connections, a new switching station, known as Strathy Switching Station, would also be required. In light of these connection requirements, the Applicant has taken a rationalised approach to these connection requests with the aim of utilising shared infrastructure where practicable.

1.3.2 The proposed technology soution and consenting approach for each grid connection across the cluster is outlined in **Table 1.1**.

1.3.3 Further information on the Connagill Cluster Grid Connections is available at: https://www.ssen-transmission.co.uk/projects/project-map/Connagill-Cluster/. The proposed Strathy Switching Station and other Connagill Cluster Grid Connections are considered in this EIA Report where relevant within the cumulative assessments.

Table 1.1: Connagill Cluster Grid Connections – Proposed Technology Solutions and Consenting Approach

Project	Technology Solution	Description	Consenting Approach
Infrastructure required to connect Strathy South and Strathy Wood Wind Farms to Connagill 275/132 kV Substation	132 kV UGC (referred to in this EIA Report as Strathy South Wind Farm 'Southern Section' Grid Connection)	From Strathy South Wind Farm on-site substation to a CSE compound in the vicinity of Strathy Wood Wind Farm on-site substation.	Anticipated to be Permitted Development under Class 40 1(a) of The Town and Country Planning (General Permitted Development) (Scotland) Order 1992.
	132 kV OHL supported by steel structure (referred to in this EIA Report as Strathy Wood Wind Farm Grid Connection)	From a new CSE compound near to Strathy Wood Wind Farm on-site substation a new double circuit 132 kV OHL would proceed north to connect to the existing network via a 'T' onto the existing Strathy North 132 kV trident 'H' wood pole OHL. This OHL would transport the electricity generated from Strathy Wood Wind Farm initially to Connagill 275/132 kV substation for onward transmission.	Section 37 of the Electricity Act 1989 Submitted in November 2024., ECU Ref. ECU00005221
	132 kV OHL supported by steel structure (referred to in this EIA Report as the Strathy South Wind Farm Grid Connection, or the Proposed Development)	Due to the combined generating capacity of the consented Strathy South and Strathy Wood wind farms, the shared connection would be unable to utilise the existing 132 kV wood pole OHL to Connagill 275/132 kV substation (as per the Strathy Wood Wind Farm Grid Connection). Instead, a new section of double circuit 132 kV OHL would continue the connection from within the vicinity of the 'T' point to Connagill 275/132 kV substation. A new double circuit 132 kV OHL supported by steel structures would therefore be constructed to continue the connection between the Strathy North 'T' (at Dallangwell) to Connagill 275/132 kV substation. A section of OHL would be capable of operating at 275 kV in the future, if required.	Section 37 of the Electricity Act 1989.

Project	Technology Solution	Description	Consenting Approach
		Upon completion of this OHL, electricity generated by Strathy Wood, Strathy South and Strathy North wind farms would be transferred over to the new OHL and redundant parts of the existing 132 kV wood pole OHL removed (see below).	
Infrastructure to connect Melvich Wind Energy Hub to Connagill 275/132 kV Substation	132 kV UGC	From Melvich wind farm on-site substation to the existing Strathy North 132 kV trident 'H' wood pole OHL (section to be retained).	Anticipated to be Permitted Development under Class 40 1(a) of The Town and Country Planning (General Permitted Development) (Scotland) Order 1992.
Infrastructure to connect Kirkton Energy Park to Connagill 275/132 kV Substation	132 kV trident wood pole OHL	The works would include a short span (<1 km) of single circuit 132 kV trident wood pole OHL between Kirkton wind farm on-site substation and a 'T' on the existing Strathy North 132 kV trident 'H' wood pole OHL (section to be retained).	Section 37 of the Electricity Act 1989. Anticipated to be submitted in autumn 2025.
Existing Strathy North 132 kV OHL	132 kV trident wood pole OHL	Once the Proposed Development is constructed, to further rationalise the project, a section of the existing Strathy North 132 kV trident H-wood pole OHL would be removed. The section of wood pole OHL that would remain in place would be re-purposed for use by the Melvich and Kirkton Grid Connections into Connagill 275/132 kV substation.	This would fall under ancillary development of the section 37 submission for the Proposed Development.
Strathy Switching Station	Switching station	To facilitate the four connections, a new switching station would be required to collect all incoming circuits onto a double busbar before taking these through the double circuit 132 kV OHL supported by steel structure.	Town and Country Planning (Scotland) Act 1997. Anticipated to be submitted in autumn 2025.

1.4 Alternative Alignment

1.4.1 As referred to in paragraph 1.1.6, the Applicant also seeks consent under section 37 of the 1989 Act for an alternative option to circumnavigate the proposed Melvich Wind Energy Hub[6], referred to as the "Alternative Alignment". The Alternative Alignment would be consistent with the Proposed Alignment between Towers 19 to 31 and from Tower 47 to its connection into Connagill 275/132 kV substation. From Tower 31 though, the Alternative Alignment would deviate to the north of the Proposed Alignment for approximately 8 km.

1.4.2 The decision taken by the Applicant to include both options within the consent application has been made given the route of the Proposed Alignment passes through the footprint of the proposed Melvich Wind Energy Hub. The minimum distance required between the proposed wind turbines and an OHL capable of operating at 275 kV could not be maintained along the route of the Proposed Alignment and therefore, should Melvich Wind Energy Hub be granted consent, in accordance with the proposal currently submitted, an alternative OHL alignment would need to be considered. The Applicant requests that the Scottish Ministers consider both the Proposed Alignment and the Alternative Alignment whilst noting that only one of the options would be built.

1.4.3 The key differences between the Proposed Alignment and Alternative Alignment are set out in **Table 1.2** below.

Table 1.2: Key differences between the Proposed Alignment and the Alternative Alignment

Item	Proposed Alignment	Alternative Alignment
Length of OHL Alignment	10.5 km	13.5 km
Number of steel lattice towers	46	58
Length of UGC (permanent)	780 m	780 m
Approximate length of existing track	5.7 km	5.7 km
Approximate length of existing track to be upgraded	13.3 km	10.9 km
Approximate length of new permanent access track	7.4 km	7.9 km
Approximate length of new temporary access track	5.8 km	6.0 km
Length of temporary wood pole OHL diversion	None	2.2 km
Number of temporary wood poles	None	30 No.
Length of temporary UGC diversion	None	485 m
Length of existing Strathy North 132 kV trident 'H' wood pole OHL to be dismantled	7.1 km	7.1 km[7]
Length of existing Strathy North 132 kV trident 'H' wood pole OHL to be retained	4.8 km	4.8 km
Number of watercourse crossings	Access Tracks: • one new temporary crossing	Access Tracks: • one new temporary crossing

[6] Melvich Wind Energy Hub (2023) (Reference ECU00004514).

[7] This total includes the sections of temporary UGC diversion required to build the Alternative Alignment

Item	Proposed Alignment	Alternative Alignment
	• four new permanent crossings • 16 existing crossings on tracks to be upgraded UGC: • two permanent crossings	• six new permanent crossings • 18 existing crossings on tracks to be upgraded UGC: • two permanent crossings
Woodland felling to create an Operational Corridor	5.75 ha	5.75 ha

1.5 EIA Report Structure

1.5.1 The EIA Report consists of the following volumes:

- Volume 1: Main Report;
- Volume 2: Figures;
- Volume 3a: Visualisations (NatureScot guidelines)[8];
- Volume 3b: Visualisations (The Highland Council guidelines)[9];
- Volume 4: Appendices to support each of the Chapters in the EIA Report where required;
- Volume 5: EIA of Alternative Alignment; and
- Non-Technical Summary.

1.5.2 A Planning Statement is also included with the application as supporting documentation. The Planning Statement considers the compatibility of the Proposed Development in the context of the development plan and national energy and planning policies.

1.5.3 A Socio-economic Technical Note is included with the application as supporting information. The Technical Note assesses the potential socio-economic impacts from the construction and operation of the Proposed Development.

1.6 Notifications

1.6.1 In accordance with the Electricity (Applications for Consent) Regulations 1990, and Regulation 14 of the EIA Regulations, the application and the EIA Report will be advertised in the John O'Groats Journal and the Northern Times newspapers. Adverts will also be placed in the Edinburgh Gazette and on the Applicant's website.

1.6.2 Notice of the section 37 application, including this EIA Report and associated documents and figures, will be available for viewing at the following locations:

- West End Stores and Melvich Post Office, Melvich, Portskerra, Thurso, KW14 7YL (normal opening hours Monday to Friday 8.30am to 5.30pm and Saturday 9am to 5pm).
- Thurso Service Point, Council Offices, Rotterdam Street, Caithness, KW14 8AB (opening hours Monday to Friday 9.30am to 12.30pm).

1.6.3 An electronic version of the EIA Report is available online at: https://www.ssen-transmission.co.uk/projects/project-map/Connagill-Cluster/

1.6.4 This EIA Report is available in other formats if required. For details, including costs, contact:

[8] NatureScot (Formerly Scottish Natural Heritage (SNH)), (2017), Visual Representation of Wind Farms (Version 2.2) (SNH, 2017)

[9] The Highland Council (THC), (2016), Visualisation Standards for Wind Energy Developments (THC, 2016)

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2. THE ROUTEING PROCESS AND ALTERNATIVES

2.1 Introduction

2.1.1 The Proposed Development has been subject to a routeing process to establish a proposed route[10], alignment[11] and design solution that was determined to provide an optimum balance of environmental, technical and economic factors. This process included a programme of consultation at both routeing and alignment stage, designed to engage with key stakeholders in order to invite feedback on the rationale for, and approach to, the selection of the final alignment and design solution of the Proposed Development. Further review of the Proposed Development during the EIA stage of the project has also led to further refinements to minimise potential environmental effects.

2.2 A Rationalised Approach

2.2.1 The Proposed Development forms part of the Connagill Cluster Grid Connections which, following a review of various technology options available, resulted in the Applicant identifying a rationalised approach across the other grid connections that make up the Connagill Cluster Grid Connections.

2.2.2 As part of the rationalised approach, the Applicant considered the use of an OHL supported by a steel structure (i.e. steel lattice tower), would be capable of carrying a much larger capacity and therefore have the ability to be used as 'shared infrastructure', with the additional benefit of providing an opportunity for futureproofing. It was therefore concluded that a steel lattice tower would be the optimal OHL design solution to be considered going forward at routeing and alignment stage for the Proposed Development.

2.3 Approach to Route and Alignment Selection

2.3.1 Guidelines for the routeing of new high voltage OHLs have been established within the electricity supply industry. These guidelines are known as the 'Holford Rules' and have been widely used throughout the UK since the 1960s. The 'Holford Rules' set out a hierarchical approach to routeing which advocates avoiding areas of high amenity value, minimise changes in direction, takes advantage of topography and minimises visual interaction with other transmission infrastructure.

2.3.2 SSEN Transmission has developed its own guidance, based on the principles set out in the Holford Rules, but broadening the basis for routeing decisions to reflect contemporary practice, and providing a framework to ensure environmental, technical and economic considerations are identified and appraised at each stage of the routeing process.

2.3.3 The approach to route and alignment selection has therefore been informed by the Applicant's routeing guidance, which splits the routeing stage of a project into four principal stages, as follows:

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

[10] A linear area of approximately 1 km width (although this may be narrower/wider in specific locations in response to identified constraints), which provides a continuous connection between defined connection points.
[11] A centre line of an OHL or UGC.

2.3.4 Each stage is an iterative process and involves an increasing level of detail and resolution, bringing environmental, technical and cost considerations together in a way which seeks to achieve the best balance at each stage. The stages that are carried out can vary depending on the type, nature of and size of a project and consultation is carried out at each stage of the process, where relevant. Each stage is described in further detail in the following sections.

Routeing Strategy Development (Stage 0)

2.3.5 During the Routeing Strategy Development stage, the Applicant considered the proposed strategy for the routeing stage of the project and confirmed which stages, as set out within SSEN Transmission's guidance, are applicable to the Proposed Development.

Corridor Selection (Stage 1) and Route Selection (Stage 2)

2.3.6 The Corridor Selection stage (Stage 1) occurred simultaneously with Stage 2: Route Selection. This included an environmental and technical appraisal of the previously consented route for the OHL connection, to ensure it continued to be suitable given the change in design solution to steel lattice tower (from wood pole), prior to arriving at an optimal route[12] for the purposes of consultation and a proposed route[13] to take forward to the alignment selection stage (Stage 3).

Alignment Selection (Stage 3)

2.3.7 The alignment selection stage of the project sought to determine an alignment within the proposed route identified during the route selection stage of the project. When identifying and appraising alignment options for Stage 3, localised constraints such as topography and peat depth needed to be considered.

2.4 Route Selection (Stage 2): Summary of Appraisal

The Proposed Development with the Proposed Alignment

2.4.1 In 2021, the Applicant carried out an exercise to review the OHL route and alignment from the original 2013 consent (see paragraph 1.2.1) to confirm its continued suitability for the Proposed Development (with the Proposed Alignment) from both an engineering and environmental perspective.

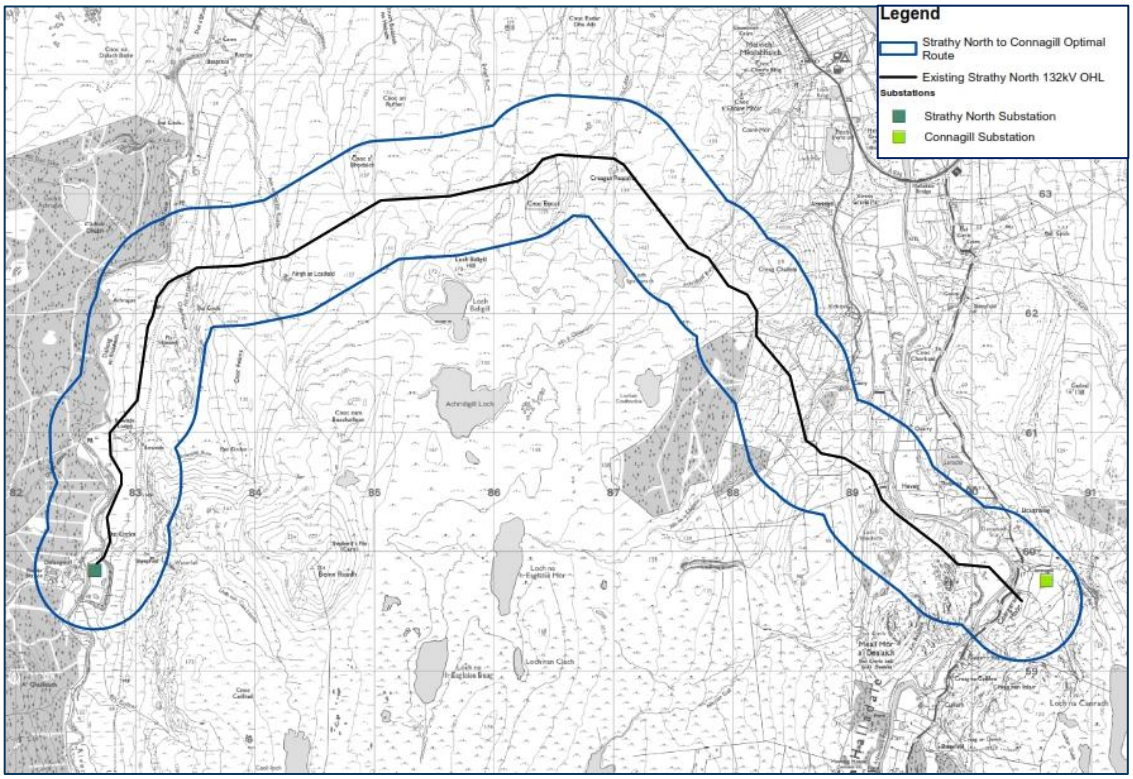
2.4.2 The review concluded that the route previously identified, which now follows the route of the existing Strathy North 132 kV OHL, remained optimal (see **Plate 2.2**). The review exercise in 2021 considered that the connection at that time would continue to be wood pole structure.

2.4.3 As part of the assessment to rationalise the cluster, the Applicant carried out a further review in 2023 to consider an OHL supported by steel lattice tower which concluded that the optimal route for a wood pole OHL is also considered the optimal route for a steel lattice tower OHL.

2.4.4 The Optimal Route, as displayed on **Plate 2.2**, was presented in the Connagill Cluster Grid Connections Consultation Document (Routeing Stage)[14] ("the Route Stage Consultation Document").

