Scottish & Southern Electricity Networks

Report on Consultation – Alignment Options

Bhlaraidh Extension Wind Farm Grid Connection

June 2021

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Scottish & Southern Electricity Networks

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GLOSSARY

Term	Definition
Alignment	A centre line of an overhead line OHL, along with location of key angle structures.
Alignment (preferred)	An alignment for the overhead line taken forward to stakeholder consultation following a comparative appraisal of alignment options.
Alignment (proposed)	An alignment taken forward to consent application. It comprises a defined centre line for the overhead line and includes an indicative support structure (tower or pole) schedule, also specifying access arrangements and any associated construction facilities.
Amenity	The natural environment, cultural heritage, landscape and visual quality. Also includes the impact of SSEN Transmission's works on communities, such as the effects of noise and disturbance from construction activities.
Biodiversity Net Gain (BNG)	A process intended to leave nature in a better state than it started using good practice principles established by the Business and Biodiversity Offset Programme (BBOP) and organisations including CIRIA, CIEEM and IEMA.
Conductor	A metallic wire strung from structure to structure, to carry electric current.
Consultation	The dynamic process of dialogue between individuals or groups, based on a genuine exchange of views and, normally, with the objective of influencing decisions, policies or programmes of action.
Corridor	A linear area which allows a continuous connection between the defined connection points. The Corridor may vary in width along its length; in unconstrained areas it may be many kilometres wide.
Environmental Impact Assessment (EIA)	Environmental Impact Assessment. A formal process codified by EU directive 2011/92/EU, and subsequently amended by Directive 2014/52/EU. The national regulations are set out in The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017. The EIA process is set out in Regulation 4(1) of the regulations and includes the preparation of an EIA Report by the developer to systematically identify, predict, assess and report on the likely significant environmental impacts of a proposed project or development.
Habitat	Term most accurately meaning the place in which a species lives, but also used to describe plant communities or agglomerations of plant communities.
Kilovolt (kV)	One thousand volts.
Listed Building	Building included on the list of buildings of special architectural or historic interest and afforded statutory protection under the 'Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997' and other planning legislation. Classified categories A – C(s).
Micrositing	The process of positioning individual structures to avoid localised environmental or technical constraints.
Mitigation	Term used to indicate avoidance, remediation or alleviation of adverse impacts.
Overhead line (OHL)	An electric line installed above ground, usually supported by lattice steel towers or poles.
Plantation Woodland	Woodland of any age that obviously originated from planting.
Route	A linear area of approximately 1 km width (although this may be narrower/wider in specific locations in response to identified pinch points / constraints), which provides a continuous connection between defined connection points.

Term	Definition
Route (preferred)	A route for the overhead line taken forward to stakeholder consultation following a comparative appraisal of route options.
Route (proposed)	A route taken forward following stakeholder consultation to the alignment selection stage of the overhead line routeing process.
Routeing	The work undertaken which leads to the selection of a proposed alignment, capable of being taken forward into the consenting process under Section 37 of the Electricity Act 1989.
Scheduled Monument	A monument which has been scheduled by the Scottish Ministers as being of national importance under the terms of the 'Ancient Monuments and Archaeological Areas Act 1979'.
Semi-natural Woodland	Woodland that does not obviously originate from planting. The distribution of species will generally reflect the variations in the site and the soil. Planted trees must account for less than 30% of the canopy composition.
Sites of Special Scientific Interest (SSSI)	Areas of national importance. The aim of the SSSI network is to maintain an adequate representation of all natural and semi-natural habitats and native species across Britain.
Span	The section of overhead line between two structures.
Special Area of Conservation (SAC)	An area designated under the EC Habitats Directive to ensure that rare, endangered or vulnerable habitats or species of community interest are either maintained at or restored to a favourable conservation status.
Special Landscape Area (SLA)	Landscapes designated by the Highland Council which are considered to be of regional/local importance for their scenic qualities.
Stakeholders	Organisations and individuals who can affect or are affected by SSEN Transmission plc works.
Study Area	The area within which the Corridor, route and alignment study takes place.
The National Grid	The electricity transmission network in the Great Britain.
Underground Cable (UGC)	An electric cable installed below ground, protected by insulating layers and marked closer to the surface to prevent accidental damage through later earthworks.
Volts	The international unit of electric potential and electromotive force.
Wayleave	A voluntary agreement entered into between a landowner upon whose land an overhead line is to be constructed and SSEN Transmission.

PREFACE

This Consultation Document has been prepared by ASH design+assessment Limited on behalf of Scottish and Southern Electricity Networks Transmission (herein referred to as 'SSEN Transmission'), operating under licence as Scottish Hydro Electric Transmission plc (herein referred to as 'SHE Transmission'). The document has been prepared to seek comments from all interested parties on the Preferred Alignment identified for the Bhlaraidh Extension Wind Farm 132 kV overhead line between Bhlaraidh Extension Wind Farm on-site substation and Fort Augustus substation within Auchterawe, near Fort Augustus.

The Consultation Document is available online at the project website:

https://www.ssen-transmission.co.uk/projects/bhlaraidh-extension-windfarm-connection/

Under normal circumstances, consultation on the project would involve public engagement events held in the local area. However, as a result of the COVID-19 pandemic this has not been possible.

To continue engagement on the project SSEN Transmission has developed an online consultation tool, to enable the local community to experience the full exhibition from home on a computer, tablet or mobile device. The online exhibition has been designed to look and feel like a real consultation in a community hall, with exhibition boards, maps, interactive videos and the opportunity to share views on the proposals.

Visitors will be able to engage directly with the project team, via a live chat function, where they can ask any questions they might have about the project and share their feedback on the current alignment options.

The virtual consultation events will be taking place via the project website at the following times:

- 23 June 2021; 1.00pm-3.00pm
- 23 June 2021; 5.00pm-7.00pm

Comments on this Consultation Document should be sent to:

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All comments are requested by **30 July 2021.**

EXECUTIVE SUMMARY

The proposed Bhlaraidh Extension Wind Farm (18 turbines, total capacity 100.8 MW) in the Highlands requires connection to the electricity transmission network at Fort Augustus substation by April 2026. It is anticipated that this would be achieved via the construction and operation of a new 132 kV single circuit Overhead Line (OHL). It is anticipated that the connection into Fort Augustus substation would be by underground cable (UGC). This Consultation Document invites comments from all interested parties on the preferred grid connection alignment identified.

Initially, a Corridor was identified within which the identification and assessment of route options were established. The Corridor was developed to encompass a range of feasible route options between the two connection points at Bhlaraidh Extension Wind Farm on-site substation and Fort Augustus substation (see Figure 1). It was also informed by the System Planning Commercial Appraisal Paper prepared in Summer 2019 which considered alternative connection options.

A Route Selection process was then carried out between August 2020 and January 2021. Five 1 km-wide route options were considered between the Bhlaraidh Extension Wind Farm on-site substation and Fort Augustus substation. A Proposed Route based on comparative route appraisals and subsequent consultation with statutory consultees and other stakeholders was then selected to progress to the alignment selection stage.

Alignment options were established within the Proposed Route. Given the nature and location of constraints within the Proposed Route, a 'base' alignment option was established and a number of diversions to the alignment set out as alternative options, rather than attempt to set out several distinct alignments between the two connection points. The alignment options identified are displayed on **Figure 1.** A Preferred Alignment has been selected to provide an optimum balance of environmental, technical and economic factors, and is displayed on **Figure 13**.

It is anticipated that an application for consent for a proposed alignment will be submitted in July 2022.

When providing comments and feedback on this Consultation Document, SSEN Transmission would be grateful for your consideration of the questions below:

- Have we explained the need for this Project adequately?
- Have we explained the approach taken to select the Preferred Alignment adequately?
- Are there any factors, or environmental features, that you consider may have been overlooked during the preferred alignment selection process?
- Do you feel, on balance, that the Preferred Alignment selected is the most appropriate for further consideration at the EIA and Consenting stage?

1. INTRODUCTION

1.1 Purpose of Document

1.1.1 This Consultation Document invites comments from all interested parties on the preferred alignment identified for the proposed 132 kV overhead line (OHL) between Bhlaraidh Extension Wind Farm on-site substation and Fort Augustus substation.

1.1.2 This Consultation Document describes the alignment options appraisal undertaken, the alternatives considered during the selection of alignment[1] options, and the identification of a Preferred Alignment. Comments are now sought from statutory authorities, key stakeholders, elected representatives and the public on the alignment selection process and the Preferred Alignment identified.

1.1.3 All comments received will inform further consideration of the Preferred Alignment. This will then form the basis of a Proposed Alignment to take forward into the EIA and Consenting stage.

1.2 Document Structure

1.2.1 This report is comprised of eight sections as follows:

1: Introduction – setting out the purpose of the Consultation Document;

2: The Proposals – describes the need for the proposals, the proposed technology solution and the typical construction methods;

3: Alignment Selection Process – sets out the alignment selection process and methodology that has been applied to date;

4: Consultation to Date – summarises the consultation feedback received at Route Selection stage and subsequent consultation outcomes with landowners;

5: Description of Alignments – describes the alignment options that have been identified;

6: Environmental Baseline – describes the local context and baseline environmental and engineering context;

7: Comparative Appraisal – analyses each alignment option against a series of environmental, technical and economic considerations to arrive at a Preferred Alignment; and

8: Consultation on the Proposals – invites comments on the alignment assessment process and identification of preferred alignment and outlines the next steps.

1.2.2 The main body of this document is supported by a series of figures and an appendix.

1.3 Next Steps

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

1.3.2 A Report on Consultation will be produced which will document the consultations received, and the decisions made in light of these responses.

1.3.3 Following the identification of a Preferred Alignment, the project will move on to the EIA and consenting stage. The Preferred Alignment will become the Proposed Alignment for which consent would be sought for installation and operation of the connection.

[1] A centre line of an overhead line, along with the location of key angle structures.

2. THE PROPOSALS

2.1 The Need for the Project

2.1.1 SSEN Transmission is a wholly owned subsidiary of the SSE plc group of companies. SSEN Transmission owns and maintains the electricity transmission network across the north of Scotland and holds a license under the Electricity Act 1989 to develop and maintain an efficient, co-ordinated and economical system of electricity transmission.

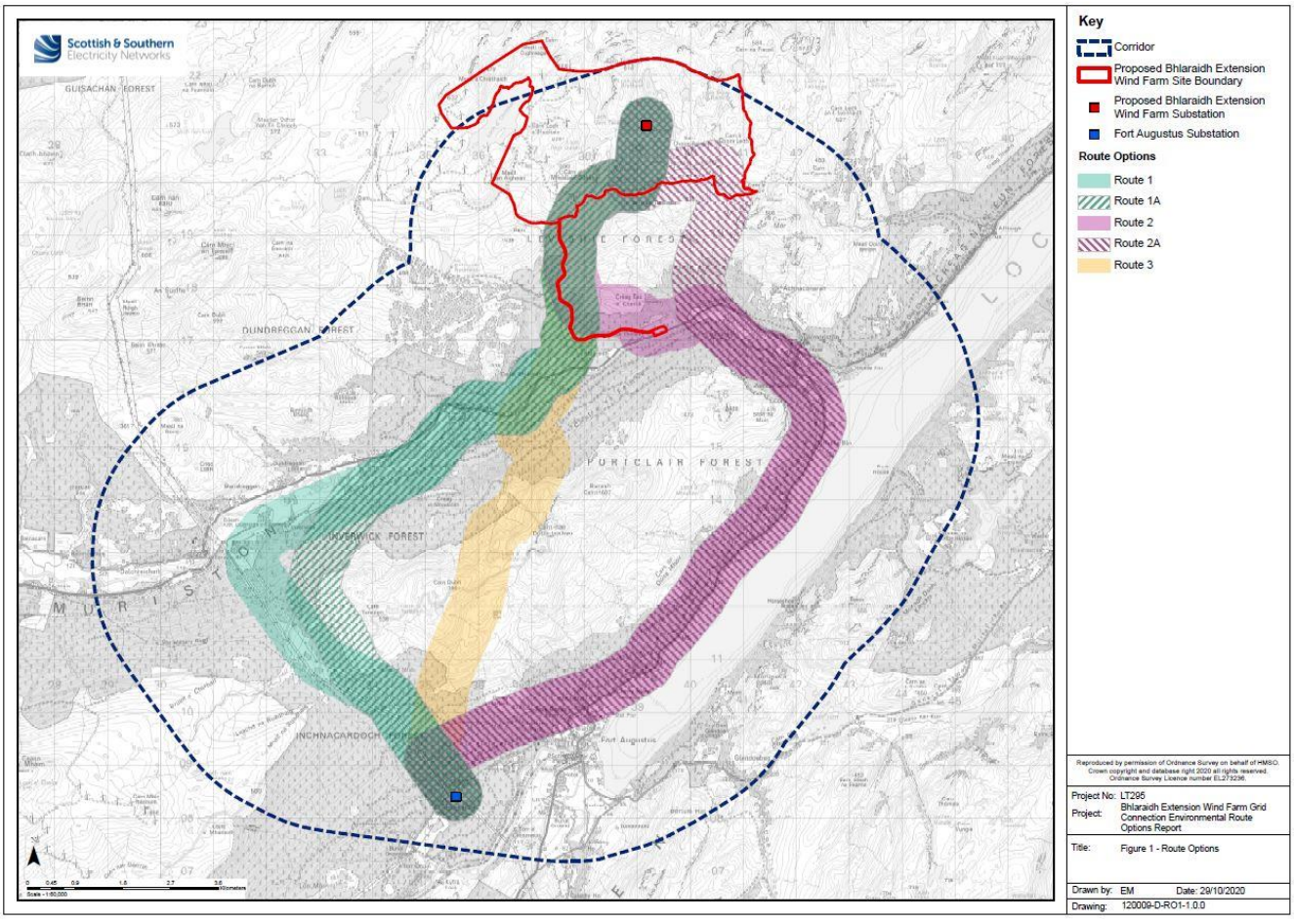
2.1.2 The proposed Bhlaraidh Extension Wind Farm (18 turbines, total capacity 100.8 MW) in the Highlands requires connection to the electricity transmission network at Fort Augustus substation by April 2026. It is anticipated that this would be achieved via the construction and operation of a new 132 kV single circuit Overhead Line (OHL).