[12] A route to be taken forward to stakeholder consultation following a comparative appraisal of route options.
[13] A route taken forward following stakeholder consultation to the alignment selection stage (Stage 3) of the routeing process
[14] Connagill Cluster Grid Connections: Consultation Document (Route Stage) (December 2023), produced by SSEN Transmission. Available at https://www.ssen-transmission.co.uk/globalassets/projects/connagill-cluster-documents/connagill-cluster-grid-connections---routeing-consultation-document.pdf

Plate 2.2: Optimal Route



The Proposed Development with the Alternative Alignment

2.4.5 During routeing studies, SSEN Transmission identified four route options for the Proposed Development with the Alternative Alignment, based on an initial desk-based review and knowledge of the site, as illustrated on **Plate 2.3.**

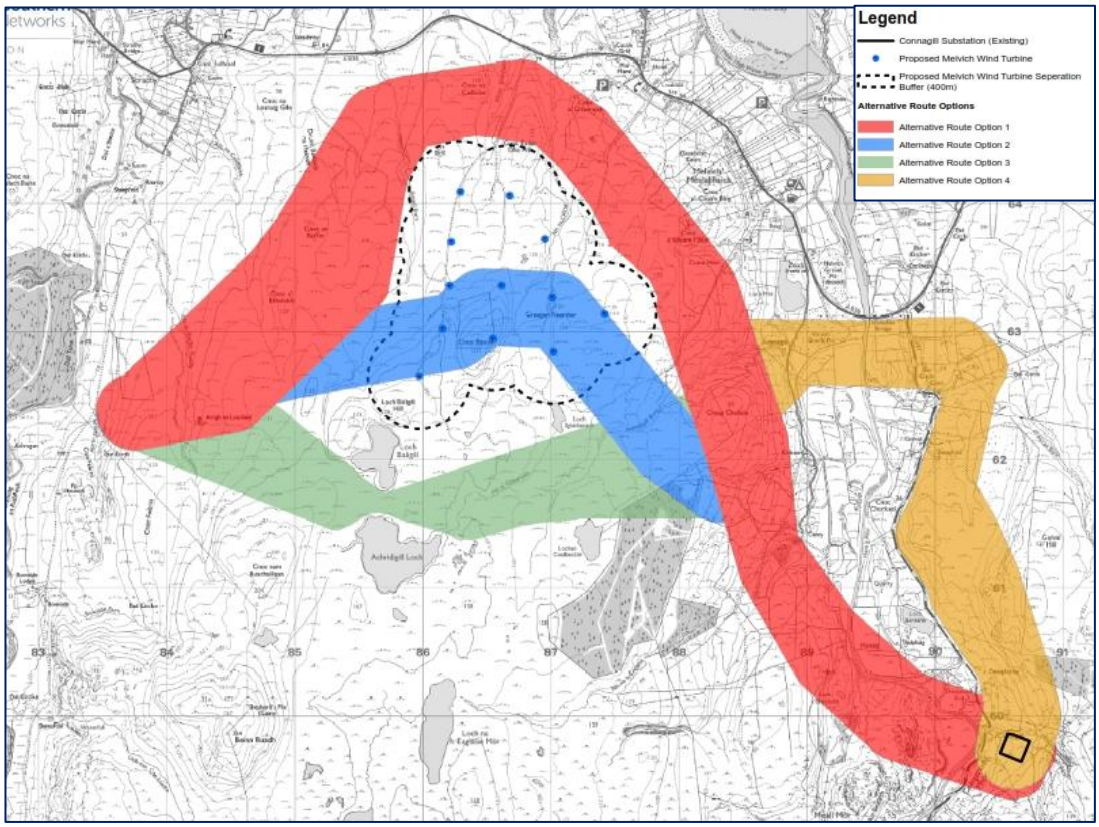
2.4.6 The comparative appraisal noted that after taking the various constraints and route preferences into account, the optimal alternative route was considered to be **Alternative Route Option 1.** Alignment Route Option 1 is completely outwith the designated and protected areas of the Special Area of Conservation (SAC), Special Protection Area (SPA), Ramsar site and underlying West Halladale Site of Special Scientific Interest (SSSI), albeit falls within the northern part of the Flow Country World Heritage Site (WHS). Being the most northerly of all route options, it also offers more limited disturbance to qualifying bird species of the Caithness and Sutherland Peatlands SPA given the increased distance from it. While it does bring development in closer proximity to settlements in the north and west (including Melvich and Portskerra), it was considered that a robust review at alignment stage could consider options to mitigate some of the key effects. As explained in paragraph 1.4.2, it should be noted that this alternative connection would only be required should the Melvich Wind Energy Hub, in accordance with the proposals currently submitted, gain planning approval, in which case, this OHL would be seen in combination with much larger wind turbine infrastructure.

2.4.7 The other alternative route options were considered less favourable due to the following factors:

- Although Alternative Route Option 3 has a shorter overall length compared to other options considered, and the requirement for fewer angle towers and additional infrastructure compared to other route options, from an environmental perspective it was considered the least optimal option, primarily due to Alternative Route Option 3 falling directly within the Caithness and Sutherland SAC, SPA, Ramsar site and underlying West Halladale SSSI, and the potential impact on the qualifying features of these sites. The topography along this alternative route is much flatter, allowing deeper peats to form which provides more sensitive habitat and more challenging conditions for construction. Being the most southerly option, and further from the public roads, there is minimal to no existing access opportunities for much of the route, which would require the construction of additional infrastructure within the protected areas.
- Alternative Route Option 2 was considered the slightly more optimal environmental option given it is the shortest in length and by making use of an UGC for a section of this route may allow the connection to appear slightly less prominent in views from the north, albeit this is not the most sensitive part of the landscape. The section of UGC passes through areas of peatland, and while there could be opportunities for restoration of habitats along the temporary construction corridor of the UGC, it should be recognised that tower locations typically have more opportunity to be microsited to minimise and reduce impacts on peat compared to an UGC. There would be additional habitat loss associated with permanent above ground infrastructure that would be required along the section of that would increase the connections footprint and required land take. There are a number of engineering challenges associated with Alternative Route Option 2 which makes it less favourable, including the construction of an UGC through a landscape of deep peat, and the lack of existing access opportunities. The construction of an UGC through a third-party wind farm (Melvich Wind Energy Hub[15]) would also be very challenging due to the need to avoid interference with existing wind turbines and their associated cable connection, all of which would require adequate clearance to provide the required width of the working construction corridor. Using an UGC limits the future flexibility of the network as 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. There are also higher associated capital costs of constructing an UGC (with associated infrastructure).
- Alternative Route Option 4 had the longest connection length and would require a greater number of angle towers compared to the other options. This alternative route option is also situated within 100 m of dwellings within Strath Halladale and routed through a denser area of archaeological assets and in closer proximity to the Halladale Bridge hut circles scheduled monument and is therefore less optimal from an engineering, environmental and cost perspective.

[15] The purpose of the Alternative Alignment is to avoid conflict with the proposed Melvich Wind Energy Hub, in accordance with the proposals currently submitted, and therefore the appraisal has assumed that this proposed development is present.

Plate 2.3: Alternative Route Options



2.5 Route Selection (Stage 2): Reporting and Consultation

2.5.1 The route selection stage reporting and consultation process was designed to engage with stakeholders including statutory and non-statutory consultees, local communities, landowners and individual residents in order to invite feedback on the rationale for and approach to, the selection of the Optimal Route and Optimal Alternative Route.

2.5.2 SSEN Transmission aimed to streamline consultation of the routeing process for the Connagill Cluster Grid Connections, of which the Proposed Development is part of. This was to allow stakeholders the opportunity to review the Connagill Cluster Grid Connections as a whole during the routeing stages to consider the proposals to consolidate infrastructure and construction practices where practicable.

Proposed Development with the Proposed Alignment

2.5.3 At route selection stage, consultation responses received from statutory and non-statutory consultees provided general support for the Optimal Route identified[16]. No specific comments were received from the local community.

2.5.4 NatureScot provided development advice on protected areas, specifically the Caithness and Sutherland Peatlands SAC and SPA, and the [at the time] proposed Flow Country WHS. They set out the information needed to be supplied in an application for consent to allow NatureScot to be able to comment on the proposals with regards to National Planning Framework 4 (NPF4) and their remit for protected areas. NatureScot also suggested that the Applicant consult with the developers of the proposed and consented wind farms, which are to be connected by the project, for information with respect to SPA species distribution and movement.

[16] Connagill Cluster Grid Connections: Report on Consultation (Route Stage) April 2024, produced by SSEN Transmission. Available at: https://www.ssen-transmission.co.uk/globalassets/projects/connagill-cluster-documents/2024-consultation-documents/report-on-consultation-routeing-stage---connagill-cluster---april-2024.pdf

2.5.5 RSPB Scotland welcomed that the optimal route appeared to largely avoid natural heritage designated sites in the area, however noted that the [at the time] candidate Flow Country WHS could not be avoided.

2.5.6 The Highland Council (THC) had no further comments from those that they had already raised at pre-application stage.

2.5.7 Whilst the environmental sensitivities were noted and would be considered further during the alignment selection stage of the project, on balance it was considered that the Optimal Route shown in **Plate 2.2** (as per the 2013 section 37 consent) was to be taken forward to Stage 3 (Alignment Stage) as the Proposed Route, comprising a 132 kV double circuit OHL supported by steel lattice tower (and a section capable of operating at 275 kV in the future, if required).

Proposed Development with the Alternative Alignment

2.5.8 THC suggested in their response that it may be worthwhile considering an iteration of Alternative Route Option 1, but with an UGC section in the northern part of the route, where it runs closest to the A836 and settlements. Within the Connagill Cluster Grid Connection Report on Consultation (Route Stage) ("Report on Consultation (Route Stage)"), the Applicant noted that OHL technology is considered as a starting point for all connections, however the use of UGC is also considered where appropriate, for example to mitigate a likely significant effect; but it should be acknowledged that an UGC does not come without its own constraints. In response to THC's suggestion, the Applicant acknowledged that Alternative Route Option 1 falls within the (at the time) candidate Flow Country WHS and that the intention was 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. Other considerations in relation to the use of UGC that the Applicant flagged are as per the constraints set out in paragraph 2.4.7 for Alternative Route Option 2.

2.5.9 As for the Proposed Development with the Proposed Alignment, NatureScot provided development advice on protected areas, specifically the Caithness and Sutherland Peatlands SAC, SPA, and the [at the time] candidate Flow Country WHS and set out the information needed to be supplied in an application for consent.

2.5.10 In response to the Optimal Alternative Route (Alternative Route Option 1), Historic Environment Scotland (HES) noted that it had the potential to impact the east-west axial view from the Category A Listed Building Bighouse garden pavilion and walled garden (LB7160), and there may also be potential for cumulative impacts alongside the proposed Melvich Wind Energy Hub which should be taken into consideration. HES suggested that a photomontage showing the view from the garden pavilion looking west along the axial view towards the alternative route option be undertaken to assist with the understanding of potential impacts on the setting of the buildings, and requested that the visualisation also include the proposed Melvich Wind Energy Hub to demonstrate potential cumulative impacts. The Applicant confirmed that the potential setting impacts on historic designated sites would continue to be reviewed as the project progresses through the alignment selection and EIA stages of the project. Following the alignment selection stage, should Bighouse garden pavilion be considered likely to be impacted by the OHL, further discussion would take place with HES regarding the requirement for a visualisation from this site.

2.5.11 RSPB Scotland welcomed that the Optimal Alternative Route would avoid designated sites with the exception of the [at the time] candidate WHS boundary, and being the most northerly route option considered may limit disturbance to qualifying bird species of the SPA. RSPB agreed with the Applicant that Alternative Route Option 3 could be considered the worst choice as it encroaches most extensively into the designated sites. Nevertheless, RSPB did raise concerns 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. Within the Report on Consultation (Route Stage), the Applicant confirmed that ornithology surveys were carried out in this area between 2022-2023 in accordance with species-specific methodologies. It was also acknowledged that substantial pre-existing baseline bird data also exists from surveys completed for developments that are either operational, consented or proposed in the wider Strathy area and that the Applicant intends to draw upon the collated data to inform the alignment selection stage and future ornithological impact assessments for the project.

2.5.12 Whilst the environmental sensitivities were noted and would be considered further during the alignment selection stage of the project, on balance it was considered that the Optimal Alternative Route (Alternative Route 1) was to be taken forward as the Proposed Alternative Route, comprising a 132 kV double circuit OHL supported by steel lattice tower (and a section capable of operating at 275 kV in the future, if required).

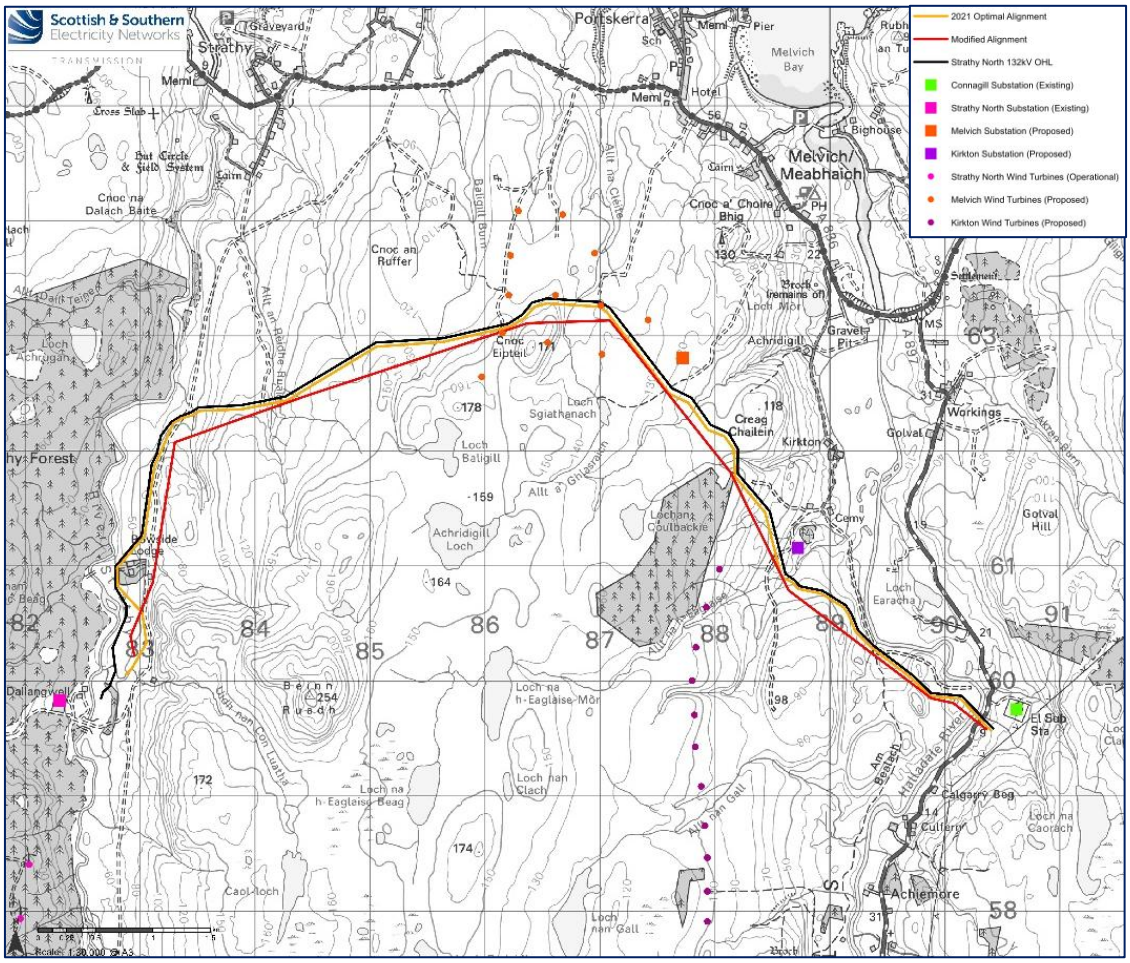
2.6 Alignment Selection (Stage 3): Summary of Appraisal

The Proposed Development with the Proposed Alignment

2.6.1 As mentioned in paragraph 2.4.1, in 2021 the Applicant carried out an exercise to review the route and alignment previously consented (in 2013) to connect Strathy South Wind Farm to the electricity transmission network. At this time the connection continued to be considered an OHL supported by trident 'H' wood pole (as per the 2013 consent). The 2021 review concluded that the alignment previously identified, which follows alongside the existing Strathy North 132 kV trident 'H' wood pole OHL, remained optimal.

2.6.2 As part of the assessment to rationalise the cluster, the Applicant carried out a further engineering review in 2023 to consider an OHL supported by steel lattice tower, which resulted in some minor modifications to the 2021 optimal alignment to ensure sufficient clearance from the existing Strathy North 132 kV trident 'H' wood pole OHL by larger steel tower structures. This is referred to as the "Modified Alignment". The 2021 Optimal Alignment and the Modified Alignment are illustrated on **Plate 2.4.**

Plate 2.4: Optimal Alignment and Modified Alignment



2.6.3 An environmental review of the Modified Alignment was carried out by the Applicant which considered that the increased height of the steel lattice tower could appear more intrusive both to sensitive bird species and to the open character of the landscape and visual receptors, compared to what was considered for the 2021 Optimal Alignment (wood pole). In comparison to wood poles, steel lattice towers would require a longer construction period, which could increase the potential for disturbance to protected species and breeding birds for a longer period, as well as requiring a larger footprint, increased working areas (around the towers) and requirement for additional infrastructure (i.e. access tracks), which may also lead to greater direct habitat loss and further loss, damage or fragmentation of habitats including peatland.

2.6.4 The Modified Alignment would require the careful placement of towers, particularly in relation to targeting the avoidance of sensitive qualifying habitats of the Caithness and Sutherland Peatlands SAC, Ramsar and West Halladale SSSI, and regionally significant heritage assets, but would also require the application of further mitigation, at both construction and operational stages, to avoid and reduce potential effects on the qualifying interests of the designated sites.

2.6.5 Whilst the potential for constraints and mitigation was recognised for the Modified Alignment, the review concluded that there were no particular constraints that would preclude this alignment from being taken forward. The benefit of the larger scale steel lattice towers should not be overlooked, given they would allow the use of 'shared infrastructure', thereby negating the need for several separate wood pole OHL connections and the potential consequential cumulative effects. The Modified Alignment was therefore presented as the Optimal Alignment in the Connagill Cluster Grid Connections Consultation Document (Alignment Stage)[17] ("the Alignment Stage Consultation Document").

2.6.6 Following alignment selection for the Proposed Development with the Alternative Alignment (see paragraphs 2.6.8 to 2.6.13), the Applicant considered the benefits of the 'Optimal Alternative Alignment' approaching Connagill 275/132 kV substation from the south. An approach from the south would cross Strath Halladale away from the more open valley area and would make better use of the local landform, helping the OHL to appear less prominent from the strath and nearby sensitive properties. As such, it was determined that the Optimal Alignment would be modified to capture the more southerly approach into Connagill 275/132 kV substation, as per the Optimal Alternative Alignment.

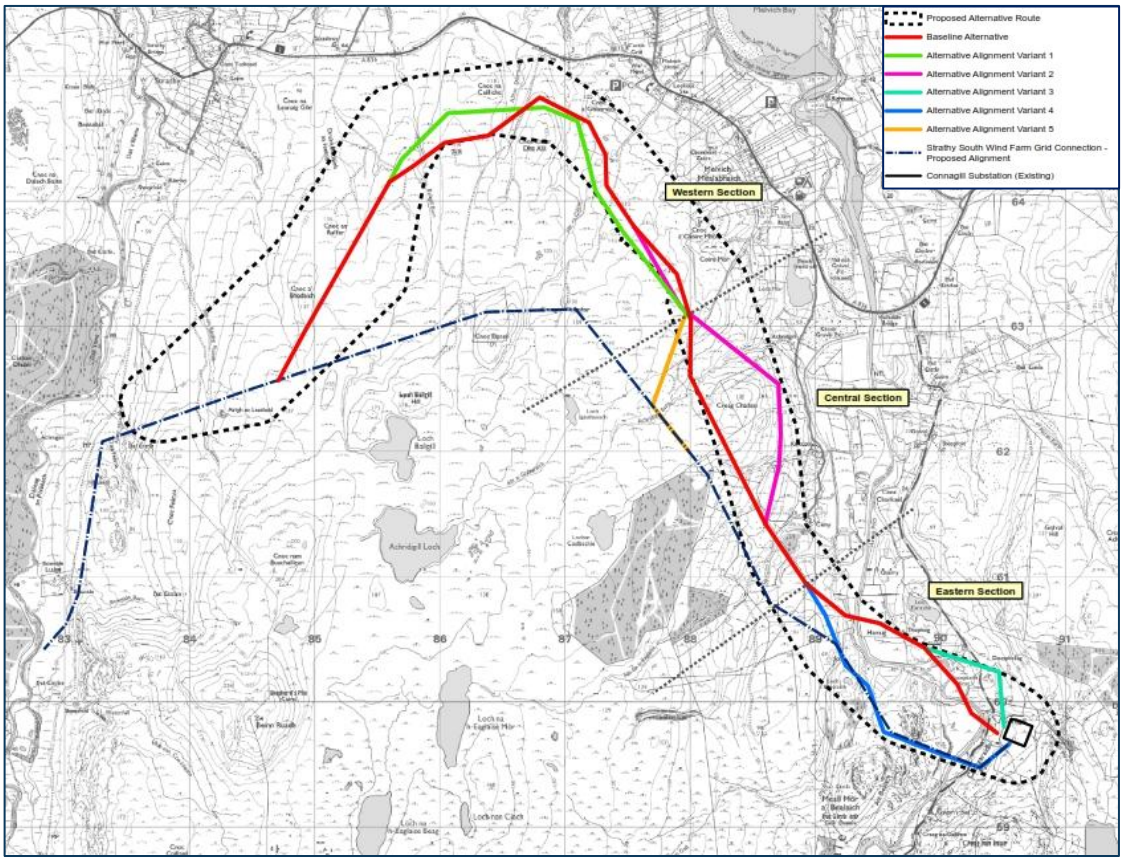
2.6.7 To help further rationalise the cluster and mitigate some of the visual impacts from the OHL structures in the area, the Applicant proposed that once the Proposed Development is constructed, a section of the existing Strathy North 132 kV trident 'H' wood pole OHL would be dismantled and removed (between Strathy north substation to a point near Melvich substation) and the generation from Strathy North Wind Farm would join the proposed double circuit 132 kV OHL. The remaining wood pole would be repurposed for other elements of Connagill Cluster Grid Connections.

The Proposed Development with the Alternative Alignment

2.6.8 One technically feasible and economically viable alternative alignment option, considered to be the shortest connection while avoiding or minimising interaction with the environmental constraints, was identified within the Proposed Alternative Route. This was referred to as the Baseline Alternative Alignment and five alternative alignment variants were developed to avoid localised constraints, as displayed on **Plate 2.5.**

[17] Connagill Cluster Grid Connections: Consultation Document (Alignment Stage) (May 2024), produced by SSEN Transmission. Available at: https://www.ssen-transmission.co.uk/globalassets/projects/connagill-cluster-documents/2024-consultation-documents/conngaill-cluster-grid-connections---alignment.pdf

Plate 2.5: Proposed Alternative Route and Alternative Alignment Options



2.6.9 Alternative Alignment Variant 1 was considered optimal for both environmental and engineering considerations (compared to the comparable section of the Baseline Alternative Alignment) as it would slightly reduce the prominence of an OHL from the A836 and settlement of Melvich to the north, although noting that an OHL would still form a prominent feature in views. This variant would also require fewer angle structures and fewer crossing of metallic pipes (water pipelines) and therefore would be less challenging to construct.

2.6.10 While engineering preferred Alternative Alignment Variant 2 (compared to the comparable section of the Baseline Alternative Alignment), as it would cross less Class 1 priority peatland and be closer to existing access, making it less challenging to construct, from an environmental perspective this option was considered the least optimal, as it would bring development close to properties within Strath Halladale and would appear imposing in views and have a more notable effect on amenity. Overall, it was considered not appropriate to progress this option. Instead, Alternative Alignment Variant 5 (in combination with 'Strathy South Wind Farm Grid Connection Proposed Alignment') would allow development to be further from the strath and follow the existing OHL thereby keeping development together. However, it would bring development closer to the natural heritage designated sites to the west (Caithness and Sutherland Peatlands SPA, SAC and Ramsar, and the West Halladale SSSI), although the potential effects on qualifying features are expected to be of similar magnitude should other options be progressed. Another advantage of Alternative Alignment Variant 5 (in combination with the 'Strathy South Wind Farm Grid Connection Proposed Alignment') is that although it would require a section of the existing Strathy North 132 kV OHL to be undergrounded, this would be at a point where the existing OHL would already be undergrounded to accommodate the separately proposed Melvich Grid Connection, thereby reducing construction challenges.

2.6.11 In the eastern extent, the optimal environmental option was Alternative Alignment Variant 4 (compared to the comparable section of the Baseline Alternative Alignment or Alternative Alignment Variant 3) due to the favourable crossing of Strath Halladale and A897. Being further south and away from the open valley, and its use of the local landform to appear less prominent from the strath and sensitive nearby properties, make it favourable compared to all other crossings considered in the eastern extent. Alternative Alignment Variant 4 would be situated further from the Halladale River and outwith the mapped floodplain for a longer stretch, making it preferable from a construction and maintenance perspective. When considered in combination with Alternative Alignment Variant 5 (in combination with the 'Strathy South Wind Farm Grid Connection Proposed Alignment'), Alternative Alignment Variant 4 would not require a crossing of the existing Strathy North 132 kV OHL (as this would already have taken place at a point further north in proximity to Melvich wind farm substation); it was for this reason that Alternative Alignment Variant 4 did not factor so favourably in the engineering appraisal.

2.6.12 The Optimal Alternative Alignment was therefore considered to be a combination of the Baseline Alternative Alignment, Alternative Alignment Variant 1, Alternative Alignment Variant 5 (in combination with 'Strathy South Wind Farm Grid Connection Proposed Alignment') and Alternative Alignment Variant 4.

2.6.13 Following the appraisal of alternative alignment options, further engineering studies proposed a slight realignment in proximity to Loch a'Bhealaich, to navigate topographical constraints. The proposed realignment was reviewed from an environmental perspective, which concluded that there would be no significant environmental risks and as such, this realignment was incorporated into the Optimal Alternative Alignment which was taken forward to stakeholder consultation.

2.7 Alignment Selection (Stage 3): Reporting and Consultation

The Proposed Development with the Proposed Alignment

2.7.1 As stated in paragraph 2.5.2, SSEN Transmission streamlined consultation for the Connagill Cluster Grid Connections, which the Proposed Development is part of. No concerns were raised by stakeholders on the Optimal Alignment presented in the Alignment Stage Consultation Document[17] in relation to the designated natural heritage sites, or the Flow Country WHS. No comments were received from members of the public following an alignment stage consultation event. As such, the reporting on the consultation process, detailed within the Report on Consultation (Alignment Stage), concluded that the Optimal Alignment identified within the Alignment Stage Consultation Document[17] would be taken forward to the EIA and consenting stage as the Proposed Alignment.

The Proposed Development with the Alternative Alignment

2.7.2 HES reiterated their concerns raised at routeing stage regarding the potential for the Optimal Alternative Alignment to impact on the setting of Category A listed Bighouse, garden pavilion and walled garden (LB7160). HES again recommended that a photomontage be produced to demonstrate and support the assessment of impacts on the setting of this asset. The Applicant consulted with HES to confirm that a visualisation from Bighouse garden pavilion would be produced (from an agreed viewpoint location) to be included within the EIA Report for the Alternative Alignment.

2.7.3 No concerns were raised by stakeholders on the Optimal Alternative Alignment in relation to the designated natural heritage sites, or the (at the time) proposed Flow Country WHS. No comments were received from members of the public following an alignment stage consultation event.

2.7.4 The reporting on the consultation process, detailed within the Report on Consultation (Alignment Stage)[18], concluded that the Optimal Alternative Alignment identified within the Alignment Stage Consultation Document would be taken forward to the EIA and consenting stage as the Proposed Alternative Alignment.

2.7.5 All comments raised through the alignment stage consultation for both the Proposed Alignment and Proposed Alternative Alignment, as well as those resulting from any further meetings and liaison with stakeholders were taken forwards to the EIA and consenting stage. The process remained inclusive, seeking further consultation where appropriate.

[18] Connagill Cluster Grid Connections: Report on Consultation (Alignment Stage) (September 2024), produced by SSEN Transmission. Available at: report-on-consultation-alignment-stage-september-2024.pdf (ssen-transmission.co.uk)

3. THE PROPOSED DEVELOPMENT

3.1 Project Overview

3.1.1 As described in paragraph 1.1.6, the Proposed Development comprises a Proposed Alignment and an Alternative Alignment, as illustrated on **Figure 1: Overview of the Proposed Development**.

3.1.2 The decision taken by the Applicant to include both options within the consent application has been made given the route of the Proposed Alignment passes through the footprint of the proposed Melvich Wind Energy Hub. The minimum distance required between the proposed wind turbines and an OHL capable of operating at 275 kV could not be maintained along the route of the Proposed Alignment and therefore, should Melvich Wind Energy Hub be granted consent, an alternative OHL alignment would need to be considered.

- The Proposed Alignment would consist of approximately 10.5 km of 132 kV double circuit OHL supported by steel lattice towers from Strathy North 'T' (near Dallangwell) to a new CSE compound, prior to connecting into Connagill 275/132 kV substation via two short sections of single circuit 132 kV UGC. To allow for futureproofing, it is proposed that a section of the Proposed Alignment would be capable of operating at 275 kV in the future, if required.
- The Alternative Alignment comprises a complete alternative connection for the Proposed Development (i.e. it originates near Dallangwell (Tower 19) and terminates at the existing Connagill 275/132 kV substation (Tower 64)). The Alternative Alignment would be consistent with the Proposed Alignment between Towers 19 to 31. From Tower 31, the Alternative Alignment would deviate away from the Proposed Alignment for approximately 8 km to avoid the proposed Melvich Wind Energy Hub. The Alternative Alignment would rejoin the Proposed Alignment to the north of the Achridigill Burn and would follow the same alignment (between Towers 47 to 64) to the proposed new CSE compound. The Alternative Alignment would connect into Connagill 275/132 kV substation via two short sections of single circuit 132 kV UGC, as per the Proposed Alignment.

3.1.3 To facilitate construction of the Alternative Alignment, sections of the existing Strathy North 132 kV trident 'H' wood pole OHL would need to be temporarily diverted at two separate locations where the Alternative Alignment would cross the existing trident 'H' wood pole OHL.

3.1.4 The Applicant's preference is to construct and operate the Proposed Alignment. The Applicant requests that the Scottish Ministers consider both the Proposed Alignment and the Alternative Alignment whilst noting that only one of the options would be built.

3.2 Development for which Section 37 Consent is sought

3.2.1 The Proposed Alignment would include the following works, for which section 37 consent under the 1989 Act is sought:

- The installation and operation of approximately 10.5 km of double circuit 132 kV OHL supported by steel lattice towers. Approximately 8.3 km of proposed OHL (between Towers 29[19] and Tower 64) would be constructed so that it would be capable of operating at 275 kV in the future, if required.

3.2.2 The Alternative Alignment would include the following works, for which section 37 consent under the 1989 Act is sought:

- The installation and operation of approximately 13.5 km of double circuit 132 kV OHL supported by steel lattice towers. This is an increase of approximately 3 km of OHL compared to the Proposed

[19] Tower 29 is within proximity of the optimal site of the proposed Strathy Switching Station which once built, would allow the OHL to be operated at 275 kV. The Applicant would seek consent for the switching station under the Town & Country Planning (Scotland) Act 1997 (as amended). In tandem, the Applicant would seek consent under section 37 of the Electricity Act 1989 to accommodate the proposed double circuit 132 kV OHL teeing into the switching station.

Alignment to enable the Alternative Alignment to circumnavigate the wind turbines of Melvich Wind Energy Hub. Approximately 11 km of proposed OHL (between Tower 29[19] and Tower 64) would be constructed so that it would be capable of operating at 275 kV in the future, if required.

- The temporary diversion of part of the existing Strathy North 132 kV trident 'H' wood pole OHL to facilitate the construction of the new double circuit steel lattice OHL through the installation of four new trident 'H' wood pole terminal structures (to enable temporary underground cable (UGC) diversions).
- The temporary diversion of part of the existing Strathy North 132 kV trident 'H' wood pole OHL to facilitate the construction of the temporary UGC diversions through the installation of 26 new trident 'H' wood pole terminal structures.