2.1.3 The new connection would be routed between the proposed Bhlaraidh Extension Wind Farm on-site substation and Fort Augustus substation (see **Figure 1**).

2.2 Alignment Options Assessed

2.2.1 A Route Selection process was carried out between August 2020 and January 2021. Five 1 km-wide route options were considered between the Bhlaraidh Extension Wind Farm on-site substation and Fort Augustus substation. **Plate 2.1** below indicates the five route options considered.

Plate 2.1: Route Options



2.2.2 Of these, Route Option 1A was considered to be the overall preference when considering environmental, engineering and economic constraints to development and feedback from consultees. However, feedback received from the principal landowner, Forestry and Land Scotland (FLS), indicated a strong preference for

Route Option 1 in regard to potential adverse effects on forestry blocks and forestry operations. FLS also indicated that granting of wayleaves within which to construct a new OHL would require careful selection of an alignment within Route Option 1 which minimised potential adverse effects on their areas of concern. Consequently, Route Option 1 has been taken forward as the Proposed Route referenced throughout this Report.

2.2.3 Alignment options were then established within the Proposed Route. Given the nature and location of constraints within the Proposed Route, a 'base' alignment option was established and a number of diversions to the alignment set out as alternative options, rather than attempt to set out several distinct alignments between the two connection points. The alignment options identified are displayed on **Figure 1.**

2.3 Preferred Technology Solution

2.3.1 Based on the options assessed, the preferred solution is a new 132 kV single circuit Overhead Line (OHL) supported on a trident wood pole[2]. This is the most economical option which minimises access requirements and environmental impacts during construction due to reduced foundation and access requirements.

2.3.2 It is also anticipated that the connection into Fort Augustus substation would be by underground cable (UGC), approximately 2 km in length.

2.4 Alternative Technology Options Considered

2.4.1 SSEN Transmission has determined that a trident wood pole is the preferred technological solution for this project and would make use of this support structure for the OHL where possible. Some sections of ground within the Proposed Route are at an elevation unsuitable for wood pole structures, including the site of the Bhlaraidh Extension Wind Farm on-site substation. While it is possible in some instances to utilise wood pole structures up to 500 m AOD, issues such as exposure and wind loading necessitate deeper planting of poles and shorter spans, and stronger, more resilient structures tend to be favoured instead. These include steel lattice towers, composite or steel versions of the trident support, or SSEN Transmission's New Suite of Transmission Structures (NeSTS).

2.4.2 Use of UGC is also a potential solution for areas of higher ground, but this tends to be the least favoured approach due to increased disruption of habitats and / or areas of peat soils, increased cost and additional maintenance challenges.

2.4.3 Details of the above options are provided below. More detailed assessments and further consultation are required to identify the specific combination of technology options for the connection, however at this stage it is understood that trident wood poles would be used for the majority of the connection, larger structures would be used at higher elevations near the Bhlaraidh Extension Wind Farm on-site substation, and UGC would be used for the last section (approximately 2 km) connecting into Fort Augustus substation.

2.5 Proposals Overview

General Construction Activities

2.5.1 To facilitate the connection, the main construction elements associated with the development are anticipated to include:

- establishment of one or more construction compounds;
- establishment of suitable laydown areas for materials;
- construction of stone tracks (both temporary and permanent) and other temporary track solutions as necessary;

[2] The consideration of other technology options may be required in areas where particular physical or environmental constraints are identified.

- delivery of structures and materials to site;
- excavation and construction works associated with foundations, as necessary;
- assembly and erection of OHL support structures and stays;
- stringing of conductors using hauling ropes and winches; and
- inspections and commissioning.

2.5.2 **Table 2.1** provides a comparison of the different OHL technology options under consideration.

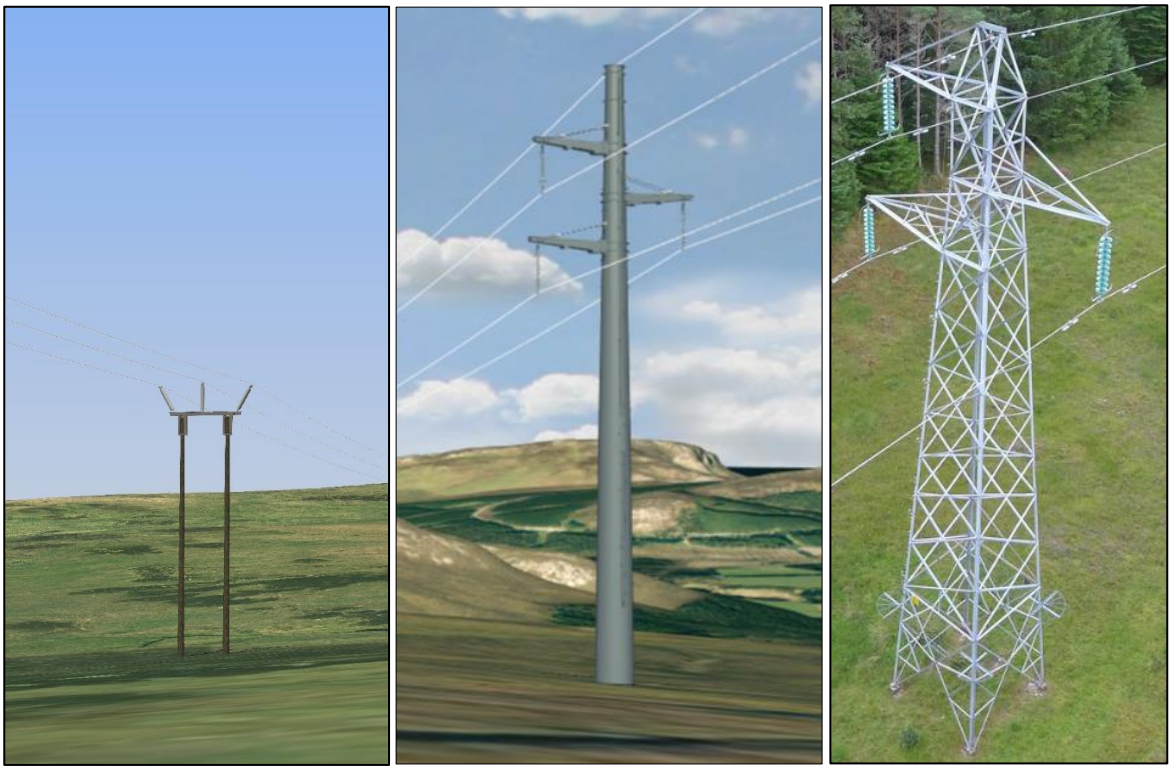
Table 2.1: Comparison of OHL Technologies

Technology Type	Indicative Height	Indicative Span Length	Typical Installation Activities
Trident Wood Pole	16 m	60 – 80 m	Excavation of a suitable area for the wood poles, and backfilling after installation of the pole. Addition of imported hardcore backfill around the pole foundations in some locations to provide additional stability. Conductors installed using full tension stringing. Reinstatement using excavated material.
Trident Composite or Steel Pole	16 m	100 m	Excavation of a suitable area for the poles, and backfilling after installation of the pole. Addition of imported hardcore backfill around the pole foundations in some locations to provide additional stability. Conductors installed using full tension stringing. Reinstatement using excavated material.
Steel Lattice Tower	24 m	250 m	Construction of stone access tracks and establishment of a suitable working area at each tower. Stripping of topsoil from the working area to allow placement of additional pads or supports for construction, where necessary. Excavation for foundations, typically 3 m deep, followed by placement of formwork and concrete pouring. Delivery of towers to site in sections, and assembly at each location. Construction by mobile crane and telehandler, or potentially by helicopter in challenging sections. Conductored (strung) through use of winches, tensioners and ancillary equipment. Pilot wires would be pulled through each section by suitable vehicles, drawing the conductors through the supports. Reinstatement using excavated material.
NeSTS Monopoles (Steel)	24 m	300 m	Construction of stone access tracks and establishment of a suitable working area at each pole. Stripping of topsoil from the working area to allow installation of pole erection pads, where necessary.

Technology Type	Indicative Height	Indicative Span Length	Typical Installation Activities
			Excavation for foundations; depth is dependent on pole size and ground conditions, but typically 3 m deep followed by placement of formwork and concrete pouring. Conductored (strung) through use of winches, tensioners and ancillary equipment. Pilot wires would be pulled through each section by suitable vehicles. Reinstatement using excavated material.

2.5.3 Example OHL structures are shown in Plate 2.2 for illustrative purposes.

Plate 2.2: Example OHL Structures: Trident Wood Pole, NeSTS, and Steel Lattice Tower



Underground Cable

2.5.4 The final length of connection into Fort Augustus substation would be formed of UGC given technical constraints around the substation. The exact length and location where OHL will transition to UGC is not known at this stage; however, it is anticipated that approximately 2 km of UGC would be installed. A trident sealing end structure would be utilised to transfer the OHL connection to UGC.

2.5.5 It is anticipated that installation of the UGC would involve the following tasks:

- establish a working corridor approximately 30 m wide, centred on the cable centreline;
- excavate a trench up to 2 m in depth and 0.8 m wide, widening through benching and battering where stability and safety concerns arise;
- clear out all materials likely to damage cable ducts, e.g. clods, rocks, stones and organic debris, and employ use of pumps to remove any water;
- place cabling within the trench, surrounded by engineered backfill in suitable layers for protection, with marker boards placed above the cable line; and

- reinstate excavated surface layers in reverse order.

Forestry Removal

2.5.6 Construction of the project would likely require the removal of sections of commercial forest. Ongoing consultation is being undertaken with Forestry and Land Scotland (FLS) and other affected landowners, as outlined in Section 4 of this Report. Consultation with landowners will continue throughout the development of the project. In addition, the project would seek to adhere to Scottish Government's Control of Woodland Removal Policy.[3]

2.5.7 After felling, any timber removed that is commercially viable would likely be sold and the remaining forest material would be dealt with in a way that delivers the best practicable environmental outcome and is compliant with waste regulations.

2.5.8 An operational corridor would be required to enable the safe operation and maintenance of the OHL. This would vary depending on the type of woodland (based on species present) in proximity to the OHL, and the height of support structures used within each woodland area. In areas of native woodland, it is usually possible to provide a narrower corridor due to a reduced risk of trees falling on the OHL.

2.5.9 Compensatory Planting requirements will be reviewed for all woodland removed as a direct result of the project.

Access during Construction

2.5.10 Vehicle access is required to each pole location during construction to allow excavation and creation of foundations and pole installation. Existing tracks would be used where possible. Preference would be given to lower impact access solutions including the use of low pressure tracked personnel vehicles and temporary track solutions in boggy / soft ground areas to reduce any damage to, and compaction of, the ground. These journeys would be kept to a minimum to minimise disruption to habitats along the route. However, stone tracks (both temporary and permanent) may be necessary in some areas depending on existing access conditions, terrain and altitude.

2.5.11 Steel lattice towers, composite poles and NeSTS would require the establishment of new stone tracks (both temporary and permanent), or other temporary track solutions as necessary, to facilitate construction and maintenance through the operational lifespan of the OHL. The exact specifications of these tracks would be determined once an alignment has been chosen and ground conditions are better understood, but it is anticipated that they would be formed of crushed aggregate stone and approximately 5 m wide. Material would be sourced from borrow pits, if any suitable sites are located in proximity to the OHL, or imported from off-site quarries.