3.3 Ancillary Development for which Deemed Planning Permission (as part of the application for Section 37 Consent) is sought

3.3.1 Deemed planning permission under section 57(2) of the Town and Country Planning (Scotland) Act 1997 is sought (as part of the application for section 37 consent under the 1989 Act) for the following works that would be required as part of the Proposed Development, or to facilitate its construction and operation:

- The construction of a CSE compound to facilitate the transition between OHL and UGC[20] to be situated at approximate Ordnance Survey (OS) grid reference NC 903120, 59541 which is positioned to the south-west of the existing Connagill 275/132 kV substation;
- The formation of access tracks (permanent, temporary and upgrades to existing tracks) and the installation of culverts to facilitate access and ongoing maintenance where required;
- Working areas around infrastructure (i.e. around individual tower foundations) to facilitate construction;
- Tree felling and vegetation clearance to facilitate construction and operation of the Proposed Development, to comply with the Electricity Safety, Quality and Continuity Regulations (ESQCR) 2002[21];
- Temporary measures to protect water crossings (e.g. scaffolding and temporary bridges); and
- Redundant parts of the existing Strathy North 132 kV trident 'H' wood pole OHL would be dismantled following completion and commissioning of the Proposed Development.

3.4 Development which falls under the Town and Country Planning (General Permitted Development) (Scotland) Order 1992

3.4.1 The following works would fall under the Applicant's permitted development rights:

- The construction of two single-circuit 132 kV UGC connections[22], each circuit comprising three cables per phase, is required.

3.4.2 Deemed Planning Permission (as part of the application for the section 37 consent) is not sought for the UGC as the installation of the UGC falls under the Town and Country Planning (General Permitted Development) (Scotland) Order 1992.

3.4.3 These works are described in further detail in Section 3.7 and the environmental effects of the installation of the UGCs are considered within the EIA only for completeness and ease of reporting and presenting of those effects.

[20] UGC elements are classed as permitted development under Class 40 1(a) of The Town and Country Planning (General Permitted Development) (Scotland) Order 1992.
[21] The Electricity Safety, Quality and Continuity Regulations (2002), available at https://www.legislation.gov.uk/uksi/2002/2665/contents/made
[22] The UGCs would be capable of operating at 275 kV in the future, if required.

3.4.4 Whilst the above is applicable to both the Proposed Alignment and the Alternative Alignment, the following additional works would also fall under the Applicant's permitted development rights and would be required to facilitate the construction of the Alternative Alignment:

- The construction of a temporary UGC between the proposed new trident 'H' wood pole terminal structures to facilitate a temporary diversion of the Strathy North 132 kV trident 'H' wood pole OHL to facilitate construction of the new double circuit steel lattice OHL.

3.5 Limits of Deviation

3.5.1 In general terms, a Limit of Deviation (LoD) defines the maximum extent within which a development can be built. In the case of the Proposed Development, an LoD is required for each of the key components of the project i.e. each of the new steel lattice towers being installed, CSE compound, UGCs and access track routes.

3.5.2 A vertical LoD, i.e. the maximum height of a tower above ground level, is also sought to allow a height increase or decrease on the proposed indicative tower height presented in the EIA Report.

3.5.3 The horizontal LoD, for which consent is sought would be as follows:

- OHL (Steel Lattice Tower) – 100 m LoD (50 m either side of the centre line);
- UGC – 100 m LoD (50 m either side of the centre line);
- CSE Compound – 100 m LoD from the edge of the CSE compound; and
- Access Tracks (new permanent and new temporary) – 50 m LoD (25 m either side of the centre line). There are instances however, where the LoD for the access track would need to be extended to the edge of the boundary of the OHL LoD. This is to account for the possible movement of the OHL within their respective LoDs that the access would still need to serve.

3.5.4 An additional horizontal LoD applicable to the Proposed Development with the Alternative Alignment would be:

- Temporary OHL (trident 'H' wood pole) – 100 m LoD (50 m either side of the centre line of the existing Strathy North 132 kV OHL).

3.6 Description of Overhead Line (OHL)

Steel Lattice Towers

3.6.1 The steel lattice towers that form part of the Proposed Development would be constructed from fabricated galvanised steel and would be grey in colour. The towers would likely comprise a combination of 'L7c' and 'L8c' series of steel lattice towers with three types of towers proposed to be used, as described below:

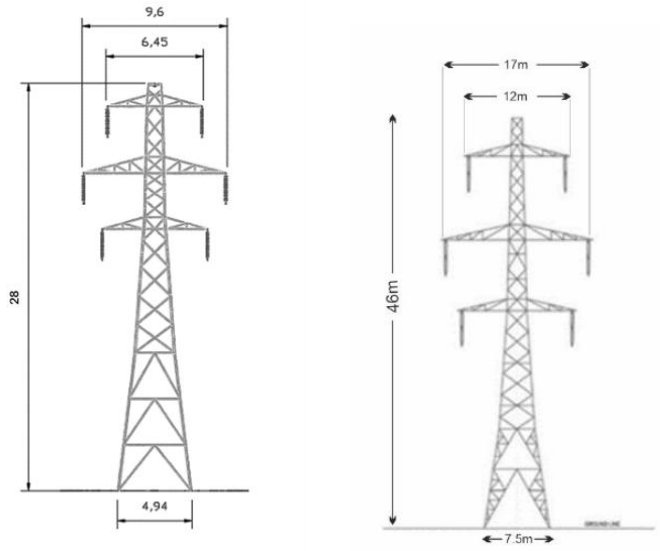
- Suspension towers: these are used for straight sections of OHL where there is no need to terminate the conductor.
- Angle / tension towers: these are typically used where there is a need to change the orientation of the OHL.
- Terminal towers: where the OHL transitions to UGC, via a CSE.

3.6.2 The towers would carry two circuits, each with three conductors supported from either glass, porcelain, or composite insulators attached to the horizontal cross arms on both sides of each steel lattice tower. An Optical Ground Wire (OPGW)[23] would be suspended between tower peaks, above the conductors.

[23] Optical Ground Wire is a dual functioning cable, providing a 'shield' to conductors from lightning, whilst also comprising optical cables for telecommunication purposes.

3.6.3 The span length (distance between towers) would vary slightly depending on topography, weather conditions and land usage. Typically, the span lengths for the L7c standard tower are between approximately 200 - 250 m and for an L8c standard tower are between approximately 220 - 275 m. Tower heights would also vary, depending on local topography, but would typically be in the region of approximately 31 m for an L7c standard tower and 48.5 m for an L8c standard tower. Schematics of the L7c and L8c steel lattice towers are provided in **Plate 3.1.**

Plate 3.1: Example Schematic and Photograph of Steel Lattice Tower Double Circuit (L7c (left) and L8c (right))



Trident 'H' Wood Poles

3.6.4 It is proposed that new temporary terminal 'H' wood pole structures would be required to facilitate a diversion of the existing Strathy North 132 kV trident 'H' wood pole OHL during construction of the Alternative Alignment. Each proposed new trident 'H' wood pole terminal structure would have a nominal height of up to 15.5 m (including insulators and support), depending on ground conditions.

3.7 Description of 132 kV Underground Cable

3.7.1 As referenced in Section 3.4, the installation of two separate single circuits of 132 kV UGC, that would be capable of operation at 275 kV in the future if required, would fall under the Applicant's permitted development rights but are considered within the EIA for completeness

3.7.2 As illustrated on **Figure 1**, these works would include:

- Approximately 350 m of single circuit UGC (built at 275 kV and operated at 132 kV[24]) to link the Strathy Wood circuit between the terminal tower (within the CSE compound) to Connagill 275/132 kV substation; and
- Approximately 430 m of single circuit UGC (built at 275 kV and operated at 132 kV[2422]) to link the Strathy South circuit between the terminal tower (within the CSE compound) to Connagill 75 / 132 kV Substation.

3.7.3 The overall cable construction corridor would typically be 40 m wide (based on two cables per phase) for each circuit, to accommodate excavation and cable installation equipment and store excavated materials during construction for reinstatement once the installation process is complete.

[24] The UGC would be operated at 275 kV upon commissioning of the proposed Strathy Switching Station.

Temporary Underground Cable Diversion

3.7.4 As discussed in paragraph 3.2.2 to facilitate construction of the Alternative Alignment, spans of the existing Strathy North 132 kV trident 'H' wood pole OHL would need to be temporarily diverted at two locations where the Alternative Alignment would cross the existing trident 'H' wood pole OHL. The temporary diversion would involve the installation of 132 kV single circuit UGC between the proposed new trident 'H' wood pole terminal structures (as described in paragraph 3.4.4).

- Between Poles 86A and 89A, approximately 290 m of new temporary UGC would be installed; and
- Between Poles 48A and 50A, approximately 195 m of new temporary UGC would be installed.

3.7.5 The UGC would be installed via cable duct, with one cable per phase per circuit, meaning there would be three single-core UGC for each crossing. Five wood pole CSE structures would be constructed and installed at both ends, with one termination per cable. At each transition point where the UGCs connect to the OHL, there would be 5 no. wood pole arrangement at each end for each section.

3.7.6 The existing all-dielectric self supporting cables (ADSS) (the fibre optic cables) of the existing Strathy North 132 kV trident 'H' wood pole OHL would be undergrounded at the pole preceding each of the four new terminal structures. Intermediate stays would be required to balance the tension on these poles and would be installed on Pole 47, Pole 51, Pole 85 and Pole 90.

3.8 Description of Cable Sealing End Compounds

3.8.1 One CSE compound would be required to facilitate the transition from OHL to UGC and vice versa. This would be located approximately 215 m to the south-west of Connagill 275 / 132 kV substation at approximate OS grid reference NC 903120, 595414 (see **Figure 1**).

3.8.2 The compound would be anticipated to be approximately 50 m x 55 m. Ground works, including a cut-fill exercise, would be required at the proposed site to achieve a level area of this size. Due to the hazards associated with live electricity, the compound would be secured by installing fencing and gates around its perimeter, usually of 2.4 m in height. Within the CSE compound there would be a terminal tower, and associated gantry infrastructure. A permanent access track would also be required.

3.8.3 The plant required to facilitate the transition between UGC and OHL is shown in **Plate 3.3**, and an example photo of a CSE compound is shown in **Plate 3.4**.

Plate 3.3: Overhead Line to Cable Transition

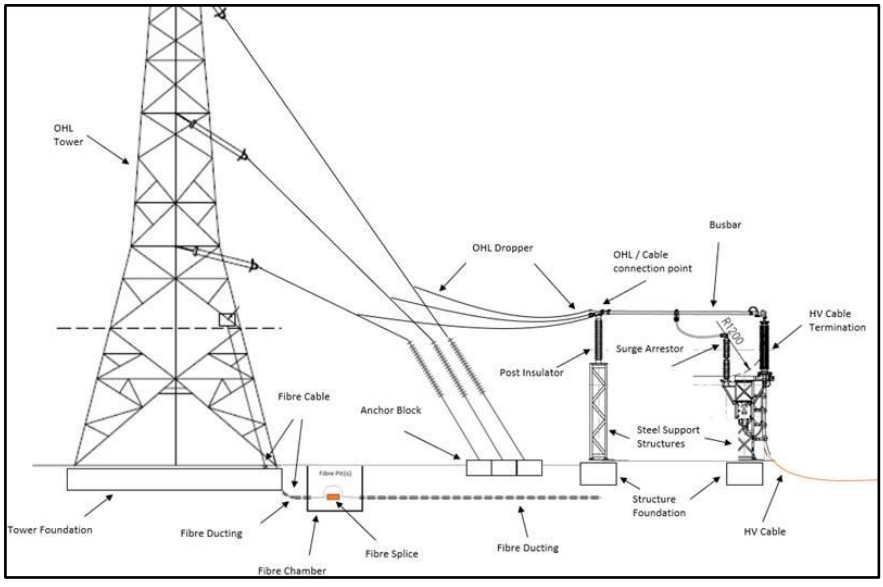


Plate 3.4: Example of a Cable Sealing End Compound

3.9 Access

3.9.1 Delivery of all construction materials and components for use at the Proposed Development would be delivered from the east, anticipated to be via the A9 and A836 public road network. Proposed construction access would make use of existing tracks as far as practicable, upgraded as required. Existing bellmouths would also be utilised where possible, subject to improvements. The construction of one new bellmouth would be required off the A897 to access the terminal tower and CSE compound.

3.9.2 Where new watercourse crossings are required, the design of the crossing would be in accordance with best practice guidelines, and taking account of any ecological or hydrological constraints. The design of crossings would be agreed with Scottish Environment Protection Agency (SEPA) prior to construction and be regulated by the Water Environment (Controlled Activities) (Scotland) Regulations 2011[25] (CAR).

3.10 Dismantling of the Existing OHL

3.10.1 As mentioned in paragraph 1.1.9, following construction and commissioning of the proposed 132 kV double circuit OHL, it would act as 'shared infrastructure' for the consented Strathy South and Strathy Wood wind farms and the operational Strathy North Wind Farm, transporting electricity generated by these wind farms to Connagill 275 / 132 kV substation. Redundant parts of the existing Strathy North 132 kV trident 'H' wood pole OHL would be dismantled and removed. The dismantling works are ancillary works for which deemed planning permission under Section 57(2) of the Town and Country Planning (Scotland) Act 1997 is sought.

3.10.2 The section of existing 132 kV trident 'H' wood pole OHL to be dismantled and removed would extend from Pole 128A[26] (within the vicinity of Strathy North Substation (near Dallangwell)) at National Grid Reference (NGR) NC 82656, 59851 to Pole 48[27] (to the north of the Achridigill Burn) at NGR NC 87794, 62462, as illustrated on **Figure 2.**

[25] Water Environment (Controlled Activities) (Scotland) Regulations 2011, available at https://www.legislation.gov.uk/ssi/2011/209/contents/made

[26] Pole 128A and Pole 129A are proposed as part of the Strathy Wood Wind Farm Grid Connection section 37 submission and are not yet consented or built.

[27] For clarity, Pole 48 of the existing Strathy North 132 kV trident 'H' wood pole OHL would remain *in situ*

3.10.3 The initial section of the existing 132 kV trident 'H' wood pole OHL (between Pole 136 and 129A[28][26]) would be retained to allow the operational Strathy North Wind Farm to connect onto the proposed double circuit 132 kV OHL for onward transmission to Connagill 275/132 kV substation. The final section of the existing 132 kV trident 'H' wood pole OHL (between Pole 48 and Pole 1) would remain in place and would be repurposed for future grid connections, as illustrated on **Figure 2.**

3.11 Associated Works

3.11.1 Other associated works are required to facilitate construction of the Proposed Development or would occur as a consequence of its construction and operation. These works, listed below, do not form part of the description of the Proposed Development and are therefore not included in the application for statutory consents. On that basis they are therefore not assessed in detail in the EIA Report. The associated works are:

- Wider elements associated with the Connagill Cluster Grid Connections and Strathy switching station. Separate consents would be sought by the Applicant for these developments, as set out in **Table 1.1**. These developments are considered where relevant in the EIA Report within the cumulative assessments.
- Borrow pits which would be required to source stone for the construction of access tracks. Separate planning applications for these works would be sought by the Principal Contractor;
- Temporary construction compounds which would be required to facilitate construction of the Proposed Development. The final location and design of temporary site compounds would be confirmed by the Principal Contractor and separate planning permissions would be sought as required; and
- Modification of the existing distribution network in some areas to accommodate the new OHL. These works are likely to comprise the diversion of short sections of UGC's within the vicinity of the Proposed Development and would be undertaken by the electricity Distribution Network Operator, Scottish Hydro Electric Power Distribution (SHEPD). Consent would be sought by SHEPD as required.

3.12 Construction Programme and Working Hours

3.12.1 It is anticipated that construction of the project would take place over a 15-month period, following the granting of consents, although detailed programming of the works would be the responsibility of the Principal Contractor in agreement with SSEN Transmission. A further six months (approximately) would be required for dismantling works associated with the existing OHL.

3.12.2 Construction activities would in general be undertaken during daytime periods. Weekend working would also be proposed with timings to be confirmed by the Principal Contractor in due course. Construction working is likely to be during daytime periods only. Working hours are anticipated 7 days a week between approximately 07.00 to 19.00 March to September and 07.30 to 17.00 (or within daylight hours) October to February. Working hours would be confirmed by the Principal Contractor and agreed with The Highland Council as planning authority. As working hours would be during daytime periods only, any external lighting requirements during construction are anticipated to be minimal.

3.12.3 SSEN Transmission considers it important to act as a responsible developer with regards to the communities which host the construction works. The delivery of a major programme of capital investment provides the opportunity to maximise support of local communities. Employment of construction staff would be the responsibility of the Principal Contractor; however, the Applicant would encourage the Principal Contractor to make use of suitable labour and resources from areas local to the Proposed Development where possible.

[28] Pole 128A and Pole 129A are proposed as part of the Strathy Wood Wind Farm Grid Connection section 37 submission and are not yet consented or built.

3.13 Environmental Management during Construction

3.13.1 During construction, best practice measures will be applied, including the implementation of General Environmental Management Plans (GEMPs) and Species Protection Plans (SPPs) developed by the Applicant. A CEMP will be developed and implemented by the Principal Contractor as a contractual requirement, aiming to avoid, minimise, and control adverse environmental impacts associated with the project. Monthly inspections and quarterly audits by SSEN Transmission will ensure CEMP compliance, managed on-site by an Environmental Clerk of Works (EnvCoW) and supported by other environmental professionals where required.

Reinstatement

3.13.2 Reinstatement works are generally undertaken during construction (and immediate post-construction phase) and aim to address any areas of ground disturbance and changes to the landscape as part of the construction works. Such works would involve the reinstatement of areas disturbed during the construction phase.

3.13.3 An Outline Site Restoration Plan has been prepared to describe the principles and best practice guidance and measures that would be followed in the reinstatement and restoration of disturbed ground. In more sensitive areas, further site-specific measures may be required to ensure successful reinstatement, including site specific soil and peat management measures, and the employment of specialist advisers (e.g. Ecological Clerk of Works (ECoW)).

SSEN Transmission's Biodiversity Ambition

3.13.4 Biodiversity Net Gain (BNG) ensures that nature is left in a better state after development, achieved through a toolkit developed by SSEN Transmission based on the Natural England Biodiversity Metric. This toolkit quantifies biodiversity by habitat value, allowing assessment of development projects' impact on biodiversity post-construction. SSEN Transmission is committed to minimising environmental impacts by ensuring natural environment considerations are considered throughout project development stages, utilising mitigation hierarchy to avoid impacts, contributing positively to biodiversity strategies, and collaborating with the supply chain for maximum benefit. As part of this approach, SSEN Transmission has made commitments to ultimately ensure a 10% net gain for biodiversity in line with the Applicant's biodiversity ambition and environmental legacy commitments[29], Sustainability Strategy[30] and Sustainability Plan[31].

3.14 Operation and Maintenance

3.14.1 In general, OHLs require very little maintenance. Regular inspections are undertaken to identify any unacceptable deterioration of components, so that they can be replaced. From time to time, inclement weather, storms or lightning can cause damage to either the insulators or the conductors on OHLs. If conductors are damaged, short sections may have to be replaced.

3.14.2 During the operation of the Proposed Development, it may be necessary to manage vegetation to maintain required safety clearance distances from infrastructure.

3.15 Decommissioning the Proposed Development

3.15.1 If the Proposed Development were to be decommissioned all components of the OHL, inclusive of steel from the towers, conductors and fittings, would be removed from site and either recycled or disposed of appropriately.

[29] SSEN Transmission (2023). Delivering a positive environmental legacy. https://www.ssen-transmission.co.uk/globalassets/documents/sustainability-and-environment/environmental-legacy-booklet

30 Delivering a smart, sustainable energy future: The Scottish Hydro Electric Transmission Sustainability Strategy (2018) https://www.ssen-transmission.co.uk/media/2701/sustainability-strategy.pdf

31 Our Sustainability Plan: Turning Ambition into Action. (2019) SHE Transmission. https://www.ssen-transmission.co.uk/media/3215/our-sustainability-plan-consultation-report.pdf

3.15.2 A method statement would be agreed with The Highland Council setting out the detail of the decommissioning process for OHL.

3.15.3 Efforts would be made to repurpose the Proposed Development for future connections prior to any decommissioning. Consent to be applied for is therefore in perpetuity.

4. EIA APPROACH, SCOPE AND CONSULTATION

4.1 EIA Approach

4.1.1 EIA is a process that considers how a proposed development is predicted to change existing environmental conditions and what the consequences of such changes will be. It therefore informs both the project design and the decision-making processes related to the granting of development consents or planning permission.

4.1.2 The EIA Report has been prepared in accordance with the EIA Regulations and current best practice guidance. The proposed methodologies for the assessment of likely significant effects for each topic area covered in the technical chapters of the EIA Report for both the Proposed Alignment (in **Volume 1**) and the Alternative Alignment (in **Volume 5**) have been the subject of consultation with statutory and non-statutory consultees.

4.1.3 The result of the assessment is the determination of whether the likely effect of the Proposed Development on the receptors in the study area would be significant or not significant, and, adverse or beneficial.

4.1.4 The EIA has examined potential effects of the Proposed Development on the following factors:

- Landscape and Visual;
- Ecology;
- Ornithology;
- Soils, Geology and Water;
- Cultural Heritage;
- Traffic and Transport; and
- Forestry.

4.1.5 Each of the above factors are considered in technical topic-based reports that each include an assessment of the likely significant effects of the Proposed Alignment and Alternative Alignment on the particular receptors of relevance to the topic, a description of the proposed mitigation measures relevant, and, confirmation of the predicted residual effects. The consideration of cumulative effects is also discussed where relevant in each specialist topic.

4.1.6 Mitigation measures are identified to prevent, reduce or remedy any potentially significant adverse environmental effects identified, beyond that already taken into account as normal good practice (i.e. embedded mitigation for example, the Construction Environment Management Plan). Such measures would be implemented during detailed design, construction and / or operation of the Proposed Development.

4.2 Pre-application Consultation

4.2.1 SSEN Transmission has sought to maintain an open dialogue with local communities within the vicinity of the Proposed Development throughout the evolution of the project. This has included carrying out consultation events during the route and alignment selection stages, engaging with local elected members such as Ward Councillors and Community Councils and engaging with landowners, residents, community groups and businesses that may be affected by the Proposed Development. SSEN Transmission has held parallel communication with other stakeholders, including statutory consultees, to understand their views on the proposals at the route and alignment selection stages, which has led to key areas of design evolution and development.

4.2.2 In March 2022 a virtual public consultation was carried out[32], with route options for the Proposed Development presented to members of the public, along with information on other separate wind farm grid connections that were being progressed at the time by the Applicant.

4.2.3 Upon consideration of a rationalised approach for the Connagill Cluster Grid Connection projects, including the Proposed Development, a further in-person public consultation event took place in November 2023 to present the appraisal of the rationalised route options proposed for each grid connection. This was followed by the issue of the Connagill Cluster Grid Connections Consultation Document (Route Stage)[14] published in December 2023. Comments received from all stakeholders (including members of the public) in response to the Consultation Document, or following the consultation event, were documented in a Report on Consultation (Route Stage), published in April 2024[16]. The Report on Consultation also confirmed the proposed route (and proposed alternative route) to be taken forward to the alignment selection stage and outlined the Applicant's responses provided at route stage consultation, along with confirmation of the action to be taken, where relevant.

4.2.4 Following confirmation of the proposed route (and proposed alternative route), the appraisal of alignment options for the various grid connections associated with the Connagill Cluster Grid Connections (including the Proposed Development) was set out in the Connagill Cluster Grid Connections Consultation Document (Alignment Stage)[17] and presented at a public consultation event, in May 2024. Comments received from all stakeholders in response were documented in a Report on Consultation (Alignment Stage), published in September 2024[18]. The Report on Consultation confirmed the proposed alignment (and proposed alternative alignment) to be taken forward to the EIA stage, and also outlined the Applicant's responses provided at alignment stage consultation, along with confirmation of the action to be taken, where relevant.

4.3 Screening

4.3.1 Given the Proposed Development would form a natural extension to the separately proposed Strathy Wood Wind Farm Grid Connection[3], itself deemed to be EIA development, the Applicant has taken the decision to produce an EIA Report to accompany an application for consent, without requesting an EIA Screening Opinion from the Scottish Ministers.

4.4 Scoping

4.4.1 A Scoping Report was submitted to Scottish Ministers by the Applicant in March 2024[33] to support a formal request under Regulation 12 of the EIA Regulations for a Scoping Opinion to determine the information to be provided within the EIA Report. A Scoping Opinion was provided by the Scottish Ministers in June 2024. Key issues that were raised by the Scoping Opinion have shaped the EIA Report.

4.5 Further Consultee Engagement

4.5.1 Stakeholder consultation has been ongoing since the early stages of the project and has continued throughout the Scoping and EIA process.

[32] Virtual consultation was carried out in accordance with Scottish Government's Guidance on pre-application consultation for major planning applications during the COVID-19 emergency period.
[33] Strathy South Wind Farm Grid Connection: Scoping Report (March 2024), produced by SSEN Transmission.

5. LANDSCAPE AND VISUAL

5.1 Landscape and Visual – Proposed Alignment

5.1.1 A Landscape and Visual Impact Assessment (LVIA) has been undertaken for the Proposed Alignment in accordance with best practice guidance, the Guidelines for Landscape and Visual Impact Assessment, 3rd Edition (GLVIA3).

5.1.2 A study area of 5 km from the proposed OHL has been applied, which is considered appropriate to identify all potential significant effects.

5.1.3 The LVIA considers the two separate subjects of landscape and visual amenity as follows:

- The landscape assessment has considered the potential effects of the Proposed Development on landscape character, landscape designations and protected landscapes.
- The visual assessment has considered the potential effects of the Proposed Development on visual amenity of those present within the landscape, including established views from residential areas and travel routes.

5.1.4 The Proposed Alignment would be dependent on or associated with a number of other consented and proposed developments. Therefore, for the purposes of the LVIA, the following developments have been assumed to be present within the baseline landscape:

- Strathy South Wind Farm, given the Proposed Alignment would provide the connection for the wind farm to connect to the National Grid.
- Strathy Wood Wind Farm and its grid connection, given the Proposed Alignment would connect into this grid connection and would act as shared infrastructure for Strathy Wood Wind Farm.

5.1.5 The southernmost part of the grid connection for the Strathy South Wind Farm would be provided via an underground cable (UGC) which is anticipated to be constructed under permitted development rights. This UGC is assumed to be present within the baseline assessment of construction effects. The assessment of operational effects covers the above ground sections of the OHL route only and does not include the UGC.

5.1.6 The LVIA also gives consideration to cumulative effects occurring as a result of the addition of the Proposed Development to other infrastructure developments within the study area that form part of the Connagill Cluster Grid Connections but are not already considered as part of the baseline. These include:

- Wind Farm
  - Kirkton Energy Park (and on-site substation).
- Grid Infrastructure
  - Kirkton Energy Park Grid Connection; and
  - Strathy Switching Station.

5.1.7 For the purposes of the assessment of the Proposed Alignment it is assumed that the proposed Melvich Wind Energy Hub and grid connection would not be constructed.

5.1.8 Mitigation measures are proposed to help minimise effects of the Proposed Alignment and are considered within the assessment of operational effects.

Landscape Effects

5.1.9 The landscape assessment has established that there would be no effect on the Special Landscape Qualities of the Farr Bay, Strathy and Portskerra Special Landscape Area (SLA) or the East Halladale Flows Wild Land Area (WLA).

5.1.10 There would be significant direct and indirect temporary effects for Landscape Character Type (LCT) 134 (Sweeping Moorland and Flows) during construction due to the loss of landcover to temporary working areas and access tracks and the presence of materials, labour and construction activity. During operation significant effects would be limited to indirect effects due to the visibility of the Proposed Alignment within this LCT and a further reduction in the sense of remoteness experienced.

5.1.11 There would be significant direct temporary effects for LCT 142 (Strath – Caithness and Sutherland) during construction due to the loss of landcover to temporary working areas and access tracks and the presence of workforce, materials and construction activity. Significant indirect temporary effects during construction are predicted to arise due to the visibility of activity, most notably at the crossing of the Halladale River. No significant effects are predicted for this LCT during operation

5.1.12 No significant effects are predicted for the other four LCT's within the study area as a result of the Proposed Alignment during either construction or operation.

Visual Effects

5.1.13 The visual assessment identified that significant effects would be experienced by receptors at seven built receptors within the study area including: Building B38: Tigh na Breac, Strath Halladale; Building B36: Properties at Strath Halladale north; Building B37: Properties at Kirkton; Building B2: Properties on the Minor Road to Strathy Point (South Section); Building B10: Properties at Ballagill; Building B33: Properties east of Bighouse Lodge; and Building B49: Bowside Cottage (Gamekeepers Cottage) during construction and operation. No significant visual effects were assessed for the remaining 43 built receptors within the study area during construction or operation.

5.1.14 Users of five route receptors would experience significant visual effects during both construction and operation as a result of the Proposed Alignment including: Route R6a + 6b: Core Path SU19.03 (both directions, but more prominently northbound); Route 1a + 1b: A836 / National Cycle Route (NCR) 1 (both directions); Route R2: A897 (northbound); Route R3 (Minor Road to Kirkton); and Route R4a + 4b: Scottish Hill Track 344 – Strath Halladale (Trantlebeg) to Strathy (both directions). However, no significant visual effects were assessed for the remaining route receptors within the study area during construction or operation.

5.1.15 Recreational users of one outdoor receptor; Rec 8: Kirkton Cemetery would experience significant visual effects during both construction and operation as a result of the Proposed Alignment. No significant effects are predicted for the remaining outdoor-based receptors during construction or operation of the Proposed Alignment.

Cumulative Landscape and Visual Effects

5.1.16 The cumulative landscape and visual assessment carried out for the Proposed Alignment considered the potential landscape and visual effects of the Proposed Alignment when considered in combination with Kirkton Energy Park and associated substation and grid connection, and Strathy Switching Station. The assessment concluded that effects arising from the addition of the Proposed Alignment would generally be no greater than the levels of effect predicted to arise either from Kirkton Energy Park for some receptors or the Proposed Alignment for others.

5.1.17 The cumulative visual assessment has identified a very limited number of receptors which would experience an increase in the level of effect identified for either Kirkton Energy Park or the Proposed Alignment in isolation. These are building-based receptor B37: Properties at Kirkton; route-based receptors R1a: A836/NCR1 west-bound in the vicinity of Strath Halladale and R6a: Core Path SU19.03 north-bound; and outdoor based receptor Rec 8: Kirkton Cemetery.

5.1.18 As detailed in paragraph 5.1.4, the Proposed Alignment would be closely associated with other development and the assessment of effects has therefore taken these developments into account as part of the baseline. Other known development proposals within the study area likely to affect the baseline characteristics, including the proposed Kirkton Energy Park and its associated grid connection and the (pre-scoping stage) Strathy Switching Station, have been considered in the cumulative assessment of effects. However, when considering the combined effects of all developments on the landscape character and visual resource of the study area, this is predicted to lead to a notable change. The contribution of the Proposed Alignment to these effects would be noticeable but of a lesser degree than the contribution of the wind farms at Strathy South and Strathy Wood, Melvich Wind Energy Hub and Kirkton Energy Park, due to the scale of the turbines.

5.2 Landscape and Visual – Alternative Alignment

5.2.1 An LVIA has been undertaken for the Alternative Alignment in accordance with best practice guidance.

5.2.2 As per the Proposed Alignment, the Alternative Alignment would be dependent on or associated with other consented and proposed developments including Strathy South Wind Farm, Strathy Wood Wind Farm and Strathy Wood Wind Farm Grid Connection (as set out in paragraph 5.1.4) and these developments have been assumed to be present within the baseline landscape.

5.2.3 In addition, the purpose of the Alternative Alignment is to avoid conflict with the proposed Melvich Wind Energy Hub, in accordance with the proposals currently submitted, by providing an alignment that goes around rather than through this development, as is the case for the Proposed Alignment. The LVIA for the Alternative Alignment therefore assumes a baseline with the proposed Melvich Wind Energy Hub being present. The inclusion of the Melvich Wind Energy Hub within the baseline is predicted to reduce the sensitivity of some landscape and visual receptors to development. Therefore, this LVIA should not be compared on a like-for-like basis with the LVIA for the Proposed Alignment, which considers a baseline scenario without Melvich Wind Energy Hub.

Landscape Effects

5.2.4 The landscape assessment has established that there would be no significant effects on any of the special qualities of the Farr Bay, Strathy and Portskerra SLA during construction or operation of the Alternative Alignment, which would be seen in the context of turbines at Melvich Wind Energy Hub.

5.2.5 Similarly, the Alternative Alignment is predicted unlikely to have significant effects on the wild land qualities of the East Halladale Flows WLA, although it would introduce further tall elements to views from the interior in which wind turbines, including those at Melvich Wind Energy Hub, are already present.

5.2.6 There would be significant direct and indirect temporary effects for LCT 134 (Sweeping Moorland and Flows) during construction due to the loss of landcover to temporary working areas and access tracks, and the presence of workforce, materials and construction activity, and significant indirect effects during operation due to the presence and visibility of activity and towers.

5.2.7 There would be significant direct and indirect effects during construction for LCT 142 (Strath – Caithness and Sutherland) due to the loss of landcover to temporary working areas and access tracks, and the presence of workforce, materials and construction activity. Significant direct and indirect effects are predicted to arise during operation due to the presence and visibility of activity and towers, most notably at the crossing of the Halladale River.