Programme

2.5.12 It is anticipated that construction of the project would take place over a 25-month period, including a 3-month winter break, following the granting of consents, although detailed programming of the works would be the responsibility of the Contractor in agreement with SSEN Transmission.

2.5.13 Every effort would be made to minimise disturbance to landowners, local residents and other stakeholders during construction by providing regular updates on works and restrictions via the site manager, community liaison manager and corporate affairs team.

[3] Forestry Commission Scotland (2009) Control of Woodland Removal Policy

2.6 Biodiversity Net Gain

2.6.1 Biodiversity Net Gain (BNG) is a process which leaves nature in a better state than it started. Although it is an internationally recognised process and tool within the development industry, it is not a term that is widely used or implemented in Scotland[4]. A small handful of businesses are making voluntary commitments to incorporating BNG into their projects, including SSEN Transmission plc.

2.6.2 SSEN Transmission has developed a BNG toolkit based upon the Natural England metric[5], which aims to quantify biodiversity based upon the value of habitats for nature. It is an efficient and effective method for demonstrating whether development projects have been able to maintain or increase the biodiversity value of a development site after construction works.

2.6.3 For BNG to be used appropriately and to generate long-term gains for nature, the good practice principles established by the Business and Biodiversity Offset Programme (BBOP)[6] should be followed. These principles have been established in the context of UK development by the Construction Industry Research and Information Association (CIRIA), the Chartered Institute for Ecology and Environmental Management (CIEEM) and the Institute of Environmental Management and Assessment (IEMA)[6].

2.6.4 BNG does not apply to statutory designated sites or irreplaceable habitats (e.g. ancient woodland[7], blanket bog)[8].

SSEN Transmission's Biodiversity Ambition

2.6.5 SSEN Transmission is committed to protecting and enhancing the environment by minimising the potential impacts from their construction and operational activities. As part of this approach, SSEN Transmission plc has made commitments within its Sustainability Strategy (2018)[9] , Sustainability Plan (2019)[10] and RIIO-T2 Business Plan, for new infrastructure projects to:

- Ensure natural environment considerations are included in decision making at each stage of a project's development;
- Utilise the mitigation hierarchy to avoid impacts by consideration of biodiversity in project design;
- Positively contribute to the UN and Scottish Government Biodiversity strategies by achieving an overall 'No Net Loss' on new infrastructure projects gaining consent in 2020 onwards and achieving Net Gain on projects gaining consent in 2025 onwards; and
- Work with their supply chain to gain the maximum benefit during asset replacement and upgrades.

2.6.6 The design and evolution of this project will be carried out in line with these commitments.

[4] CIEEM. 2019. Biodiversity Net Gain in Scotland. CIEEM Scotland Policy Group. https://cieem.net/wp-content/uploads/2019/06/Biodiversity-Net-Gain-in-Scotland-CIEEM-Scotland-Policy-Group.pdf

[5] Natural England Biodiversity Metric 2.0 http://publications.naturalengland.org.uk/publication/5850908674228224

[6] Guidance Notes to the Standard on Biodiversity Offsets (2012). Business and Biodiversity Offsets Programme (BBOP). https://www.forest-trends.org/wp-content/uploads/imported/BBOP_Standard_Guidance_Notes_20_Mar_2012_Final_WEB.pdf

[7] Categories 1a and 2a.

[8] CIRIA, CIEEM, IEMA (2019). Biodiversity Net Gain: Good practice principles for development, A Practical Guide. https://cieem.net/wp-content/uploads/2019/02/C776a-Biodiversity-net-gain.-Good-practice-principles-for-development.-A-practical-guide-web.pdf

[9] 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

[10] 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. ALIGNMENT SELECTION PROCESS

3.1 Guidance Document

3.1.1 The approach to alignment selection was informed by SSEN Transmission's guidance 'Procedures for Routeing Overhead Lines and Underground Cables of 132 kV and above'. The guidance sets out SSEN Transmission's approach to selecting a route for an OHL. This document helps SSEN Transmission to meet its obligations under Schedule 9 of the Electricity Act 1989, which requires transmission license holders:

- to have a regard to the desirability of preserving natural beauty, of conserving flora, fauna and geological or physiographical features of special interest and of protecting sites, buildings and objects of architectural, historic or archaeological interests; and
- to do what they reasonably can to mitigate any effect that the proposals would have on the natural beauty of the countryside or on any such flora, fauna, features, sites, buildings or objects.

3.1.2 The guidance develops a process which aims to balance these environmental considerations with technical and economic considerations throughout the route options process.

3.1.3 The guidance splits a project into six stages, as follows:

- Pre-Routeing Activities: Selection of proposed connection option;
- Stage 0: Routeing strategy development;
- Stage 1: Corridor Selection;
- Stage 2: Route Selection;
- Stage 3: Alignment Selection; and
- Stage 4: EIA and consenting.

3.1.4 The stages that are carried out can vary depending on the type, nature and size of a project and consultation is carried out at each stage of the process as appropriate. This project is currently at Stage 3: Alignment Selection, the objective of which is to identify a Preferred Alignment to be taken forward prior to selection of a Proposed Alignment.

3.1.5 In consideration of the principles outlined in the guidance document, the method of identifying a preferred alignment in this study has involved the following four key tasks:

- Review and update, where required, of the baseline situation established at Stage 2;
- Identification of alignment options;
- Environmental analysis of alignment options; and
- Identification of an environmentally preferred alignment.

3.1.6 An initial BNG appraisal to determine the biodiversity baseline of alignment options and the potential biodiversity impacts of each option has also been undertaken, building on the BNG study carried out at Route Selection stage, to inform the consideration of alignment options.

3.2 Selection of a Corridor

3.2.1 A Corridor was identified within which the identification and assessment of route options could be completed (see **Figure 1**). The Corridor was developed to encompass a range of feasible route options between the two connection points at Bhlaraidh Extension Wind Farm on-site substation and Fort Augustus substation.

3.3 Selection of a Proposed Route

3.3.1 As noted earlier in Section 2, the Route Selection process was carried out between August 2020 and January 2021. Five 1 km-wide route options were considered between the Bhlaraidh Extension Wind Farm on-site

substation and Fort Augustus substation. It concluded with the identification of Route Option 1A as the Proposed Route based on comparative route appraisals and subsequent consultation with statutory consultees and other stakeholders. Feedback from the principal landowner, FLS, indicated a strong preference for Route Option 1 and that granting of wayleaves would require careful selection of an alignment which minimises adverse effects on forestry. As such, Route Option 1 was taken forward as the Proposed Route, as displayed on Figure 1.

3.3.2 Section 4 of this Report provides a summary of the consultation responses received for the route options appraised, along with information on other consultations carried out to date.

3.4 Baseline Conditions

3.4.1 A baseline desktop study was carried out as part of Stage 2: Route Selection to identify a broad range of potential constraints and opportunities within the Corridor, and its adjacent context. These baseline studies have been refined as part of the alignment options appraisal presented within this Report. Establishment of the baseline involved the following activities:

- Identification of environmental designated sites and other constraints, utilising GIS datasets available via NatureScot[11] Site Link[12];
- Identification of archaeological designations and other recorded sites, utilising GIS datasets available via Historic Environment Scotland[13,14] and Highland Historic Environment Record (HER)[15];
- SEPA interactive Flood Risk Mapping[16];
- Review of the Highland-wide Local Development Plan (2012)[17] and The Inner Moray Firth Local Development Plan (2015)[18] to identify further environmental constraints and opportunities, such as regional level designations or other locations important to the public;
- Review of landscape character assessments of relevance to the Corridor[19];
- Review of Native Woodland Survey of Scotland and Ancient Woodland Inventory data sets[20];
- Review of Ordnance Survey (OS) mapping (1:50,000 and 1:25,000 and online GIS data sources from OS OpenData) and aerial photography (where available) to identify other potential constraints such as settlement, properties, walking routes, cycling routes etc.;
- Extrapolation of OS GIS data to identify further environmental constraints including locations of watercourses and waterbodies, roads classifications and degree of slope; and
- Review of other local information through online and published media such as tourism sites and walking routes.[21,22,23]

3.4.2 Desk-based studies were supplemented by high-level walkover assessments of the route options by specialist consultants during August 2020. A further ecological walkover survey was carried out in March 2021 of the alignment options. These walkover surveys obtained further site data and observations of localised constraints,

[11] Scottish Natural Heritage (SNH) became NatureScot on 24 August 2020
[12] SNH. SNHi Site Link. [online] Available at:: https://sitelink.nature.scot/home
[13] Historic Environment Scotland Data Services. Portal. [online] Available at: http://portal.historicenvironment.scot/
[14] Royal Commission on Ancient and Historical Monuments of Scotland. Canmore. [online] Available at:: http://canmore.rcahms.gov.uk/
[15] Highland Council Archaeology Service. Highland Historic Environment Record. [online] Available at: https://her.highland.gov.uk/
[16] Scottish Environmental Protection Agency. SEPA Flood Maps [online] Available at: http://map.sepa.org.uk/floodmap/map.htm
[17] Highland Council (2012), Highland-wide Local Development Plan
[18] Highland Council (2015), Inner Moray Firth Local Development Plan
[19] NatureScot. (2019). Scottish Landscape Character Types Map and Descriptions [online] Available at: https://www.nature.scot/professional-advice/landscape/landscape-character-assessment/scottish-landscape-character-types-map-and-descriptions
[20] Available at data.gov.uk
[21] Munro Magic [online] Available at: http://www.munromagic.com/
[22] Walk Highlands [online] Available at: http://www.walkhighlands.co.uk/
[23] Scotways [online] Available at: https://www.scotways.com/

such as signs of European Protected Species and composition of forestry. The results of these walkover surveys have informed the assessments presented herein.

3.5 Alignment Identification and Selection Methods

3.5.1 As mentioned in Section 2, alignment options were established within the Proposed Route based on the key environmental and engineering constraints identified during Stage 2: Route Selection. Given the nature and location of constraints within the Proposed Route, a 'base' alignment option was established and a number of diversions to the alignment set out as alternative options, rather than attempt to set out several distinct alignments between the two connection points.

3.5.2 The steps outlined in the Holford Rules[24] and SSEN Transmission's guidance 'Procedures for Routeing Overhead Lines and Underground Cables of 132 kV and above', observed at Stage 2 for selection of a Proposed Route, have been taken into account as far as is practicable in establishing the alignment options:

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

3.5.3 It is highlighted that SSEN Transmission have a licence and regulatory obligation to deliver the most economic and efficient solution to facilitate the connection that is in the best interest of the wider consumer, which in this case is, for the most part, an OHL. The only other mechanism to permit the use of cabling requires the developer makes a contractual request for a different type of connection, which would result in the developer paying the additional costs. It is noted the environmental impact of cabling could potentially be worse due to the invasive construction methods required compared to OHL construction.

3.6 Appraisal Method

3.6.1 Appraisal of alignment options has involved systematic consideration against the environmental, engineering and cost topic areas included in **Table 3.1**.

[24] Scottish Hydro Electric Transmission Limited (SHETL). (October 2004). *The Holford Rules: Guidelines for the Routeing of New High Voltage Overhead Transmission Lines with NGC 1992 and SHETL 2003 Notes; Revision 1.01*

Table 3.1: Environmental Topic Areas Considered

	Category	Sub-Topic
Environmental	**Natural Heritage**	Designations
		Protected Species
		Habitats
		Ornithology
		Geology, Hydrology and Hydrogeology
	Cultural Heritage	Designations
		Cultural Heritage Assets
	People	Proximity to Dwellings
	Landscape and Visual	Designations
		Character
		Visual
	Land Use	Agriculture
		Forestry
		Recreation
	Planning	Policy
		Proposals
Engineering	**Infrastructure Crossings**	Major Crossings (132kV, 275kV, Rail, 200+m wide river, navigable canal, gas or hydro pipeline)
		Road Crossings
	Environmental Design	Elevation
		Pollution Areas
		Flooding
	Ground Conditions	Terrain
		Peat
	Construction / Maintenance	Access
		Angle Towers
	Proximity	Clearance Distance
		Proximity to Windfarms
		Urban Environments
Cost	**Capital**	Construction, Diversions, Public Road Improvements, Felling, Land Assembly, and Consents Mitigations
	Operational	Inspections and Maintenance

Rating of Alignment Options

3.6.2 At Stage 2, a RAG rating was applied to each topic area within each section, indicating potential constraint to development. The RAG rating approach is considered too broad at Stage 3 as it could generally result in similar ratings for all options. Instead, a more descriptive appraisal is adopted, allowing for more detailed considerations of the differences in constraint to development between each option.

Identification of a Preferred Alignment

3.6.3 The overall objective throughout the appraisal of alignment options has been to take full consideration of all factors to minimise any potential adverse impacts on the environment whilst taking into account technical and cost considerations. Following review and consideration of the potential alignment options, a Preferred Alignment was arrived at, as discussed in this Report.

4. CONSULTATION TO DATE

4.1 Introduction

4.1.1 Formal consultation was carried out during Stage 2 of this project in order to obtain comments from statutory and non-statutory consultees, including members of the public. Further direct consultation was also carried out with principal landowners, namely FLS and the estate which the Proposed Route passes through.

4.2 Route Stage Consultation Summary

Statutory and Non-Statutory Consultation

4.2.1 On 30th October 2020 a Consultation Report summarising the appraisals of the five route options was issued to statutory and non-statutory consultees for comment. **Appendix 1** summarises the feedback received from each consultee and the responses set out by SSEN Transmission within the Report on Consultation which followed. It is noted that Route Option 1A was presented as the Preferred Route to consultees at this stage and was revised to Route Option 1, a close second choice, following consultation.

4.2.2 The responses issued by SSEN Transmission to consultees remain valid at this stage, and comments received have aided in selection of alignment options to appraise as part of this study.

Public Consultation

4.2.3 Virtual public consultation events were held on 10th and 11th November 2020 to present the route options to members of the public local to the area and invite questions and comments. **Table 4.1** below includes a summary of the comments received during the event and in emails afterwards, and the responses issued by SSEN Transmission.

Table 4.1: Public and Local Community Feedback on Route Options by Topic

Feedback Comments	Response by SSEN Transmission
Email Responses	
It was asked whether the decision-making process on capacity of installed connections could be made more efficient, and whether larger capacities could be installed for connections to accommodate future projects.	The cost of the connection is borne by the developer and as such is designed to meet the capacity requested. SSEN Transmission can only provide capacity in line with the developer's request and cannot anticipate potential future connection requirements for other projects.
Concerns were raised in relation to noise generation and visual impacts following previous experience with similar development works nearby.	Potential impacts on the environment and local communities would be minimised. Further work will be undertaken as the project progresses to determine potential impacts so that these can be mitigated.
Comments were received in support of the Preferred Route Option, citing constraints to development of overhead lines near Invermoriston and likely adverse amenity effects from route options 2 and 2A. Route Option 3 was noted to be the shortest with potentially less impact on the environment.	Proximity to dwellings will be considered further during the alignment selection stage of the project and appropriate distances maintained as far as practicable. Due to constraints identified during the route selection process, route options 2 and 2A will not be considered further. While shorter, Route Option 3 was not preferred due to greater potential for engineering and environmental constraints.

Feedback Comments	Response by SSEN Transmission
Would the existing towers near Glenmoriston be used or new towers built for the project?	A new overhead line would be required as the existing 132 kV line does not have the spare capacity required for the project.
Where would the overhead line transition to underground cable on the approach to Fort Augustus substation?	It is anticipated that the point of transition from overhead line to underground cable for this project will be approximately 500 m from Fort Augustus substation. For context, the Skye T circuit is situated approximately 250 m from the substation.
Virtual Exhibition Responses	
Are the works currently ongoing at Fort Augustus substation connected to this project?	The current ongoing works at Fort Augustus substation are part of a separate project.
Would there be any need to dig up the Auchterawe Road or would existing cable ducts be used?	The existing cable ducts underneath the Auchterawe Road would be utilised if possible; however, initial surveys have indicated that installation of new ducts would be likely, requiring some works to the road.
Would works to the road necessitate disturbance of the roadside bund?	The final route of connection to the substation is still to be determined. However, at this stage, it is anticipated that the connection would be into the new part of the substation currently under construction which is to the south of the bund.
Have the areas of Caledonian Pinewood Inventory at Inverwick been taken into account?	Ongoing consultation is currently being undertaken with FLS, as well as further forestry surveys. This will ensure any sensitive habitats are avoided where possible.
Parts of the Caledonian Pinewood Inventory site were damaged with the Beauly Denny line (and the FLS Hydro scheme) built in the last few years, further damage should be avoided.	All projects are developed with a variety of constraints to considered and a balanced approach is taken to development. This includes a variety of environmental sensitivities (including forestry), as well as technical and operational requirements. SSEN Transmission cannot comment on the specifics related to other projects; however, we will continue to ensure forestry issues are part of the decision making process on this project.
Can the connection for the wind farm extension follow the line of the existing electrical infrastructure around the Torgyle area?	Reaching the existing infrastructure at Torgyle would potentially impact more trees. Route 1A would meet the existing line closer to Fort Augustus substation minimising any impact around Torgyle.
Important native woodland fragments and individual trees, such as mature oaks, are present which should be avoided. FLS may be able to advise further.	The information relating to native woodland is useful. SSEN Transmission will continue to consult with FLS on these issues and report on all consultation feedback via a Report on Consultation in due course.

Feedback Comments	Response by SSEN Transmission
The River Moriston SAC qualifying features don't include otter or lamprey, it is primarily for freshwater pearl mussels with salmon as an additional interest. Red squirrels are also present in the woodlands along the riverside and at Bhlaraidh itself.	SSEN Transmission are currently working with environmental consultants and will confirm the citation for the designation site. However, further detailed protected species surveys will be undertaken to ensure all constraints are fully understood.
It appears that the core part of Caledonian Pinewood Inventory around Inverwick would be impacted by Route 1A. It would be preferred that the inventory be avoided. Following the line of the existing infrastructure would reduce this impact.	Once all consultation responses have been reviewed, the feedback will be used to inform whether or not the Preferred Route needs to be adjusted or a different utilised. Should Route 1A be taken forward, further detailed work will be carried out to identify an OHL alignment which seeks to avoid any localised constraints within the Proposed Route. The routes are approximately 1 km wide, giving adequate space to locate an optimal alignment within that route.

4.2.4 Aside from the noted 500 m underground cable connection distance, which has since been revised to approximately 2 km (see Section 4.3 below), the responses remain valid at this stage.

4.2.5 During the November virtual exhibition a link to a publicly available dataset of the Caledonian Pinewood Inventory, matching the areas presented on the forestry figure accompanying the Environmental Route Options Report was provided to the project team by an attendee.

4.2.6 As noted above, Route Option 1 has since been selected as the Proposed Route, however the comments relating to native woodland and the Caledonian Pinewood Inventory remain valid and these constraints remain a key consideration for selection of the Preferred Alignment.

4.3 Landowner Consultation Summary

4.3.1 Direct consultation has been carried out with FLS as the principal landowner to which the Proposed Route relates, as well as the Glenmoriston Estate, in order to identify an alignment option which is considered suitable to all parties. This involved email consultation as well as meetings in which information was presented on assessments carried out to identify preferred options.

4.3.2 As the Scottish Government agency responsible for managing Scotland's national forests and land, FLS, the principal landowner, has specific interest in minimising adverse effects on forestry, including loss of woodland to felling activities, and disruption of forestry operations. As set out within **Appendix 1**, initial commentary relating to route options expressed concern that Route Option 1A, the initially Preferred Route, would result in loss of Caledonian Pinewood forestry, and preferred Route Option 1 for the opportunities present to reduce impacts on native woodland habitat and operations in the area.

4.3.3 Both estates have also expressed preference towards retaining established areas of woodland and provided comments and suggestions for minimising potential felling requirements.

4.3.4 Subsequent direct consultation with FLS on the alignment options presented on **Figure 1** gave rise to more specific comments on particular sections of the connection within the Proposed Route, which are outlined as follows.

Fort Augustus substation to Sealing End Structure

4.3.5 Comments were given relating to the section of connection between Fort Augustus substation and the point at which the underground cable would change to OHL. This length of cable was estimated at 500 m at the route selection stage, but in discussion with FLS it was suggested that this be increased to the location where the OHL can be placed between the two existing OHLs, approximately 2 km from Fort Augustus Substation. This would reduce the working corridor required to install the connection and potentially the degree tree felling that would be associated with this, dependent on windfirm edges. SSEN Transmission recognise the particular sensitives of the addition of a further OHL descending into the Great Glen and into Fort Augustus Substation such that undergrounding this section through the existing commercial forestry plantation is considered sensible to reduce potential environmental effects. It was suggested that the cable alignment be set between the two existing Beauly – Denny Corridor OHLs for the entirety of its length, however this was deemed unsafe during engineering review and instead placed to the west side of the existing OHLs, as this would reduce potential windthrow effects through better sheltering of the newly exposed trees to the prevailing wind direction. FLS noted that any felling would require to be to windfirm edges, rather than just the working corridor width.

Sealing End Structure to Torgyle Bridge

4.3.6 FLS suggested that any new OHL be placed between the existing OHLs of the Beauly – Denny Corridor to prevent further sterilisation of woodland likely to result from placement of the new OHL to the east or west sides. It was confirmed that this would also serve to reduce the need for outages to these lines when forestry works are required to the isolated tree block between these lines. FLS noted that Route Option 1A was considered to present unacceptable impact on existing native planting and indicated they would oppose any proposals for this route option.

Torgyle Bridge to Dundreggan Dam

4.3.7 This section relates primarily to land belonging to Glenmoriston Estate, but crosses two short sections of FLS land. Both the Estate and FLS indicated a preference to replace the existing single circuit tower OHL in this stretch with a double circuit line, rather than introduce a second new OHL as this would result in additional felling of the forest boundary.

4.3.8 Rebuilding of the existing OHL with a double circuit line has not been progressed as an option at this stage due to the increased cost in comparison with a new single circuit wood pole OHL. SSEN Transmission have an obligation to deliver the most cost-effective solution. It is noted that rebuilding the existing OHL would require at least the same degree of felling as installation of a new wood pole OHL to establish a temporary OHL to maintain the electrical connection; possibly more depending on the construction area required. Furthermore, a new double circuit OHL would be physically larger, resulting in greater visibility from the surrounding area.

4.3.9 Glenmoriston Estate expressed a preference for any new OHL to be placed between the existing single circuit line and the River Moriston (i.e. the north side of the existing line) rather than to the south side as indicated on **Figure 1**.

4.3.10 Placement of a new OHL between the existing 132 kV single circuit OHL and the River Moriston would be a less preferred option for several reasons. This would require construction of a new line immediately adjacent to the River Moriston Special Area of Conservation designation in some locations and risk adverse effects on its qualifying interests, primarily freshwater pearl mussels which are sensitive to changes in water chemistry. It would have a potentially greater effect on heathland (Annex 1) habitat for a short section which would otherwise be avoided. It would require the removal of the blocks of woodland lining the riverside in their entirety, increasing the visibility of both the new and existing OHLs and giving rise to greater adverse landscape and visual effects. Finally, felling immediately adjacent to the riverside poses challenges in terms of preventing sediment runoff and increases the risk of other pollution events adversely affecting the river, such as oil spills.

Dundreggan Dam to Quarry

4.3.11 Relating to the section between Dundreggan Dam and the quarry west of the settlement of Bhlaraidh, both FLS and Glenmoriston Estate were neutral on the choice of crossing point on the River Moriston. The Estate noted they have had clear-felled the area east of the dam by construction of the new OHL connection. FLS suggested the potential to underground the existing 33 kV OHL currently running between Dundreggan Dam and the quarry, which is currently situated in an established wayleave, and a new OHL be placed within the wayleave instead to minimise felling requirements. FLS also noted that current long term felling plans, over the next 15 years, include removal of the established commercial forestry between this wayleave and the A887 and replace it with native woodland.

Quarry to Wind Farm substation

4.3.12 A new OHL traversing up the west side of the existing wind farm access track would be primarily on FLS land, while a line up the east side of the track would be on Glenmoriston Estate land. A new OHL on the west side would pass through areas already delineated by FLS for felling in the next five to ten years, and thus considered acceptable to them. A line on the east side would likely cross through newly established planting by the Estate.

4.3.13 The comments received from landowners have been taken into account in identification of alignment options, particularly within the Beauly – Denny Corridor and between Dundreggan Dam and the quarry and have been taken into account in selection of a Preferred Alignment.

4.4 Statutory Consultee Consultation Summary

4.4.1 The Highland Council (THC) and several other statutory consultees agreed to a meeting with SSEN Transmission prior to publication of this Report in order to discuss the alignment options and outline key considerations and concerns. This meeting gave an early opportunity to present the alignment options to statutory consultees and discuss the options and constraints more directly. The feedback from this meeting will be taken into account alongside the formal responses to this Report in defining the Proposed Alignment.