5.2.8 No other LCTs within the study area are predicted to accrue significant effects during either construction or operation. This is principally due to the likely landscape effects of Melvich Wind Energy Hub which has been considered as part of the baseline for the Alternative Alignment.

Visual Effects

5.2.9 The visual assessment identified that significant effects would be experienced by receptors at eight built receptors within the study area including: Building B38: Tigh na Breac, Strath Halladale; Building B36: Properties at Strath Halladale north; Building B37: Properties at Kirkton; B23: Properties on A836 west of Portskerra; B25: Melvich Park Cottage and Coastline Café; B26: Properties south of Coastline Café: B33: Properties east of Bighouse Lodge; and B49: Bowside Cottage (Gamekeepers Cottage) . No significant effects are predicted for the remaining 42 built receptors during construction or operation of the Alternative Alignment.

5.2.10 Users of five route receptors would experience significant visual effects during both construction and operation as a result of the Proposed Alignment including: Route R6a + 6b: Core Path SU19.03 (both directions, but more prominently northbound); Route 1: A836 / NCR 1 (in both directions); Route R2a + 2b: A897 (both directions); Route R3 (Minor Road to Kirkton); and Route R4a + 4b: Scottish Hill Track 344 – Strath Halladale (Trantlebeg) to Strathy (both directions). No significant visual effects were assessed for the remaining route receptors within the study area during construction or operation.

5.2.11 Recreational users of one outdoor receptor; Rec 8: Kirkton Cemetery would experience significant visual effects during both construction and operation as a result of the Alternative Alignment. No significant effects are predicted for the remaining outdoor-based receptors during construction or operation of the Alternative Alignment.

Cumulative Landscape and Visual Effects

5.2.12 The cumulative landscape and visual assessment carried out for the Proposed Alignment considered the potential landscape and visual effects of the Alternative Alignment when considered in combination with Kirkton Energy Park and associated substation and grid connection, and Strathy Switching Station. The assessment concluded that effects arising from the addition of the Alternative Alignment would generally be no greater than the levels of effect predicted to arise either from Kirkton Energy Park for some receptors or the Proposed Alignment for others.

5.2.13 The cumulative visual assessment has identified a very limited number of receptors which would experience an increase in the level of effect identified for either Kirkton Energy Park or the Proposed Alignment in isolation. These are building-based receptor B37: Properties at Kirkton; route-based receptors R1a: A836/NCR1 west-bound in the vicinity of Strath Halladale and R6a: Core Path SU19.03 north-bound; and outdoor based receptor Rec 8: Kirkton Cemetery.

5.2.14 As detailed in paragraph 5.2.2, the Alternative Alignment would be closely associated with other development and the assessment of effects has therefore taken these developments into account as part of the baseline for the Alternative Alignment. Other known development proposals within the study area likely to affect the baseline characteristics, including the proposed Kirkton Energy Park and its associated grid connection and the (pre-scoping stage) Strathy Switching Station, have been considered in the cumulative assessment of effects. However, when considering the combined effects of all developments on the landscape character and visual resource of the study area, this is predicted to lead to a notable change. The contribution of the Alternative Alignment to these effects would be noticeable but of a lesser degree than the contribution of the wind farms at Strathy South and Strathy Wood, Melvich Wind Energy Hub and Kirkton Energy Park, due to the scale of the turbines.

6. ECOLOGY

6.1.1 An assessment has been undertaken of the potential impacts of the Proposed Development on terrestrial ecology (non-avian) features including designated sites, habitats and protected species and reaches conclusions as to the predicted likely significance of residual effects. The assessment is based on best practice guidance including the Chartered Institute for Ecology and Environmental Managements (CIEEM) Guidelines for Ecological Impact Assessment in the UK and Ireland (2024).

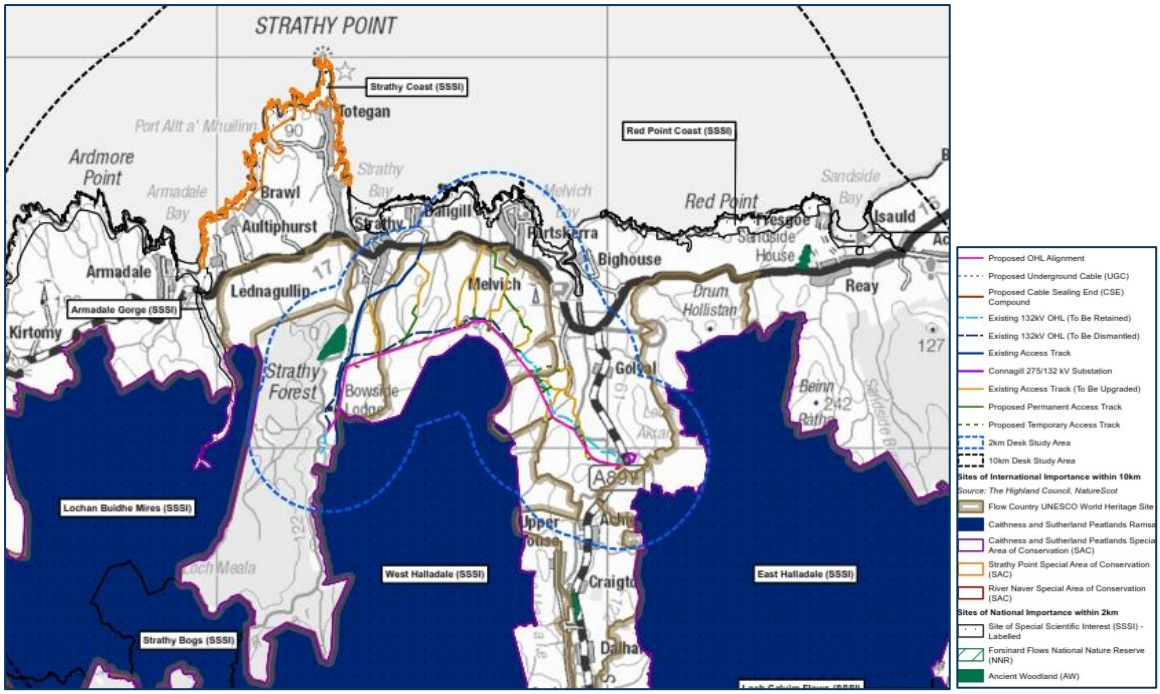
6.2 Ecology – Proposed Alignment

6.2.1 Given the nature of the Proposed Alignment, most of the impacts on terrestrial ecology features will arise from construction with direct habitat losses restricted to the footprints of the towers, CSE compound and the new sections of access track.

Designated Sites

6.2.2 **Plate 6.1** shows the Proposed Alignment in the context of ecologically designated sites.

Plate 6.1: Ecologically Designated Sites



6.2.3 The Proposed Alignment is in close proximity to the Caithness and Sutherland Peatlands SAC and Ramsar and its component West Halladale SSS). These designations are made up of internationally important habitats (including blanket bogs, oligotrophic and dystrophic lochs, mires, heath and peat bogs) supporting rare plants, otter and freshwater pearl mussel populations. Although the majority of the Proposed Alignment is outside the boundary of the SAC/ Ramsar/ SSSI, having been designed to avoid direct impacts to the most sensitive protected habitats, one tower at the western end of the route (Tower 21) and a short section of new permanent access track leading to it, are just within the designated sites. However, the Proposed Alignment footprint impacts approximately 0.164 ha within the boundary of the designated sites, which is a tiny proportion (c. <0.0001%) of the Caithness and Sutherland Peatlands SAC / Ramsar (and its component West Halladale SSSI) alongside an existing access track at the very edge of the designations and the effect has been assessed as no significant adverse effects.

6.2.4 A Shadow Habitats Regulations Appraisal (SHRA) has been undertaken for the Proposed Alignment to meet the requirements of the Conservation of Habitats and Species Regulations 2017. Likely significant effects could not be ruled out at the screening stage, although an appropriate assessment concluded that the Proposed Alignment would have no adverse effects on the integrity of the Caithness and Sutherland Peatlands SAC / Ramsar (either alone or in combination with any other plans or projects).

6.2.5 The Proposed Alignment would directly impact habitats within the Flow Country WHS, which was formally inscribed by UNESCO in July 2024 for its internationally important blanket bog, oligotrophic and dystrophic loch, mire, heath and peat bog habitats. Its boundary is largely contiguous, although not identical, with the Caithness and Sutherland Peatlands SAC / Ramsar designated site boundary (the WHS boundary extends further north beyond the SAC / Ramsar boundary towards Strathy and Melvich). The Proposed Alignment affects only a very small proportion (c. <0.0065%) of the WHS, and the assessment concludes that there would be no significant adverse effects. A separate World Heritage Site Assessment has been undertaken and concluded that the Proposed Alignment would result in no significant adverse effects on the attributes of the WHS.

Habitats

6.2.6 The Proposed Alignment passes over upland habitats typical of the landscape, which are dominated by mire and wet heath communities that are Annex I habitats[34] (for which the SAC / Ramsar has been designated), and some of which are Ground Water Dependent Terrestrial Ecosystems (GWDTE) that are reliant on ground water influences. However, due to the nature of the Proposed Alignment, permanent habitat losses outside the boundary of the SAC / Ramsar designated site are minor, with most of the permanent impacts associated with new access tracks. As part of the design process towers and access tracks have been sited to avoid / minimise impacts on GWDTEs that would be most vulnerable to indirect permanent habitat changes. Effects on non-designated habitats are assessed as not significant.

Protected Species

6.2.7 Signs of protected species including badger (*Meles meles*), otter (*Lutra lutra*), water vole (*Arvicola amphibious*) and pine marten (*Martes martes*) were identified within the Study Area, although the Proposed Alignment is assessed to result in no adverse effects upon them. No reptiles were recorded in the Study Area; however, the habitats are suitable for common lizard (*Zootoca vivipara*) and adder (*Vipera berus*), both of which have been recorded in the local area, and these species may therefore be present. Embedded mitigation relevant to identified ecological receptors includes the development and implementation of a site-specific Construction Environmental Management Plan (CEMP), which would be used in conjunction with the Applicant's General Environmental Management Plans (GEMPs) and Species Protection Plans (SPPs). Furthermore, a suitably experienced Ecological Clerk of Works (ECoW) would be appointed to undertake pre-construction surveys for protected species and oversee construction works to minimise any potential effects on nature conservation interests.

Cumulative

6.2.8 No significant cumulative effects with any of the other grid connections that form part of the Connagill Cluster Grid Connections and their associated wind farms (consented and proposed) have been identified. A landscape scale Habitat Management Plan (HMP), combining the HMPs of the Connagill Cluster Grid Connection projects, is being developed in consultation with NatureScot to address the cumulative habitat losses of peatland, including within the boundaries of the Flow Country WHS and Caithness and Sutherland Peatlands SAC / Ramsar.

[34] Habitats that are listed in Annex I of the EU Habitats Directive (Directive 92/43/EC) that are under threat in their natural range, have a small natural range or present outstanding examples of typical characteristics, that member states must maintain, protect or restore to favourable conservation status within the EU. Within the UK these habitats are protected through the designation of SACs.

6.3 Ecology – Alternative Alignment

6.3.1 Given the nature of the Alternative Alignment, as for the Proposed Alignment, most of the impacts on terrestrial ecology features will arise from construction and will be temporary. Direct permanent habitat losses are restricted to the footprints of the towers, Cable Sealing End (CSE) compound and new permanent access tracks (that will be used for construction and ongoing maintenance during operation).

Designated Sites

6.3.2 As was the case for the Proposed Alignment, the Alternative Alignment is in close proximity to the Caithness and Sutherland Peatlands SAC and Ramsar site, and its component West Halladale SSSI with the majority of the Alternative Alignment outside the boundary of these designated sites, having been designed to avoid direct impacts to the most sensitive protected habitats. The same tower at the western end of the route (Tower 21) and a short section of new access track, which are common to both the Proposed Alignment and Alternative Alignment, are just within the designated site. Similarly to the Proposed Alignment, the Alternative Alignment footprint would impact approximately 0.164 ha within the boundary of the designated sites, which is a tiny proportion (c. <0.0001%) of the Caithness and Sutherland Peatlands SAC / Ramsar (and its component West Halladale SSSI) alongside an existing access track at the very edge of the designations and the effect has been assessed as no significant adverse effects.

6.3.3 An Annex to the SHRA (noted in paragraph 6.2.4) has been prepared for the Alternative Alignment. Likely significant effects could not be ruled out at the screening stage, although an appropriate assessment concluded that the Alternative Alignment would have no adverse effects on the integrity of the SAC / Ramsar site (either alone or in combination with any other plans or projects).

6.3.4 The Alternative Alignment would directly impact habitats within only a very small proportion (c. 0.016%) of the Flow Country WHS and the effect is assessed as not significant. An Annex to the World Heritage Site Assessment (as noted in paragraph 6.2.5) has been prepared for the Alternative Alignment and concluded that the Alternative Alignment would result in no significant adverse effects on the attributes of the WHS.

Habitats

6.3.5 The Alternative Alignment passes over upland habitats typical of the landscape, and similar to those passed over by the Proposed Alignment, which are dominated by mire and wet heath communities that are Annex I habitats[34] (for which the SAC / Ramsar has been designated), and some of which are GWDTE that are reliant on ground water influences. However, due to the nature of the Proposed Alignment and Alternative Alignment, permanent habitat losses outside the boundary of the SAC / Ramsar designated site are minor and estimated at 10.64 ha in total. As part of the design process towers have been microsited to avoid / minimise impacts on GWDTEs that would be most vulnerable to indirect permanent habitat changes. Effects on non-designated habitats are assessed as not significant.

Protected Species

6.3.6 Signs of protected species including badger, otter, water vole, pine marten were identified within the Study Area, although both the Proposed Alignment and Alternative Alignment have been assessed to result in no adverse effects upon these species. No reptiles were recorded in the Study Area; however, the habitats are suitable for common lizard and adder, both of which have been recorded in the wider local area, and these species may therefore be present. Embedded mitigation relevant to identified ecological receptors, as set out in paragraph 6.2.7, will minimise any potential effects on nature conservation interests.

Cumulative

No significant cumulative effects with any of the other grid connections that form part of the Connagill Cluster Grid Connections and their associated wind farms (consented and proposed) have been identified. As set out in paragraph 6.2.8, a landscape scale HMP is being developed in consultation with NatureScot to address the cumulative habitat losses of peatland, including within the boundaries of the Flow Country WHS and Caithness and Sutherland Peatlands SAC / Ramsar.

7. ORNITHOLOGY

7.1.1 An ornithological assessment has been carried out to determine the potential effects of the Proposed Development on ornithological features to reach conclusions as to the predicted likely significance of effects on ornithology. The assessment follows current best practice and details the methods used to establish the bird species and populations present that may be affected by the Proposed Development, together with the process used to determine their importance. The ways in which birds might be affected (directly or indirectly) by the Proposed Development are explained and an assessment is made with regards to the significance of these effects.