5. DESCRIPTION OF ALIGNMENTS

5.1 Identification of Alignment Options

5.1.1 This section of the Report describes each of the alignment options identified for appraisal, which are displayed on **Figure 1**. Alignment options have been defined as centrelines; however, it is assumed that Limits of Deviation (LOD) of approximately 100 m either side of the alignment centreline would be applied to the Proposed Alignment at Stage 4, and this has been considered where relevant through the appraisal. The alignment options assessed are listed below:

- Alignment Option 1;
- Alignment Diversion 1;
- Alignment Diversion 2;
- Alignment Diversion 3;
- Alignment Diversion 4;
- Alignment Diversion 5;
- Alignment Diversions 6A and 6B;
- Alignment Diversion 7; and
- Alignment Diversion 8A and 8B.

5.1.2 As noted, a main alignment option has been devised and all other options are diversions to this alignment. Descriptions of all options are set out as follows.

5.2 Alignment Option 1

5.2.1 Alignment Option 1 represents the 'base' alignment from which all other options are derived.

5.2.2 This alignment option starts at the proposed Bhlaraidh Extension Wind Farm on-site Substation and travels initially south for around 1 km before veering slightly westwards as it crosses an existing wind farm track and then turning south again to follow the eastern side of the existing Bhlaraidh Wind Farm access track, also to be used for Bhlaraidh Extension Wind Farm for around 3.5 km. The majority of this part of the alignment would be steel lattice towers or composite or NeSTS poles due to the higher elevation of the ground.

5.2.3 The alignment continues southwards as wood poles, crossing the access track which turns to the east, until passing west of the small settlement of Bhlaraidh at which point it takes a more south-west route to cross the A887 road. From here, the alignment continues south of the A887 road, crosses the River Moriston, then follows a heading roughly parallel to the river along the north edge of Portclair Forest.

5.2.4 The alignment passes immediately south of the Dungreggan Reservoir Dam then follows a parallel route to the existing 132 kV OHL towards the Beauly – Denny Wayleave Corridor. It would not follow the full length of the existing OHL; approximately 0.5 km before the Beauly-Denny Corridor, it would cut the corner and turn south-west and follow along the west edge of Inverwick Forest. It would then follow the eastern side of the existing OHL until it reaches Fort Augustus Substation. It is expected that the final 2 km (approximate) of the alignment would be an UGC into Fort Augustus Substation.

5.3 Alignment Diversion 1

5.3.1 Alignment Diversion 1 departs from Alignment Option 1 north of Levishie Forest near the boundary of the Bhlaraidh Extension Wind Farm, heading south-west and crossing to the west side of the wind farm access track. The diversion would then head south, following the west side of the access track instead of the east. It would pass into Levishie Forest and turn to a south-west heading just north of the existing quarry, then through the wooded area south-east and south of Coille Bhlaraidh.

5.3.2 The diversion would continue westwards, passing to the north of the Dundreggan Dam and A887, crossing the road approximately 0.86 km south-west of the dam. The diversion would continue on a south-west heading between the A887 and the River Moriston until a point on open ground south-east of Dundreggan, some 2.5 km upstream of Dundreggan Dam, at which point it would cross to the south side of the river and rejoin Alignment Option 1 north of Inverwick Forest.

5.4 Alignment Diversion 2

5.4.1 Alignment Diversion 2 departs from Alignment Option 1 west of the residences at Bhlaraidh, north of the A887. It heads west south-west towards the quarry, then south south-west to cross the A887 and the River Moriston, rejoining Alignment Option 1. It is a relatively short diversion, approximately 1 km in length.

5.5 Alignment Diversion 3

5.5.1 Alignment Diversion 3 departs from Alignment Option 1 approximately 1 km south-east of Dundreggan Dam, near a bend in the River Moriston. It continues on a south-west heading for approximately 2 km through Portclair / Inverwick Forest, essentially eliminating the 'bend' in Alignment Option 1 which follows the River Moriston. The diversion rejoins Alignment Option 1 at the angle tower of the existing 132 kV OHL, approximately 1.25 km upstream of the dam.

5.6 Alignment Diversion 4

5.6.1 Alignment Diversion 4 departs from Alignment Option 1 at Inverwick, south of Dundreggan, and follows a south-west path up over higher ground through Inverwick Forest. It continues for approximately 2 km before rejoining Alignment Option 1 near Allt Phaocaichain.

5.7 Alignment Diversion 5

5.7.1 Alignment Diversion 5 departs from Alignment Option 1 as it meets the Beauly – Denny Corridor, passing beneath the east OHL as a short section of UGC, and taking a path south-east between the two existing OHLs. It continues to travel along the rough centreline between the two, until near the point at which they converge, approximately 2 km from Fort Augustus substation. At this point, the diversion would change from OHL to UGC, and continue south-east until the connecting point with Fort Augustus substation. Unlike the other alignment diversions, this diversion would not rejoin Alignment Option 1 prior to the Fort Augustus substation connection point.

5.8 Alignment Diversions 6A and 6B

5.8.1 Alignment Diversion 6A departs from Alignment Option 1 near the residences at Bhlaraidh, north of the A887. It heads west south-west towards the quarry, slightly north of Alignment Diversion 2, then south-west to follow along the north side of the A887 through the wayleave of an existing 33 kV OHL. This 33 kV OHL would be undergrounded as part of development of this diversion, requiring widening of the existing wayleave. The diversion continues through the wayleave roughly parallel to the A887 until a point immediately north-east of Dundreggan Dam. It crosses the River Moriston approximately 100 m downstream of the dam, rejoining Alignment Option 1 immediately to the south where the existing 132 kV OHL connects into the dam.

5.8.2 Alignment Diversion 6B stems off Alignment Diversion 6A approximately 1.1 km downstream of Dundreggan Dam, rejoining Alignment Option 1 at the same point Alignment Diversion 3 stems off.

5.9 Alignment Diversion 7

5.9.1 Alignment Diversion 7 stems off Alignment Option 1 approximately 100 m south of the starting point of Alignment Diversion 1, following a southerly heading roughly parallel to the wind farm access track. The diversion turns south-west just before the north boundary of Levishie Forest to avoid the native woodland block

and crosses over the wind farm access track. It continues in this direction, crossing the Allt Bhlaraidh watercourse before joining Alignment Diversion 1.

5.10 Alignment Diversions 8A and 8B

5.10.1 Alignment Diversion 8A stems off Alignment Diversion 1 north of the quarry situated west of the settlement of Bhlaraidh, within Levishie Forest. It heads south-east for approximately 300 m before joining Alignment Diversion 6A within the existing wayleave. The alignment diversion maintains a distance from the quarry itself to account for potential future expansion eastwards.

5.10.2 Alignment Diversion 8B stems off Alignment Diversion 1 at the same point as Alignment Diversion 8A but instead heads south past the west of the quarry for approximately 350 m, again maintaining a separation distance to account for possible future expansion of the quarry, before joining Alignment Diversion 6A.

6. ENVIRONMENTAL BASELINE

6.1 Introduction

6.1.1 The Proposed Route is located within the local authority area of The Highland Council, west of Loch Ness.

6.1.2 Within and adjacent to the Proposed Route, small settlements are present at Bhlaraidh and Dundreggan adjacent to the A887, Torgyle Bridge / Dalcreichart to the west of the Beauly – Denny Corridor, and Auchterawe where Fort Augustus substation is located. The settlement of Fort Augustus is located just over a kilometre northeast of the Proposed Route at the nearest point, and Invermoriston is located further east along the A887 from Bhlaraidh. The A887 is the largest road within the Proposed Route, and several minor roads and forestry access tracks are also present.

6.1.3 The area is popular for tourism and outdoor activities, with fishing, hiking and canoeing representing the main recreational activities within or adjacent to the Proposed Route. The Great Glen Way passes within a kilometre of the route and the connection point with Fort Augustus substation. The River Moriston is present for several kilometres through the Proposed Route, as well as numerous smaller watercourses which ultimately feed into the river.

6.1.4 Several forests are present through the Proposed Route, namely those of Inchnacardoch, Inverwick, Portclair and Levishie. These are largely areas of commercial plantation forestry, which form part of the National Forest Estate and are managed by the Scottish Government's agency Forestry and Land Scotland (FLS). There are active harvesting operations within some of these forestry areas, with felling plans set for the next five years as indicated on **Figure 11**.

6.1.5 Other electrical infrastructure exists in the Proposed Route. This includes:

- A 400 kV OHL and a 275 kV OHL which form the Beauly – Denny link to Fort Augustus substation;
- A 132 kV OHL connecting Dundreggan Dam to the Beauly – Denny Corridor;
- A 132 kV OHL connecting Beinneun Wind Farm to the Beauly – Denny Corridor;
- A 33 kV OHL along the north of the A887, connecting into Dundreggan Dam;
- A UGC connecting Bhlaraidh Wind Farm to Dundreggan Dam which travels predominantly down the east side of the wind farm access track and then along the A887 road; and
- Several other 11 kV OHLs through Levishie forest and larger OHLs connecting into Fort Augustus substation from the west and south-east.

6.2 Environmental Designations

6.2.1 The following environmentally designated sites or areas afforded recognition or protection within planning policy are present within the vicinity of the Proposed Route (see **Figures 2, 7 and 8**).

- River Moriston Special Area of Conservation (SAC), within the Proposed Route: the River Moriston has been designated as a SAC, an internationally designated site under the Habitats Directive, primarily for freshwater pearl mussel with Atlantic Salmon as an additional interest.
- Ness Woods SAC, 5.7 km south-east of the Proposed Route: designated for otter, western acidic oak woodland, and mixed woodland on base-rich soils associated with rocky slopes.
- Levishie Wood SSSI, 0.6 km east of the Proposed Route: the Levishie Wood has been designated as a SSSI for its upland birch woodland; it is amongst the largest birch-juniper woodland in Inverness-shire, also containing oak, wych elm, blackthorn, scots pine, aspen, alder, holly and ash.
- Easter Ness Forest SSSI, 6.1 km east south-east of the Proposed Route: designated for upland oak woodland and upland mixed ash woodland.

- Knockie Lochs SSSI, 6.6 km south-east of the Proposed Route: designated for Slavonian grebe (*Podiceps auritus*).
- Glen Tarff SSSI, 1.9 km south-east of the Proposed Route: designated for upland mixed ash woodland and beetle *bolitophagus reticulatus*.
- Loch Ness and Duntelchaig Special Landscape Area (SLA), 1.95 km south-east of the Proposed Route: dominated by the vast linear feature of Loch Ness and its dramatic landform trench, flanked by steep, towering wooded slopes that leads to undulating moorland ridges and contrasting remote interior plateau of upland lochs, small woods and rocky knolls.
- Geological Conservation Review (GCR) sites, 0.32 km east of the Proposed Route at the nearest point: areas of GCR are present near the shores of Loch Ness. These are sites deemed to contain geological and geomorphological features of national and international importance, and are selected through the Geological Conservation Review initiated by the Joint Nature Conservation Committee (JNCC) in 1977.
- Designated cultural heritage assets comprising Scheduled Monuments (SM) and Listed Buildings, all situated outwith the Proposed Route; and
- A number of woodlands within the Proposed Route that are categorised as Ancient Woodland.

6.3 Natural Heritage

6.3.1 The Proposed Route generally comprises a mosaic of woodland and upland moorland. Woodland areas are dominated by conifer plantations, but there are numerous fragments of broadleaved and mixed woodland associated with riparian zones, field boundaries, road sides and around settlements. Some areas of woodland are categorised as Ancient Woodland. **Figure 2** shows those areas of Ancient Woodland classified as 1A and 2A, interpreted as semi-natural woodland from maps of 1750 (1A) or 1860 (2A) and continually wooded to the present day.

6.3.2 Upland moorland areas, present mainly on elevated ground around the Bhlaraidh Extension Wind Farm, are dominated by a mosaic of wet heath and blanket bog, which qualify as Annex 1 habitats, as listed on the EU Habitat Directive 1992. There are several small upland waterbodies here also, and a number of small flushes, runnels and burns across the hillsides. Most upland areas are grazed by deer populations.

6.3.3 Smaller areas of agricultural land along the River Moriston are dominated by pasture field systems. Unimproved areas are generally dominated by acid grassland and rush-pasture and occupy field edges and riparian zones. Groundwater dependent terrestrial ecosystems (GWDTEs) are scattered throughout areas of heathland habitat, and are considered to be present in otherwise unimproved areas.

6.3.4 Protected species such as otter, pine marten, badger, bat species, red squirrel, Atlantic Salmon and freshwater pearl mussel are either known, or likely, to be present within the Proposed Route based on the presence of suitable habitat or being a qualifying feature of a nearby designated site.

6.3.5 The woodland and scrub habitat throughout the area will support breeding bird species, whilst more wetland areas could provide habitats of value to breeding waders and wildfowl. The north end of the Proposed Route passes through open upland moorland, which may be of value to upland waders, raptors and grouse. Black grouse are known to be present in areas of woodland and moorland mosaics near Bhlaraidh, Inverwick and Portclair forests, in the vicinity of the route. An Osprey nest was recorded in the Proposed Route through the course of high-level walkover surveys, however it has not shown any sign of use during recent walkover surveys.

6.3.6 For the purposes of determining the biodiversity of the Proposed Route, the walkover surveys also recorded the UK Habitat Classification of each habitat present, then entered this data into SSEN's Biodiversity Site Optioneering Toolkit v1.1. This allowed the Distinctiveness of habitats within the route to be established: areas of blanket bog are considered to be of Very High Distinctiveness, while areas of heathland, native woodland

and flush / mire are considered to be of High Distinctiveness. Blanket bog and native woodland areas are considered to be irreplaceable habitats. The total Biodiversity Units (BU) for the Proposed Route were calculated as 19,576.06, resulting in a BU / Ha of 9.97.

6.4 Water and Soils Environment

6.4.1 There are a number of watercourses, lochans and reservoirs within the Proposed Route, including the River Moriston which is designated as a SAC. Lochans are present primarily on the higher ground within the boundary of Bhlaraidh Extension Wind Farm, and most of the watercourses are tributaries of the River Moriston itself.

6.4.2 There are numerous properties in the area which utilise private water supplies locally and the Scottish Environment Protection Agency (SEPA) has records of authorised engineering and discharge activities within the Proposed Route (see **Figure 6**).

6.4.3 A number of watercourse crossings would be necessary for each potential alignment option. Some of these would have potentially steep crossing points and over wide watercourses, specifically the unnamed minor tributaries south of River Moriston.

6.4.4 Superficial mapping shows that typically superficial deposits are absent at higher elevations and Glacial Till, alluvium and / or glacio-fluvial sand and gravel shown adjacent to larger watercourses. The bedrock geology is characterised by psammite, semipelite and numerous igneous intrusions. Neither the superficial or solid geology are rare and are not considered to pose a development constraint.

6.4.5 Priority peatland mapping[25] highlights that there are several areas of recorded peatland, including nationally important (Class 1 or 2) carbon rich soils, within the Proposed Route (see **Figure 5**).

6.5 Cultural Heritage

6.5.1 Baseline information on known cultural heritage assets recorded within the vicinity of the Proposed Route was obtained from datasets curated by Historic Environment Scotland and the Highland Historic Environment Record (HER).

6.5.2 Human occupation and land use have been severely restricted by the steepness of the terrain and narrowness of the valley floor and there is little evidence for Prehistoric or Mediaeval settlement. Glenmoriston did have some significance as a through route from the Great Glen to the West Coast, and this route has been controlled from possibly the Prehistoric and certainly the Mediaeval period by strategically placed defensive sites.

Designated Cultural Heritage

6.5.3 Designation is the legal recognition of some of Scotland's most important historic sites, buildings and places. It ensures that these assets are protected by law through the planning system and other regulatory processes. Designation includes Scheduled Monuments (SM) and Listed Buildings and the level of protection and how a site or place is managed varies depending on the type of designation.[26]

6.5.4 There are no cultural heritage designations within the Proposed Route. The following are located near to the route:

- Two SMs, with statutory protection of National importance (high sensitivity): Levishie Cottage Fort and Dundreggan Farm Motte.
- One Listed Buildings: the Category A (national importance, high sensitivity) Torgyle Bridge.

[25] Scottish Natural Heritage. (2016). Carbon and Peatland 2016 Map. [online] Available at: http://gateway.snh.gov.uk/natural-spaces/index.jsp

[26] Historic Environment Scotland. (2019). *Designation Policy and Selection Guidance*.

6.5.5 A number of other SMs, listed buildings and a Conservation Area are present within the wider area, but are considered unlikely to be affected by a new OHL within the Proposed Route.

Cultural Heritage Assets

6.5.6 In addition to these designated assets, the Highland HER contains details of two non-designated assets of archaeological and cultural heritage interest within the Proposed Route. Field survey carried out for this appraisal identified further, previously unrecorded minor features of local significance and one feature of regional significance at Inverwick.

6.6 Landscape Character and Visual Amenity

6.6.1 Landscape character within the Proposed Route and surrounding area[27] ranges between the rocky moorland plateau within which the existing Bhlaraidh wind farm is situated; to the wooded valleys of Glen Moriston and the Great Glen; to the rugged uplands that separate these two valleys. Settlement and infrastructure (including OHLs) are clustered along main transportation routes on valley floors while areas of coniferous forestry and mixed woodland dominate valley slopes. Both Glen Moriston and the Great Glen share these attributes but differ slightly in character with Glen Moriston featuring a narrower valley floor, meandering river and more intimate semi-enclosed character. By contrast, the Great Glen, a popular transport corridor and tourist route, is characterised by a broader valley floor which holds the long, linear Loch Ness and farmed and settled alluvial plains at its head, around Fort Augustus and at the foot of Glen Moriston. Upland areas are more open and remote in character, although some features of human development are present, including wind turbines of Bhlaraidh wind farm, OHLs and associated wayleave corridors.

6.6.2 Within Glen Moriston itself, the local landscape character varies along the Proposed Route. To the east of Dundreggan Dam, there is a sense of enclosure afforded by forestry in the wider landscape and areas of native woodland along the River Moriston. Areas of clear fell and OHL corridors through trees fragment dense tree cover in some areas and highlight the influence of people in the local area, through the workings of commercial forestry operations as well as transmission infrastructure.

6.6.3 Along the River Moriston, there is an increased sense of naturalness that is valued within the local area. This is locally diminished by built features at and around Dundreggan Dam, including steel lattice towers, the dam structure and associated buildings, and properties to the north of the dam. Whilst these features are dominant in the immediate area of the dam, their local influence reduces to the east where the natural form of the River Moriston and adjacent riparian woodland becomes a more prominent feature that increases a sense of naturalness.

6.6.4 To the west of the Dam, and in the area approaching the settlement of Dundreggan, the landscape character becomes more open and whilst there are features of development in the wider context (such as OHLs, wind turbines, properties and the road), the local landscape character is rural, and settled with views that extend along the valley floor and in particular towards the meandering River Moriston.

6.6.5 Approaching the area at Torgyle Bridge, the influence of the converging OHLs increases and these become dominant within the landscape, particularly as they lead up the hillside through corridors in the trees. This increases the developed sense of place in this part of Glen Moriston.

Designations

[27] In discussing landscape character (and visual amenity), it is important to consider the wider context as opposed to only the localised areas within the Proposed Route itself, since the experience of the landscape character is influenced by features in the surrounding area.

6.6.6 There are no protected or designated landscapes within the Proposed Route.

6.6.7 Outside the Proposed Route, the closest is a regional landscape designation: The Loch Ness and Duntelchaig Special Landscape Area (SLA). As described by THC[28], this SLA includes the vast and linear Loch Ness and the bounding hill slopes on the loch's western and eastern shores. Several 'Special Qualities' are identified by THC relating to the dramatic landform of the Great Glen, with steep-sided wooded slopes; the contrasting remote moorland plateau of upland lochs and rocky knolls; and the historic features and myths associated with the loch and its environs.

Landscape Character Types (LCTs)

6.6.8 The Proposed Route passes through four Landscape Character Types (LCTs), as classified in the updated SNH (now NatureScot) Landscape Character Types published in 2019[29]:

- LCT 220: Rugged Massif – Inverness
- LCT 222: Rocky Moorland Plateau – Inverness
- LCT 225: Broad Steep-Sided Glen
- LCT 226: Wooded Glen - Inverness

6.6.9 Distribution of these LCTs is illustrated on **Figure 9**, along with two other LCTs that are situated in the Corridor.

Potential Visual Receptors

6.6.10 Visual receptors associated with the Proposed Route comprise three different types:

- Visual receptors in built properties including residential areas and places of work, for example in Fort Augustus and nearby settled areas such as in/around Auchteraw, Bhlaraidh, Dundreggan Dam, Dundreggan, Torgyle Bridge and Dalchreichart;
- Visual receptors on routes including roads and recreational routes, for example on the A82 and A887, core paths, Scottish Hill Tracks, cycle routes, and the Caledonian Canal; and
- Visual receptors in other outdoor locations where the view is considered of recreational importance, for example golf courses, roadside viewing areas, and picnic areas.

6.6.11 Recreation is discussed further in Section 5.8 below.

6.7 Land Use and Recreation

Forestry

6.7.1 Forestry is a common land use throughout the Proposed Route, with a number of productive conifer plantations on a fell and restock cycle. Many of these plantations form part of the National Forest Estate and are managed by the Scottish Government's agency FLS. **Figure 11** shows the distribution of forest on the National Forest Estate. Private woodland, comprising both a mix of conifer and mixed broadleaf woodland, also exist within the Proposed Route. Much of the woodland throughout the Proposed Route is categorised as Ancient Woodland recorded in the Scottish ancient woodland inventory (SAWI).

6.7.2 Native Woodland is defined as woodlands where the canopy cover is composed mainly of native species (i.e. over 50 %). Native woodland is identified through the Native Woodland Survey of Scotland (NWSS): a survey of all native woodlands, nearly native woodlands and non-native Plantations on Ancient Woodland Sites

[28] The Highland Council (2011). *Assessment of Highland Special Landscape Areas*. Available at: https://www.highland.gov.uk/directory_record/712044/special_landscape_area_citations

[29] Scottish Natural Heritage. (2019). Scottish Landscape Character Types Map and Descriptions [online] Available at: https://www.nature.scot/professional-advice/landscape/landscape-character-assessment/scottish-landscape-character-types-map-and-descriptions

(PAWS) in Scotland. This spatial data shows the type, extent and attributes of these woodland areas. Within the Proposed Route the woodland types identified comprise mainly of:

- PAWS are surveyed in the NWSS where they are recorded in the SAWI. These woodlands appear to have originated through natural regeneration sometime before the mid-19th Century but were later converted to planted woods.
- Native (Caledonian) pinewood, (UK Biodiversity Action Plan (BAP) Priority Habitat) is woodland with a canopy dominated by native scots pine (*pinus sylvestris*). The pinewood zone is an area where scots pine (*pinus sylvestris*) is believed to be a native species.
- Upland birchwood (UK BAP Priority Habitat) is woodland in which birch, whether silver birch (*betula pendula*), downy birch (*betula pubescens*), or both, is dominant in the canopy.

6.7.3 It is noted that, as displayed on Page 2 of **Figure 11**, a number of areas within the Proposed Route are planned for felling by FLS over the next 10 years which will alter the woodland structure and composition in places.

6.7.4 Photographs of the forestry structure at points along the Preferred Alignment are shown in **Plate 5.1** below.

Plate 5.1: Proposed Route Forestry Photographs

Photo 1: Mature Birch Native Woodland at Inverwick

Photo 2: Productive conifer woodland SE of Dundreggan

Photo 3: Inverwick Forest, seen from Dundreggan

Photo 4: Mature woodland S of Dundreggan Dam

Photo 5: Recently felled woodland along wind farm access

Photo 6: Thinning lodgepole pine near wind farm

Agriculture

6.7.5 Areas of agricultural land are classified by The Macaulay System of Land Capability for Agriculture.[30] Based on this data, land within the Proposed Route is not considered to be of high agricultural value. Agricultural land classifications are displayed on **Figure 10**.

[30] The James Hutton Institute. (2020). *Land Capability for Agriculture in Scotland*. [online] Available at: https://www.hutton.ac.uk/learning/exploringscotland/land-capability-agriculture-scotland [Accessed 11 September 2020].

6.7.6 Areas of Class 4.2 agricultural land, which has limited potential for producing other crops, is present in the area of River Moriston, near Dundreggan, and at Fort Augustus substation. Small areas of Class 5.2 agricultural land, capable of sward establishment but prone to maintenance problems, are also present near Dundreggan and Fort Augustus substation.

Recreation

6.7.7 The Proposed Route contains locations popular with hikers, canoeists, fishers and shooters. Tourism, including the pursuit of recreational activities, contributes significantly to the local economy annually. **Figure 10** identifies the locations of recreational activities.

6.7.8 The Glenmoriston Shooting Ground, formerly known as the Loch Ness Gun Club, is situated just east of the Proposed Route, near Bhlaraidh. This club hosts various events through the year, including Scottish Selection, Grand Prix and Championships, a winter trap shooting series, and practice and training days.[31]

6.7.9 The section of the River Moriston downstream of Dundreggan Dam is a popular spot for salmon fishing, as well as kayaking given the 'rapids' that have been created by construction of the dam itself. Note that the location identified on **Figure 10** is a general indication of where these activities take place rather than a specific site.

6.7.10 The Great Glen Way is a notable hiking route, with the upper and lower tracks passing along the higher ground above the west shore of Loch Ness, and passes within a kilometre of the Proposed Route. A number of core paths are present, principally along the Beauly – Denny Corridor, along with Scottish Hill Tracks, providing hiking opportunities to local residents and visitors.