7.2 Ornithology – Proposed Alignment

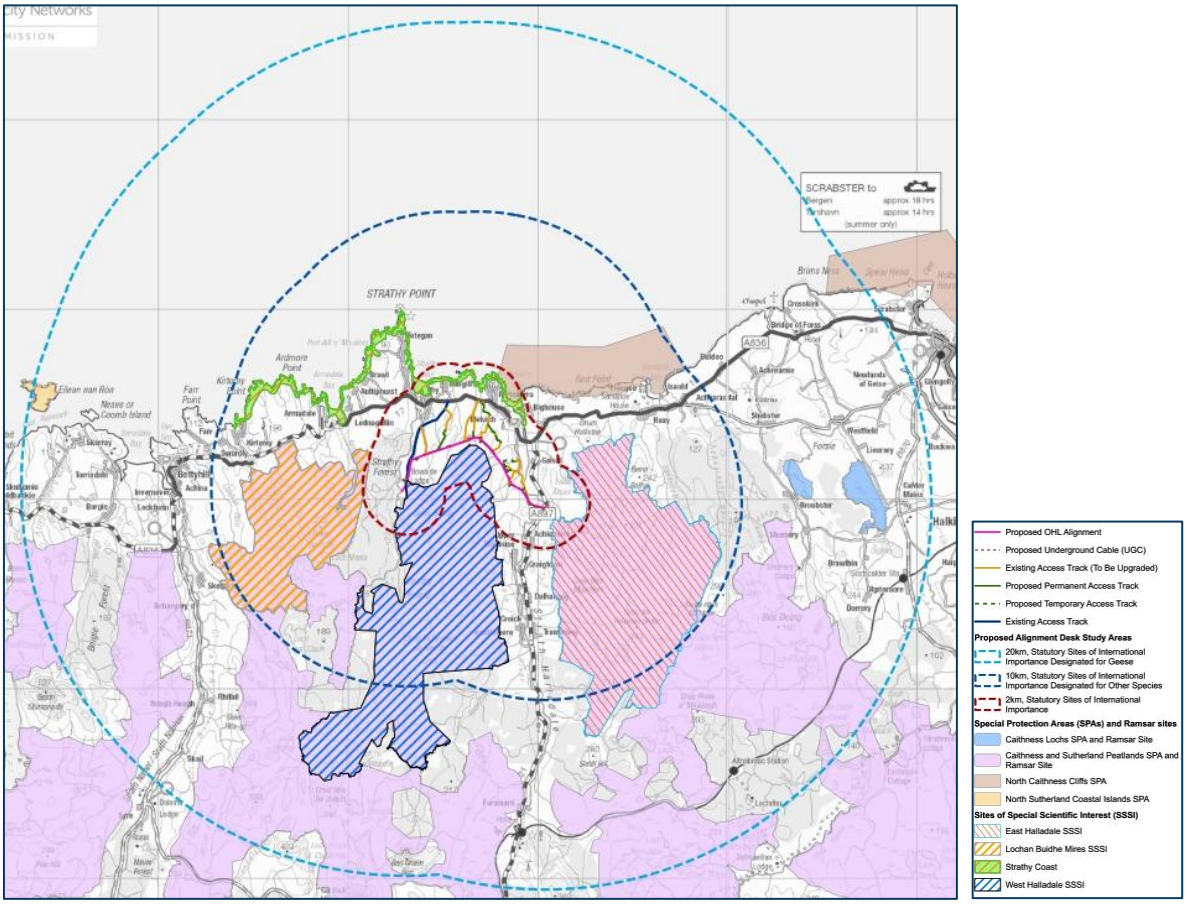
7.2.1 Baseline ornithology field surveys of the Proposed Alignment and surrounding area were carried out between May and August 2022. Additionally, a desk study was completed to supplement the field survey results.

7.2.2 Based on the results of the field surveys and desk study, the following Important Ornithological Features (IOFs) were identified: Caithness and Sutherland Peatlands SPA and Ramsar site, North Caithness Cliffs SPA, Caithness Lochs SPA and Ramsar site, West Halladale SSSI, East Halladale SSSI, Lochan Buidhe Mires SSSI, greylag goose, whooper swan, common scoter, golden plover, curlew, red-throated diver, black-throated diver, osprey, golden eagle, hen harrier, white-tailed eagle, merlin, peregrine, and barn owl.

7.2.3 An assessment of potential effects of the Proposed Alignment on each IOF during construction and operation was completed. Potential cumulative effects were also considered for relevant IOFs.

7.2.4 **Plate 7.1** shows the Proposed Alignment in the context of ornithological designated sites.

Plate 7.1: Ornithological Designated Sites



7.2.5 Ornithological sensitivities were taken into consideration during the design of the Proposed Alignment, with the layout designed to minimise potential effects on IOFs where possible. Embedded mitigation would comprise implementation of a Bird Protection Plan (BPP) to safeguard breeding birds and roosting raptors listed on Schedule 1A to the Wildlife and Countryside Act 1981 (as amended) (W&CA).

7.2.6 Targeted mitigation is proposed that would include the installation of artificial nest rafts to reduce potentially significant effects to breeding red-throated and black-throated divers due to displacement during construction of the Proposed Alignment. This would be delivered via a landscape scale Outline HMP (see paragraph 6.2.8). Additionally, line markers would be installed along sections of the OHL component of the Proposed Alignment to reduce collision risk to breeding red-throated and black-throated divers, where these species are considered to be at greatest risk of collision.

7.2.7 Although no significant effects were identified for any other IOFs, the Connagill Cluster Outline HMP includes habitat management measures to benefit nesting and foraging hen harrier, as well as other upland bird species such as breeding waders. Where feasible, additional enhancement measures, such as installation of artificial nest rafts for common scoter, would also be considered for inclusion within the (final) HMP.

7.2.8 It is also proposed that a programme of ornithological monitoring is undertaken by a suitably experienced and licensed ornithologist during construction of the Proposed Alignment, comprising surveys for breeding waders, raptors and divers, including checks of any artificial diver nest rafts installed.

7.2.9 Following implementation of embedded and targeted mitigation measures, no significant residual effects are predicted on any IOFs as a result of the Proposed Alignment.

7.2.10 A Shadow HRA has been undertaken for the Proposed Alignment to meet the requirements of the Conservation of Habitats and Species Regulations 2017. Likely significant effects could not be ruled out at the screening stage, although an appropriate assessment concluded that the Proposed Alignment would have no adverse effects on the integrity of any European sites either alone or in combination with any other plans or projects within the surrounding area largely due to the implementation of the embedded and targeted mitigation to avoid or reduce potential effects on qualifying features of the European sites.

7.3 Ornithology – Alternative Alignment

7.3.1 An ornithological assessment has been carried out to determine the potential effects of the Alternative Alignment on ornithological features to reach conclusions as to the predicted likely significance of effects on ornithology, following current best practice.

7.3.2 Baseline ornithology field surveys of the Alternative Alignment and surrounding area were carried out between March and October 2023. Additionally, a desk study was completed to supplement the field survey results.

7.3.3 Based on the results of the field surveys and desk study, the same IOFs were identified as for the Proposed Alignment (see paragraph 7.2.2). An assessment of potential effects of the Alternative Alignment on each IOF during construction and operation was completed. Potential cumulative effects were also considered for relevant IOFs.

7.3.4 Ornithological sensitivities were taken into consideration during the design of the Alternative Alignment, with the layout designed to minimise potential effects on IOFs where possible. Embedded mitigation would comprise implementation of a Bird Protection Plan (BPP) to safeguard breeding birds, and roosting raptors listed on Schedule 1A to the Wildlife and Countryside Act 1981 (as amended) (W&CA).

7.3.5 Targeted mitigation would include the installation of line markers along sections of the OHL component of the Alternative Alignment to reduce collision risk to breeding red-throated diver, where this species is considered to be at greatest risk of collision. Additionally, installation of artificial nest rafts is proposed as specific mitigation to reduce potentially significant effects to breeding red-throated and black-throated divers due to displacement during construction of the Alternative Alignment. This would be delivered via a landscape scale Outline HMP.

7.3.6 Although no significant effects were identified for any other IOFs, the Connagill Cluster Outline HMP includes habitat management measures to benefit nesting and foraging hen harrier, as well as other upland bird species such as breeding waders, as set out in paragraph 7.2.7, and would be applicable to the Alternative Alignment.

7.3.7 It is also proposed that a programme of ornithological monitoring is undertaken by a suitably experienced and licensed ornithologist during construction of the Alternative Alignment, comprising surveys for breeding waders, raptors and divers, including checks of any artificial diver nest rafts installed.

7.3.8 Following implementation of embedded and targeted mitigation measures, no significant residual effects are predicted on any IOFs as a result of the Alternative Alignment.

7.3.9 A Shadow HRA has been undertaken for the Alternative Alignment to meet the requirements of the Conservation of Habitats and Species Regulations 2017. As for the Proposed Alignment, the SHRA concluded that the construction and operation of the Alternative Alignment would result in no adverse effect on the integrity of any European sites either alone or in combination with any other plans or projects within the surrounding area.

8. SOILS, GEOLOGY AND WATER

8.1.1 An assessment has been undertaken of the potential effects on geology (including soils and peat) and the water environment (hydrology and hydrogeology) during the construction (and dismantling of the redundant sections of the existing 132 kV OHL) and operational phases of the Proposed Development.

8.1.2 Information for the study area was compiled using baseline information from a desk study, which was verified by an extensive programme of field work. The site and the immediate area have been subject to much previous investigation and assessment and this information has been used to characterise baseline conditions. The assessment undertaken considered the sensitivity of receptors identified during the baseline study and mitigation measures incorporated in the development design. It has also considered potential future changes to baseline conditions.

8.2 Soils, Geology and Water – Proposed Alignment

8.2.1 The assessment considers the potential effects on areas of peat (including stability), surface water and groundwater quality and public and private water supplies, increase in flood risk, and adverse effects on water dependent designated sies where there is a potential hydrological connection to the Proposed Alignment. A schedule of proposed permanent and temporary watercourse crossings associated with the Proposed Alignment, has also been prepared.

8.2.2 The design of the Proposed Alignment has been informed by a detailed programme of peat depth probing as required by NPF4 and it has been shown that wherever possible areas of deep peat have been avoided. The assessment of peat and carbon rich soils has considered all of the proposed infrastructure, including temporary and permanent access tracks. A project specific outline peat management plan has been prepared which confirms the soils disturbed by the development are limited in volume and that these soils can be readily and beneficially reused in restoration works.

8.2.3 A detailed peatland condition assessment has been completed which has considered key hydrological, ecological and land-use based indicators of peatland condition. In summary it confirms that overall the remaining fragments of peatland appear to be hydrologically compromised by longstanding drainage, peat extraction and grazing leading to a high prevalence of vascular plants and low diversity. This has fundamentally reduced the resilience of the peatlands within this landscape as evidenced by the high severity and enduring impacts of a wildfire in 2019. The highly degraded nature of peatland and heath means that development along the Proposed Alignment, subject to use of common industry safeguards, would not impair peatland along its route.

8.2.4 Subject to the adoption of best practice construction techniques and a site-specific CEMP, no significant adverse effects on geology (including soils and peat) and the water environment have been identified. The CEMP would include provision for drainage management plans which would be agreed with statutory consultees, including SEPA and NatureScot, and which would be used to safeguard existing surface water and groundwater flow paths, water resources and manage flood risk. A commitment to deploy Sustainable Drainage Systems (SuDS) in these plans has been made. The CEMP would also include provision of a Pollution Prevention Plan which would also be agreed with statutory consultees including SEPA and NatureScot prior to any construction works being undertaken.

8.2.5 Notwithstanding these safeguards, a programme of baseline and construction phase water quality monitoring is proposed which would be used to confirm that the Proposed Alignment does not have a significant effect on the water environment. Further, additional site investigation is proposed as part of the detailed design stage of the project to ensure ground stability risk is not increased as a consequence of the Proposed Alignment. A geotechnical risk register and monitoring is proposed. It is proposed that the monitoring programmes are agreed with statutory consultees.

8.3 Soils, Geology and Water – Alternative Alignment

8.3.1 An assessment has been undertaken of the Alternative Alignment on soils, geology and the water environment during the construction (including dismantling of the existing 132 kV OHL) and operational phases of the Alternative Alignment.

8.3.2 The assessment followed the same approach and methods as has been undertaken for the Proposed Alignment, as discussed in Section 8.2 above. Similarly, the assessment concluded that, subject to the adoption of best practice construction techniques and implementation of a project specific CEMP, no significant adverse effects have been identified for the Alternative Alignment.

8.3.3 A detailed peatland condition assessment has been completed across the Alternative Alignment, and reached the same conclusions as set out in paragraph 8.2.3 for the Proposed Alignment, in that the peatland appears to be highly degraded and that development along the Alternative Alignment, subject to use of common industry safeguards, would not impair peatland along its route.

9. CULTURAL HERITAGE

9.1.1 An assessment to consider the likely significant effects on designated sites and non-designated cultural heritage assets from the construction (and dismantling of the existing 132 kV OHL) and operation of the Proposed Development has been carried out. The assessment has been informed by comments and information provided by HES and THC.

9.1.2 The assessment considers the potential for both direct impacts, meaning those that have potential to physically disturb or damage heritage features, and indirect impacts, meaning those which can adversely affect the historic setting of heritage features via the Proposed Development's visibility.

9.2 Cultural Heritage – Proposed Alignment

Cultural Designated Sites

9.2.1 Within a 3 km outer study area of the Proposed Alignment, 14 designated heritage sites were identified, which are of National heritage importance to indirect visual impacts or impacts on setting. The designated heritage sites identified comprise of 11 listed buildings and three scheduled monuments. The majority of these designated heritage sites would not be subject to visibility of the Proposed Alignment or are in practical terms of low sensitivity to indirect impacts and as such have been scoped out of detailed assessment as agreed with statutory consultees.

9.2.2 Potential indirect impact on one Category A Listed Building (Bighouse Garden Pavilion and Walled Garden) (LB7160) has been examined in more detail, and the assessment has concluded that indirect effects on this designated site as a result of construction or operation of the Proposed Alignment would be not significant.

Cultural Heritage Assets

9.2.3 The Proposed Alignment would be located within three distinct areas in terms of cultural heritage assets. The western and eastern extents of the Proposed Alignment are located within sheltered and relatively fertile river valleys which were settled continuously from the prehistoric period but mostly depopulated in the 19th century, the lack of subsequent development leaving a relict landscape of monuments and settlements. The higher moorland between the two straths has provided little opportunity for historic land use other than summer grazing and peat cutting.

9.2.4 Seven non-designated heritage assets were identified within or immediately outside an inner study area, defined by the LoD of the Proposed Alignment. These heritage assets date from the prehistoric period to the era of commercial sheep farming in the early 19th century. The potential for unidentified archaeological remains is considered to be low to negligible.

9.2.5 A number of minor features of Local or Negligible heritage importance were identified within the inner study area, comprising dykes and areas of peat cutting, but were not addressed in the evaluation, as any indirect impact from the Proposed Alignment would be considered to be of negligible significance.

9.2.6 The assessment concluded that there would be no significant direct or indirect effects on any of the heritage assets identified within or immediately outside the inner study area, as a result of the construction or operation of the Proposed Alignment. Nevertheless, the implementation of best practice mitigation measures would still be applied to ensure the heritage assets are not vulnerable to accidental damage during construction.

Cumulative

9.2.7 Cumulative effects would only be considered in relation to significant visual impacts and impacts on the setting of designated assets and heritage assets, but as no designated site or heritage asset would be significantly impacted either directly or indirectly, a cumulative assessment was scoped out of the assessment.

9.3 Cultural Heritage – Alternative Alignment

9.3.1 An assessment has been undertaken to assess the potential for both direct and indirect impacts on cultural heritage assets from both the construction (including dismantling of the existing 132 kV OHL) and operational phases of the Alternative Alignment.

9.3.2 The assessment followed the same approach and methods as has been undertaken for the Proposed Alignment, as discussed in Section 9.2 above. However, the purpose of the Alternative Alignment is to avoid conflict with the proposed Melvich Wind Energy Hub by providing an alignment that goes around rather than through this development. This assessment therefore assumed a baseline with the proposed Melvich Wind Energy Hub being present.

Cultural Designated Sites

9.3.3 Within a 3 km outer study area for the Alternative Alignment, 14 designated heritage sites were identified, which are of National heritage importance (High sensitivity) to indirect visual impacts or impacts on setting. The designated heritage sites identified comprise of 11 listed buildings and three scheduled monuments. The majority of these designated heritage sites would not be subject to visibility of the Alternative Alignment, or are in practical terms of low sensitivity to indirect impacts and as such have been scoped out of detailed assessment as agreed with statutory consultees.

9.3.4 One designated site, the Category A Listed Building Bighouse Garden Pavilion and Walled Garden (LB7160) is of High sensitivity to indirect effects and has been considered for potential visual impact. Views towards the Alternative Alignment are for the most part screened by intervening buildings and vegetation. Only one narrow section of western horizon is visible from the garden pavilion, with potential partial visibility of two towers at a distance of 2 km in addition to partial visibility of one turbine associated with the Melvich Wind Energy Hub. Significance of this visual impact would depend on the degree to which visibility of this section of horizon and hillside was incorporated as a design feature of the garden pavilion and the garden itself. The height of the garden walls and planting of trees would suggest that this was not the case and that the proposed significant vistas from the garden pavilion were either restricted to the garden itself or opened in a limited fashion to the wider landscape through the gateways. As the Alternative Alignment is not visible through the west gateway, this reduces the magnitude of indirect impact, and the assessment concluded that the potential for indirect impact is considered to be not significant.

Cultural Heritage Assets

9.3.5 Seven non-designated heritage assets were identified within or immediately outside an inner study area, defined by the LoD of the Alternative Alignment, along sections of the alignment which are consistent with the Proposed Alignment. As described in Section 9.2, the assessment concluded that there would be no significant direct or indirect effects on any of the heritage assets identified within or immediately outside the inner study area, as a result of the construction or operation of the Alternative Alignment. Nevertheless, the implementation of best practice mitigation measures would still be applied to ensure the heritage assets are not vulnerable to accidental damage during construction

Cumulative

9.3.6 Cumulative indirect effects on one designated site, the Category A Listed Building Bighouse Garden Pavilion and Walled Garden (LB7160), are considered only in relation to the vista westwards where a gap in the intervening trees allows a narrow view of the western horizon. In addition to the partial view of two towers of the Alternative Alignment, the blades of one wind turbine associated with the proposed Melvich Wind Energy Hub would also be visible. However, for the same reasons as given above in Paragraph 9.3.4, the magnitude of a cumulative indirect impact of both the Alternative Alignment and Melvich Wind Energy Hub is considered to be reduced and no significant cumulative effects were assessed.