6.8 Planning

6.8.1 The current Development Plan for the area comprises the Highland-wide Local Development Plan (HwLDP) which was adopted in April 2012, and the Inner Moray Firth Local Development Plan, adopted in July 2015.

6.8.2 The HwLDP sets out both the broad strategic themes in its vision statement, as well as local planning matters. It updates / supersedes the "general policies" of the existing adopted Local Plans. In order to retain aspects of the local plans that had not been superseded, such as site allocations, settlement development areas and site specific policies, a Parliamentary Order was laid before Scottish Parliament on 16th March 2012 to enable these elements to remain in force.

6.8.3 The HwLDP notes that "additional electricity transmission and distribution infrastructure will need to be developed in Highland in order to realise the region's potential contribution to renewable electricity generation and serve local needs" (pg 121). Policy 69 of the HwLDP details Highland Council's policy on Electrical Transmission Infrastructure and states that the Council will support projects which do not have an unacceptable significant impact on the environment when considering their strategic significance. It also notes that in sensitive locations, mitigation should be considered as part of the preparation of proposals. The HwLDP contains policies regarding the protection of the natural and cultural heritage, residential amenity, flooding and other issues which are relevant for this project.

6.8.4 The Emerging Highland-wide Local Development Plan (EHwLDP) Main Issues Report was consulted upon in September 2015; however, progress was halted in summer 2016 to allow the emerging area Local Plans to progress. In December 2017 the Scottish Government published a Planning Bill outlining potential changes to the Scottish planning system. This includes possible changes to the content of Local Development Plans and how they are prepared, and a broadening of the issues covered by national policy, namely SPP. As such, Highland Council have postponed review of the HwLDP until the implications of the Planning Bill are more clearly understood.

[31] Glenmoriston Shooting Ground. (2020) [online] Available at: https://glenmoristonshootingground.com/ [Accessed 14 September 2020].

6.8.5 The Inner Moray Firth Local Development Plan sets out a guide for development of the Inner Moray Firth area over a 20-year period from 2015 and includes a plan for Fort Augustus. For this settlement, the plan allocates areas for housing, mixed use, community and business to best capitalise on trade passing along its trunk road, canal and long-distance trail corridors. Developments within Fort Augustus must take account of these allocations.

6.8.6 Current applications for planning permission within or near to the Proposed Route include an application for erection of a new house approximately 250 m to the south-west of Fort Augustus substation (20/02548/FUL), and an application for erection of a new house and garage at Dundreggan (20/03468/PIP). Bhlaraidh Extension Wind Farm, the driver for this project, is currently at Scoping stage.

6.8.7 Recently consented developments near to the Proposed Route include new screening bunds and associated landscaping and a 30 MW battery energy storage system at Auchterawe, near Fort Augustus substation, and residential development and a rewilding education and visitor centre at Dundreggan.

7. COMPARATIVE APPRAISAL

7.1.1 This section provides a summary of the potential environmental, technical and economic effects identified for each alignment option following the topic areas shown in **Table 3.1**. Reference should also be made to **Figures 2 to 11** which illustrate potential environmental baseline constraints identified under each topic.

7.2 Environmental Topic Areas

Natural Heritage

Designations

7.2.1 The River Moriston SAC is a significant watercourse within the central section of the Proposed Route, as shown on **Figure 2**, for which the qualifying feature is Freshwater Pearl Mussel with an additional interest for Atlantic Salmon. The various alignment options are situated within 1 km of the River Moriston for varying lengths but generally only approach within 50 m at their respective crossing points. Alignment Option 1 also comes within 50 m at the confluence of Allt a' Mhadaidh and Dundreggan Reservoir. Subject to control measures and good practice it is unlikely that works associated with construction would impair water quality and compromise the qualifying interests of a small part of the River Moriston SAC.

7.2.2 None of the alignment options would intersect with the Levishie Wood SSSI, designated for Upland Birch Woodland and containing a range of different tree species (**Figure 2**). Consequently, no adverse impacts on this designation are expected.

7.2.3 All other SAC and SSSI designations are situated outwith the Proposed Route. The nearest GCR sites are also situated outwith the Proposed Route. Consequently, it is not anticipated that any adverse impacts would arise on these from any of the alignment options.

7.2.4 As shown on **Figure 2**, areas of Ancient Woodland are present throughout the Proposed Route. All alignment options will traverse some distance through Ancient Woodland, with generally only areas of higher ground (such as near the wind farm or through the Beauly – Denny Corridor) or open stretches along the River Moriston offering opportunities to avoid this designation. As discussed in sub-section 6.6 below, the areas designated as Ancient Woodland have forestry structure with a mixture of native and nearly-native woodland and areas of Plantation on Ancient Woodland Sites (PAWS), the latter of which is considered less sensitive than the standing native woodlands. Alignment Diversion 5 has the least presence within Ancient Woodland, however Alignment Diversion 6A makes best use of an existing wayleave through Ancient Woodland and would have reduced felling requirements to create a sufficient wayleave for a new 132 kV OHL. Other alignment options are largely comparable in their presence through Ancient Woodland.

7.2.5 All alignment options are considered to be broadly similar in the level of constraint posed by designated natural heritage sites, and as such there is no preference for any alignment option in that regard.

Protected Species

7.2.6 Throughout the Proposed Route, there is abundant woodland, and woodland edge habitat, which could provide suitable habitat for badger, red squirrel, pine marten and bat species. Riparian zones could provide suitable habitat for otter. Signs of some of these species were picked up during walkover surveys, primarily pine marten scat in wooded areas associated with Inverwick Forest and Inchnacardoch Forest. A badger sett was also recorded in Inverwick Forest. Signs of otter were recorded along the River Moriston near Dundreggan Dam. These are shown on **Confidential Figure 4**.

7.2.7 It is highlighted that these protected species signs were picked up during high-level walkover surveys, and not as part of dedicated European Protected Species (EPS) surveys, and as such are only indicative at this stage. Protected species constraints are considered to be broadly equivalent for all options with marginal differences

in proximity to previously recorded species signs. Subject to careful micro-siting of poles and management of construction activities to avoid key habitats and sensitive sites, informed by more up to date surveys to build upon the earlier survey data, effects on protected species should be suitably controlled. As such, protected species should not present a constraint for this alignment.

Habitats

7.2.8 A broad overview of sensitive habitats was obtained during initial walkover surveys, and these are displayed on **Figure 3**.

7.2.9 GWDTE habitats are generally limited in extent within the LODs of the alignment options. For Alignment Option 1 these comprise highly localised flushes in open heath and mire habitats in Levishie Forest, and Purple-moor grass and rush pastures in the existing wayleave from Inverwick forest to Fort Augustus. Alignment Diversion 1 is considered less likely to encounter localised flushes, however the difference is considered to be marginal at this stage. GWDTE constraints are otherwise equivalent for the alignment options. Avoidance of minor areas of the most sensitive GWDTE is considered possible with careful micrositing further to detailed habitat surveys.

7.2.10 Annex 1 habitats within the Proposed Route include areas of blanket bog, heathland, native woodland (identified as 'Mixed Woodland' on **Figure 3**) and flush / mire. For Alignment Option 1, areas of blanket bog present within the Bhlaraidh Extension Wind Farm boundary are generally avoided, however heathland habitat is extensive and unavoidable by this option. Making best use of tracksides and areas of bracken or scrub would serve to reduce potential impacts, but opportunities are limited. Alignment Option 1 will intersect with areas of native woodland along its central portion, particularly in areas near Bhlaraidh and Inverwick Forest. Given the extents of this habitat type, it is not feasible to fully avoid native woodland, but opportunities do exist in the form of areas of open ground and existing wayleaves. Some loss of native woodland would occur for this option. Alignment Option 1 also crosses short lengths of flush / mire habitat within the Beauly – Denny Corridor, however careful placement of poles would minimise adverse impacts.

7.2.11 Alignment Diversion 1 would traverse slightly less heathland habitat between the Bhlaraidh Extension Wind Farm on-site substation and the River Moriston. It would cross a short section of heathland habitat after crossing the River Moriston to rejoin Alignment Option 1, however sensitive placement of poles may avoid this altogether. Alignment Diversion 1 also passes through an area of native woodland north of Dundreggan Dam; there may be some opportunities to reduce the overall length intersected by making use of areas of open ground.

7.2.12 Alignment Diversion 4 would pass through an area of native woodland for most of its length which is otherwise avoided by Alignment Option 1, with limited opportunities to reduce habitat loss.

7.2.13 Alignment Diversion 5 would cross a greater length of the flush / mire habitat present within the Beauly – Denny Corridor than Alignment Option 1, being unavoidable in places due to the constraints posed by the existing OHLs. The last 2 km of this diversion (approximately) would be UGC passing to the west side of the existing OHLs. This would result in a greater area of habitat disturbance than an equivalent length of wood pole structures but would be reinstated following completion of cable laying works.

7.2.14 Alignment Diversion 6A makes use of an existing wayleave, a small section of which is situated within native woodland habitat north-east of Dundreggan Dam. Some widening of this wayleave would be required, but this option would otherwise pass through slightly less native woodland habitat.

7.2.15 Alignment Diversion 7 would avoid passing through a length of heathland habitat east of the wind farm access track to the north of Levishie Forest and would instead pass through a short length of native woodland habitat. This small area of woodland appears to be sparse, and opportunities to minimise felling through sensitive placement of poles exists.

7.2.16 All other alignment options are considered to be broadly equivalent to Alignment Option 1 in terms of Annex 1 habitat constraints. Overall, Alignment Diversion 4 is the least preferred due to its increased impacts on native woodland habitat, followed by Alignment Diversion 5 due to intersection with flush / mire habitat which Alignment Option 1 largely avoids. Alignment Option 1 or Alignment Diversion 6A, or a combination of alignment diversions 7, 8A / 8B and 6A, are the preferred for Annex 1 habitat constraints.

Biodiversity

7.2.17 The alignment options pass through habitats of varying Distinctiveness, as determined from the Biodiversity Site Optioneering Toolkit v1.1, with areas of blanket bog habitat designated as Very High Distinctiveness, while areas of heathland, native woodland and flush / mire are of High Distinctiveness. The BU and BU / Ha of each option are as set out in **Table 6.1**. For the purposes of straightforward comparison, each alignment diversion assumes Alignment 1 would be utilised outwith that particular diversion. This differs slightly for diversion options 7, 8A and 8B, as follows:

- Alignment Diversion 7: calculated on the basis of connecting to Alignment Diversion 1, then Alignment Option 1; and
- Alignment Diversion 8A and 8B: calculated on the basis of connection from Alignment Diversion 1 to Alignment Diversion 6A, then Alignment Option 1.

Table 6.1: Alignment Options Biodiversity Units

Option	Biodiversity Units (BU) - Total	BU – Excluding Irreplaceable Habitats	BU per Hectare (BU / Ha) - Total	BU / Ha – Excluding Irreplaceable Habitats
Alignment Option 1	3,422.37	2,724.90	9.11	7.99
Alignment Diversion 1	3,593.03	2,496.84	9.71	7.91
Alignment Diversion 2	3,395.53	2,705.14	9.01	7.89
Alignment Diversion 3	3,304.34	2,619.41	8.92	7.78
Alignment Diversion 4	3,459.94	2,612.69	9.53	8.14
Alignment Diversion 5	3,535.87	2,832.53	9.39	8.28
Alignment Diversion 6A	3,479.68	2,668.46	9.28	7.96
Alignment Diversion 6B	3,412.67	2,718.43	9.04	7.93
Alignment Diversion 7	3,164.53	2,442.78	8.74	7.89
Alignment Diversion 8A	3,456.32	2,611.51	9.20	7.82
Alignment Diversion 8B	3,431.40	2,589.01	9.22	7.84

7.2.18 Alignment Diversion 1 encompasses the largest amount of irreplaceable habitat, as quantified by BU (1,096.19) and area (54.16 Ha). Alignment Diversion 3 contains the smallest amount of irreplaceable habitat by BU (684.93) and area (34.3 Ha). Alignment Diversion 1 contains the highest overall BU and BU / Ha, and Alignment Diversion 7 has the lowest in both categories. When considering non-irreplaceable habitats alone, Alignment Diversion 5 has the highest BU / Ha score at 8.28, and Alignment Diversion 3 has the lowest at 7.78. When disregarding irreplaceable habitats all alignment options sit within a range of 0.5 BU / Ha. Consequently, at this stage, given the limitations outlined within the BNG Report (**Appendix 2**) and potential for avoidance of irreplaceable habitats by all alignment options depending on pole placement, there are not considered to be any significant differences in biodiversity constraint between the options considered, and all are broadly similar.

Ornithology

7.2.19 All alignment options could potentially result in the loss of small areas of woodland and scrub habitat which support breeding bird species, inclusive of woodland raptors, passerines, waders and wildfowl; however, these

habitats are abundant in the local and wider area. All options also pass through open moorland potentially of value to upland species including waders and black grouse.