10. TRAFFIC AND TRANSPORT

10.1.1 An assessment of traffic and transport effects on the public road network associated with the constriction phase of the Proposed Development has been undertaken.

10.1.2 The assessment considers the direct effects during construction on increased traffic flows in the surrounding study area, including upon local road users and local residents. Where certain criteria are met in accordance with best practice guidance, a review of the effects on severance, driver delay, pedestrian delay, pedestrian amenity, fear and intimidation and accidents / road safety have been evaluated. The operational phase of the Proposed Development would not have any significant effects on the public road network as a result of the low levels of traffic that are forecast and is scoped out of the assessment.

10.1.3 The study area encompasses the area over which all desk-based and field data were gathered to inform the traffic and transport assessment for the Proposed Development. The study area comprises the following road links:

- The A9 between Georgemas and Scrabster;
- The A836 between Thurso and Strathy; and
- The A897 between the A836 and Connagill 275/132 kV substation.

10.2 Traffic and Transport – Proposed Alignment

10.2.1 The Proposed Alignment would lead to a temporary increase in traffic volumes on the road network within the study area during the construction phase. However, no link capacity issues are expected on any of the roads assessed due to the additional movements associated with the Proposed Alignment. The effects of construction traffic are temporary in nature and are transitory.

10.2.2 The assessment identified a significant effect could be expected on Scottish Hill Track 344: Strath Halladale (Trantlebeg) to Strathy, and Core Path SU19.03 by track users, and Kirkton Road users during the construction phase. To reduce effects to not significant levels, a series of mitigation measures and management plans have been proposed to help mitigate and offset impacts during the construction phase. These include the implementation of a Construction Traffic Management Plan, Outdoor Access Management Plan and Staff Travel Plan.

10.2.3 The assessment confirms the predicted residual effects (i.e. after the implementation of mitigation) would be minor in nature and they would not be significant. There are no long-term detrimental transport or access issues associated with the construction phase of the Proposed Alignment.

10.3 Traffic and Transport – Alternative Alignment

10.3.1 As the length of OHL is longer for the Alternative Alignment compared to the Proposed Alignment, the subsequent traffic generation is higher. As was the case for the Proposed Alignment, the assessment identified that the Alternative Alignment would lead to a temporary increase in traffic volumes on the road network within the study area during the construction phase. However, no link capacity issues are expected on any of the roads assessed due to the additional movements associated with the Alternative Alignment. The effects of construction traffic are temporary in nature and are transitory.

10.3.2 The assessment identified a significant effect could be expected on Scottish Hill Track 344 and Core Path SU19.03 by track users, and Kirkton Road users during the construction phase. To reduce effects to not significant levels, a series of mitigation measures and management plans, as set out in paragraph 10.2.2, have been proposed to help mitigate and offset impacts during the construction phase.

10.3.3 As was the case for the Proposed Alignment, the assessment confirms the predicted residual effects (i.e. after the implementation of mitigation) would be minor in nature and they would not be significant. There would be no long-term detrimental transport or access issues associated with the construction phase of the Alternative Alignment.

11. FORESTRY

11.1 Forestry – Proposed Alignment

11.1.1 The Proposed Alignment is predicted to result in the loss of 5.75 ha of woodland due to the requirement to create an Operational Corridor (OC) for the construction and safe operation of the proposed OHL, including the creation of access tracks.

11.1.2 The woodlands within the study area are for the most part recently created native woodlands. One area of semi mature conifer plantation would also be affected.

11.1.3 Mitigation through design is for minimal tree felling and utilising the current unplanted ground where possible. There are no areas of ancient woodland or ancient or veteran trees present.

11.1.4 No significant effects were identified from the direct loss of woodland. The effects of woodland removal, in forestry terms, were assessed as not significant, on the basis of the relatively low magnitude of change in the context of the regional resource, and the low to medium sensitivity of the types of woodland present in the study area.

11.1.5 Given that the Proposed Alignment would result in the permanent loss of woodland, the Applicant is committed to making arrangements to plant off-site the equivalent area of woodland as compensatory planting, meeting the Scottish Government's Control of Woodland Removal Policy (CoWRP) objective of no net loss of woodland. The development of compensatory planting scheme agreements will be progressed with landowners within the regional land boundary of the Local Authority, of where the Proposed Alignment is geographically located.

11.1.6 The area of woodland removal required for other consented and proposed development will be mitigated through Scottish Government's CoWRP objective of no net loss of woodland. In this way there is considered to be no cumulative effect on forestry.

11.2 Forestry – Alternative Alignment

11.2.1 The section of the Alternative Alignment that deviates away from the Proposed Alignment would cross no further existing woodland or forest, and as such, would result in no changes to the woodland loss and compensatory planting requirements from that set out in Section 11.1.

11.2.2 Therefore, as per the Proposed Alignment, the assessment of forestry impacts for the Alternative Alignment also concludes a loss of 5.75 ha of woodland due to the requirement to create an OC for construction and safe operation. Similarly, the assessment findings for the Alternative Alignment are as reported for the Proposed Alignment.

12. SUMMARY

12.1.1 This Non-Technical Summary provides a summary of the EIA Report for the Strathy South Wind Farm Grid Connection. The main findings of the environmental impact assessment are summarised for the Proposed Alignment and the Alternative Alignment, concluding that likely significant residual effects (i.e. after mitigation) are predicted for those receptors that are set out in **Table 12.1**:

Table 12.1: Summary of Significant Residual Effects

Topic		Proposed Alignment	Alternative Alignment
Landscape and Visual	Landscape	Significant direct and indirect adverse landscape effects during construction on LCT 134 (Sweeping Moorland and Flows).	Significant direct and indirect adverse landscape effects during construction on LCT 134 (Sweeping Moorland and Flows).
		Significant indirect adverse landscape effects during operation on LCT 134 (Sweeping Moorland and Flows). No significant direct effects are predicted for this LCT during operation.	Significant indirect adverse landscape effects during operation on LCT 134 (Sweeping Moorland and Flows). No significant direct effects are predicted for this LCT during operation.
		Significant direct and indirect adverse landscape effects during construction on LCT 142 (Strath – Caithness and Sutherland).	Significant direct and indirect adverse landscape effects during construction on LCT 142 (Strath – Caithness and Sutherland).
		-	Significant direct and indirect adverse landscape effects during operation on LCT 142 (Strath – Caithness and Sutherland).
	Visual Amenity[35]	Significant adverse visual effects on the following built receptors during construction and operation: • Building B2: Properties on the Minor Road to Strathy Point (South Section); • Building B10: Properties at Baligill; • Building B33: Properties east of Bighouse Lodge; • Building B36: Properties at Strath Halladale north; • Building B37: Properties at Kirkton; • Building B38: Tigh na Breac, Strath Halladale; and • Building B49: Bowside Cottage (Gamekeepers Cottage).	Significant adverse visual effects on the following built receptors during construction and operation: • B23: Properties on A836 west of Portskerra; • B25: Melvich Park Cottage and Coastline Café; • B26: Properties south of Coastline Café: • B33: Properties east of Bighouse Lodge; • Building B36: Properties at Strath Halladale north; • Building B37: Properties at Kirkton; • Building B38: Tigh na Breac, Strath Halladale; and • B49: Bowside Cottage (Gamekeepers Cottage)
		Significant adverse visual effects on users of the following route receptors during construction and operation: • Route 1a and R1b: A836 / National Cycle Route (NCR) 1 (both directions);	Significant adverse visual effects on users of the following route receptors during construction and operation: • Route 1a and 1b: A836 / National Cycle Route (NCR) 1 (both directions);

[35] The visual amenity assessment of the Proposed Alignment and Alternative Alignment should not be compared on a like for like basis as different baseline scenarios were considered.

Topic		Proposed Alignment	Alternative Alignment
		• Route R2 and R2b: A897 (northbound); • Route R3b (Minor Road to Kirkton); • Route R4a and R4b: Scottish Hill Track 344 – Strath Halladale (Trantlebeg) to Strathy (both directions); and • Route R6a and R6b: Core Path SU19.03 (in both directions, but more prominently northbound).	• Route R2: A897 (northbound); • Route R3 (Minor Road to Kirkton); • Route R4a and 4b: Scottish Hill Track 344 – Strath Halladale (Trantlebeg) to Strathy (both directions); and • Route R6a and 6b: Core Path SU19.03 (in both directions, but more prominently northbound).
		Significant adverse visual effects on the following outdoor receptors during construction and operation: • Rec 8: Kirkton Cemetery.	Significant adverse visual effects on the following outdoor receptors during construction and operation: • Rec 8: Kirkton Cemetery.
	Landscape and Visual Cumulative	Significant adverse cumulative visual effects on the following receptors during construction and operation which would experience an increase in the level of effect identified for either Kirkton Energy Park or the Proposed Alignment in isolation: • Building B37: Properties at Kirkton; • Route R1a: A836/NCR1 west-bound in the vicinity of Strath Halladale • Route R6a: Core Path SU19.03 north-bound; and • Rec 8: Kirkton Cemetery.	Significant adverse cumulative visual effects on the following receptors during construction and operation which would experience an increase in the level of effect identified for either Kirkton Energy Park or the Alternative Alignment in isolation: • Building B37: Properties at Kirkton; • Route R1a: A836/NCR1 west-bound in the vicinity of Strath Halladale • Route R6a: Core Path SU19.03 north-bound; and • Rec 8: Kirkton Cemetery.
Ecology (non-avian)		No likely significant residual effects predicted.	No likely significant residual effects predicted.
Ornithology		No likely significant residual effects predicted.	No likely significant residual effects predicted.
Soils, Geology and Water		No likely significant residual effects predicted.	No likely significant residual effects predicted.
Cultural Heritage		No likely significant residual effects predicted.	No likely significant residual effects predicted.
Traffic and Transport		No likely significant residual effects predicted.	No likely significant residual effects predicted.
Forestry		No likely significant residual effects predicted.	No likely significant residual effects predicted.

FIGURES

Scottish & Southern Electricity Networks
TRANSMISSION

Strathy

Melvich

Trantlebeg

Strathy Forest

Scale @ A3: 1:50,000
0 0.25 0.5 1 1.5 2 2.5 km

279000m E

952000m N

Legend

Overhead Line (OHL) Works for which consent under Section 37 of the Electricity Act is sought

- Proposed OHL Alignment
- Alternative OHL Alignment

Ancillary Development for which Deemed Planning Consent (Town and Country Planning (Scotland) Act 1997 is sought)

- Proposed Cable Sealing End (CSE) Compound
- Existing Wood Pole 132 kV OHL (to be dismantled)

Development which falls under the Town and Country Planning (General Permitted Development) (Scotland) Order 1992

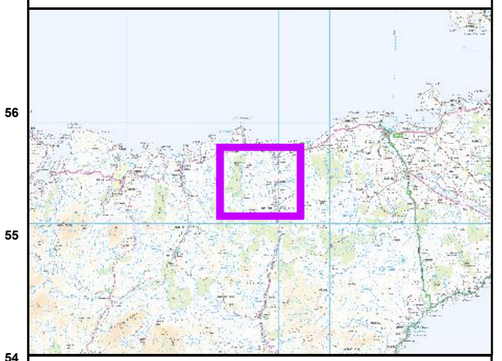
- Proposed Underground Cable (UGC)
- Proposed Temporary UGC (Alternative Alignment only)

Other Infrastructure

- Strathy North Substation (Existing)
- Strathy Wood Substation (Consented)
- Strathy South Substation (Consented)
- Strathy South Wind Turbines (Consented)
- Strathy North Wind Turbines (Operational)
- Melvich Wind Turbines (Proposed)
- Strathy Wood Wind Turbines (Consented)
- Connagill 275/132 kV Substation
- Existing 132kV OHL (to be retained)

Other Asociated Works

- Strathy South Wind Farm UGC
- Strathy Wood Wind Farm Grid Connection



Project No:	LT560
Project:	Strathy South Wind Farm Grid Connection - Non-Technical Summary
Title:	Figure 1: Overview of the Proposed Development
Drawn by:	MT/SK
Date:	07/02/2025
Drawing:	121008-NTS-D1-1.0.0

Scottish & Southern Electricity Networks
TRANSMISSION

Strathy

Melvich

Scale @ A3: 1:30,000
0 0.25 0.5 1 1.5 2 2.5 km

282000m E

958000m N

Legend

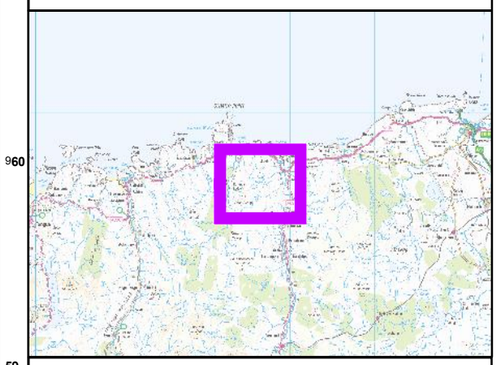
Ancillary Development for which Deemed Planning Consent (Town and Country Planning (Scotland) Act 1997 is sought)

- Existing Bellmouth (to be upgraded)
- New Bellmouth
- Existing Access Track (to be upgraded)
- Proposed Permanent Access Track
- Proposed Temporary Access Track
- Existing Wood Pole (H pole) (to be dismantled)
- Existing 132kV OHL (to be dismantled)
- Proposed* Wood Pole (H pole) (to be dismantled)

Existing Infrastructure

- Existing Access Track
- Connagill 275/132 kV Substation
- Existing Wood Pole (H pole) (to be retained)
- Existing 132kV OHL (to be retained)
- Proposed* Wood Pole (H pole) (to be retained)

* Proposed as part of Strathy Wood Wind Farm Grid Connection



Project No:	LT560
Project:	Strathy South Wind Farm Grid Connection - Non-Technical Summary
Title:	Figure 2a: Proposed Dismantling Works – Proposed Alignment
Drawn by:	MT
Date:	07/02/2025
Drawing:	121008-NTS-D2a-1.0.0

Scottish & Southern Electricity Networks
TRANSMISSION

Strathy

Melvich

Melvich Bay

Scale @ A3: 1:30,000

0 0.25 0.5 1 1.5 2 2.5 km

Legend

Overhead Line (OHL) Works for which consent under Section 37 of the Electricity Act is sought

- Proposed Temporary Wood Pole (H Pole)
- Proposed Temporary OHL

Ancillary Development for which Deemed Planning Consent (Town and Country Planning (Scotland) Act 1997 is sought)

- Existing Bellmouth (To Be Upgraded)
- New Bellmouth
- Existing Access Track (to be
- Proposed Permanent Access
- Proposed Temporary Access Track
- Existing Wood Pole (H pole) (to be dismantled)
- Existing Wood Pole (H pole) (to be dismantled)
- Proposed* Wood Pole (H pole) (to be dismantled)

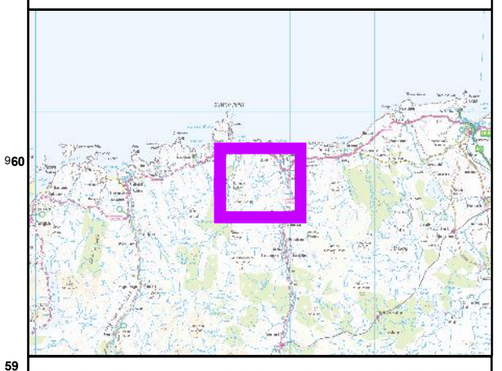
Development which falls under the Town and Country Planning (General Permitted Development) (Scotland) Order 1992

- Proposed Temporary UGC

Existing Infrastructure

- Existing Access Track
- Connagill 275/132 kV Substation
- Existing Wood Pole (H pole) (to be retained)
- Existing 132kV OHL (to be retained)
- Proposed* Wood Pole (H pole) (to be retained)

* Proposed as part of Strathy Wood Wind Farm Grid Connection



Project No:	LT560
Project:	Strathy South Wind Farm Grid Connection - Non-Technical Summary
Title:	Figure 2b: Proposed Dismantling Works and Temporary Diversions – Alternative Alignment
Drawn by:	MT/SK
Date:	07/02/2025
Drawing:	121008-NTS-D2b-1.0.0