7.2.20 Osprey were noted to be active around a nest site identified near Dundreggan Dam during initial walkover surveys (noted on **Confidential Figure 4**), near to Alignment Option 1 and Alignment Diversion 6A. All alignment options are within the potential disturbance distance of the nest (300 m – 1,000 m) however it is not known at this stage if the nest itself is active; this will be determined in the course of bird surveys through 2021 and 2022.

7.2.21 Available information from the Bhlaraidh Wind Farm project highlights the presence of several sensitive bird species in the wider area, including black grouse (and known lek locations within all route options near the Bhlaraidh Extension Wind Farm), Slavonian grebe, golden eagle, divers, golden plover, greenshank and dunlin.

7.2.22 Full breeding bird surveys will fully assess likely ornithological constraints for all alignment options; however, in the absence of these surveys it is generally considered that, subject to implementation of mitigation measures considered best practice for construction and operation of OHLs, ornithological interests are not considered to be a major constraint to development for any of the alignment options. Alignment Diversion 5 is a marginal preference at this stage given that a larger portion would be UGC, thus reducing above-ground infrastructure and potentially reducing collision risk for bird species.

Geology, Hydrology and Hydrogeology

7.2.23 Priority peatland mapping is displayed on **Figure 5**, and local hydrology constraints are displayed on **Figure 6**.

7.2.24 Alignment Option 1 would cross some areas of Class 2 peatland near the connection with the Bhlaraidh Extension Wind Farm on-site substation, which would be unavoidable given its coverage. Discrete areas of Class 1 and Class 2 would be crossed near the wind farm access track, and sensitive placement of structures may allow avoidance of these. Another area of Class 2 peatland would be crossed east of the wind farm access track within Levishie Forest. The alignment would otherwise cross areas of Class 5 peatland between these and before reaching the River Moriston, at which point mineral soils make up the land cover. A further relatively large area of Class 5 peatland would be crossed on the approach, and adjacent, to the Beauly Denny Corridor, with a further 1.5 km of Class 1 crossed on the higher ground of Inchnacardoch Forest, with no apparent opportunities to mitigate length within this due to coverage. The final approach to Fort Augustus substation would cross a length of Class 5 and then mineral soils. Superficial soils and bedrock geology are not otherwise considered to present any constraint to development of this option. A number of watercourse crossings would be required within the River Moriston floodplain, including the River Moriston itself, and permanent structures would need to be set back from watercourse channels to protect against natural geomorphological processes.

7.2.25 Alignment Option 1 would cross areas of medium likelihood of flooding floodplain (1 in 200 year probability) at several locations, including the confluence of the Allt Bhlaraidh and River Moriston watercourses, the River Moriston upstream of the Allt Choire Chals confluence, and the larger watercourse of Allt Phocaichain near the Beauly – Denny Corridor. One licenced water abstraction for hydropower is located 180 m upstream of the alignment crossing on Allt Phocaichain, and another hydropower scheme 40 m east of the alignment at NGR NH 32656 11561 for a pipeline / cable crossing. Two Private Water Supplies (PWS) are registered at Dundreggan Dam, north of Alignment Option 1, and several others are registered to the west of Fort Augustus substation; these are point of use records rather than sources, which will be determined during further surveys at Stage 4.

7.2.26 Alignment Diversion 1 would cross less Class 2 peatland between the Bhlaraidh Extension Wind Farm on-site substation and the River Moriston than Alignment Option 1. It would cross the mapped flood extents of Allt Bhlaraidh at four locations west of the wind farm access track, and flood extents associated with the Allt Bhlaraidh north of Dundreggan Dam where high levels of erosion are also recorded. This option would cross

the River Morstion where flood extents are wider within the flat areas either side of the watercourse. Overall, Alignment Diversion 1 is considered to be a less favourable choice than Alignment Option 1.

7.2.27 Alignment Diversion 2 is broadly comparable with Alignment Option 1, resulting in no clear preference.

7.2.28 Alignment Diversion 3 would avoid the Made Ground artificial deposit at Dundreggan Dam, and would be set further back from the River Moriston and the two PWS at the dam, resulting in this being a more favourable option than Alignment Option 1.

7.2.29 Alignment Diversion 4 would cross the mapped flood extent of the Allt Phocaichain, east of the Beauly – Denny Corridor, at a wider location and would be slightly closer to the licenced hydro scheme on this watercourse. Consequently, this diversion is less favourable than Alignment Option 1.

7.2.30 Alignment Diversion 5 would cross a further area of Class 2 peatland within the Beauly – Denny Corridor but would be further from the two licenced hydropower schemes noted earlier. As such, this is a slight preference over Alignment Option 1.

7.2.31 Alignment Diversion 6A has some differences with Alignment Option 1 in regards to watercourse crossings and distance from licenced activities, but is considered to be broadly similar in terms of overall constraints with no clear preference. Similarly, there would be no clear preference for Alignment Option 6B over Alignment Option 1.

7.2.32 Alignment Diversion 7 would cross a similar peat profile to Alignment Option 1. The diversion would cross the wind farm access track join Alignment Diversion 1 at a confluence of the Allt Bhlaraidh watercourse. Sensitive placement of poles would minimise potential adverse effects.

7.2.33 Alignment Diversion 8A and 8B are comparable with Alignment Diversion 1 in terms of peat soil coverage. They would both pass closer to the CAR licensed activities within the quarry than Alignment Diversion 1, but best practice working methods would mitigate potential adverse effects on these activities.

7.2.34 Considering the above, the preference from a soils and hydrology perspective would be Alignment Option 1 with Alignment Diversion 3 and 5. Alignment Diversion 1 and 4 are the least preferred options.

Cultural Heritage

7.2.35 Sites of cultural heritage significance are displayed on **Figure 7**.

Cultural Heritage Designations

7.2.36 There are no designated sites within the Proposed Route, so potential impacts would be limited to indirect visual impact.

7.2.37 Alignment Option 1 would be located approximately 3 km west of the Levishie Cottage Fort SM. Potential visual impacts on this SM are likely to be minimal as a result of the intervening high ground and the backdrop of mature coniferous forestry. The alignment would pass approximately 800 m south-east of the Dundreggan Motte SM. This SM is situated within an altered setting of farm buildings and has somewhat restricted views across the river towards the alignment, which would be set against a background of mature coniferous forestry and on the far side of the existing 132 kV OHL. Consequently, it is anticipated that indirect visual impact on this SM from the alignment would be minimal. Alignment Option 1 would be situated approximately 800 m east of the Torgyle Bridge Listed Building at the closest point. The bridge is screened from the alignment by adjacent mature woodland which would effectively mitigate any indirect visual impact.

7.2.38 Alignment Diversion 1 would be slightly further from the Levishie Cottage Fort SM, at approximately 3.5 km, however potential effects are anticipated to be comparable. This diversion would be closer to the Dundreggan

Farm Motte SM by approximately 100 m, however this would likely result in only marginally greater impact due to the screening around the mottle.

7.2.39 Alignment Diversion 4 would require a new wayleave through standing forestry on higher ground, and this new wayleave would be partially 'in-line' with views, where possible, from the motte, resulting in potentially greater indirect impacts.

7.2.40 Alignment Diversion 5 would be slightly closer to the Torgyle Bridge listed building; however, given the screening by vegetation around this designation, it is not anticipated that this would result in any notable differences in potential impact.

7.2.41 All other options are considered to be broadly equivalent to Alignment Option 1. Overall, Alignment Diversion 1 and 4 are slightly less preferred, with no clear preference between other options.

Cultural Heritage Assets

7.2.42 No recorded cultural heritage assets have been identified along this Alignment Option 1. Three previously unrecorded features were identified in the vicinity of Inverwick during walkover surveys, comprising a Kiln Barn, a Drystone Dyke and a Bridge feature. It is not anticipated that this alignment would result in any direct impacts on the Kiln Barn given its position on the north side of the existing 132 kV OHL. There exists potential for impact on the Drystone Dyke or Bridge, however sensitive placement of poles and appropriate mitigation, such as asset marking, during construction should limit potential for such impacts.

7.2.43 Alignment Diversion 1 would cross two linear features; part of earth and rubble banks of likely early modern date (MHG22910). Only short sections of these features are crosses and direct impacts could be avoided through sensitive pole placements.

7.2.44 Alignment Diversion 4 would stem off Alignment Option 1 before reaching the unrecorded sites at Inverwick, further reducing potential for direct impacts on these sites.

7.2.45 Alignment Diversion 6A would also cross the rough earth and rubble banks. As per Alignment Diversion 1, sensitive placement of poles should avoid potential direct impacts. This diversion also passes close to recorded site MHG30015, which appears to be the anchor point for a road block during the Second World War although it is unclear if this feature still exists. Appropriate placement of poles and asset marking would serve to limit potential for direct impacts here.

7.2.46 Alignment Diversion 6B would cross only one of the rough earth and rubble bank features, having a lower potential for direct impact than Alignment Diversion 6A but higher than that of Alignment Option 1.

7.2.47 Alignment Diversion 7 would not cross any identified cultural heritage assets but would connect to Alignment Diversion 1 and be subject to the same minimal constraint posed by the earth rubble banks.

7.2.48 Alignment Diversions 8A and 8B would not themselves cross any identified cultural heritage assets but would connect to Alignment Diversion 6A and be similarly constrained by the earth rubble banks and anchor point features.

7.2.49 All other options are considered to be broadly equivalent with Alignment Option 1 in terms of potential to be constrained by non-designated cultural heritage assets. Overall, Alignment Diversion 1, 6A and 6B are least preferred, while Alignment Diversion 4 is more preferred.

People

Proximity to Dwellings

7.2.50 There are a number of dwellings and buildings located within the Proposed Route, as shown on **Figure 8**. Buffers of 100 m have been placed on all built structures identified, however only those identified as residential dwellings are considered to pose constraints under this topic.

7.2.51 Alignment Option 1 meets the edge of the 100 m buffer around dwellings at Bhlaraidh, north of the A887. Some specific measures may be required here to limit construction-phase disturbance. This alignment passes approximately 350 m south of three residential dwellings located north-east of Dundreggan Dam. A number of properties are situated along the north side of the A887 at Dundreggan, all approximately 500 – 600 m north west of the alignment. Several properties are present near Torgyle Bridge, but these are generally enclosed by vegetation. Residences are also present at Auchterawe, with the nearest situated approximately 380 m south-east of the point at which the alignment would change from OHL to UGC, however some disruption may occur here during construction at these dwellings. It is anticipated that the minimum 100 m separation buffer could be observed for the full length of this alignment.

7.2.52 Alignment Diversion 1 would be situated further from the properties at Bhlaraidh, reducing potential disruption here, but would pass by the edge of the 100 m separation buffer of the three dwellings near Dundreggan Dam. The diversion would be location on the opposite side of the A887 to these properties. It would also be closer to the properties at Dundreggan than Alignment Option 1. Overall, this diversion is marginally less preferred than Alignment Option 1.

7.2.53 Alignment Diversion 3 would be further from the three properties at Dundreggan Dam, situated approximately 800 m south-east, reducing potential disruption here.

7.2.54 Alignment Diversion 4 would be further from properties at Torgyle Bridge, but is comparable to Alignment Option 1 in terms of potential for disruption. Similarly, while Alignment Diversion 5 would be closer to these properties, potential disruption is considered comparable.

7.2.55 Alignment Diversion 7, by virtue of connecting to Alignment Diversion 1, would be similarly constrained by the residences along its length. It would otherwise be further from properties at Bhlaraidh than Alignment Option 1.

7.2.56 Alignment Diversion 8A would be further from the properties at Bhlaraidh than Alignment Option 1, reducing potential disruption here. As it connects to Alignment Option 6A, the overall alignment would be slightly closer to the three residential properties north-west of Dundreggan Dam but preferred to Alignment Diversion 1 which passes the edge of the residential property buffer of 100 m from these. Alignment Diversion 8B would be further from the properties at Bhlaraidh, and preferred to 8A as a result.

7.2.57 All other alignment options are considered to be broadly comparable with Alignment Option 1, with a preference for a combination of alignment diversions 1, 8B and 6A / 6B given the overall greater distance from the properties at Bhlaraidh, Dundreggan Dam and the settlement of Dundreggan.

Landscape and Visual

Designations

7.2.58 The Proposed Route does not pass within any protected or designated landscapes. It is not anticipated that any of the alignment options would affect any Special Qualities of the nearest landscape designation, Loch Ness and Duntelchaig SLA.

Landscape Character

7.2.59 All alignment options run through four LCTs: LCT 222 (Rocky Moorland Plateau-Inverness), LCT 226 (Wooded Glen-Inverness), LCT 220 (Rugged Massif – Inverness) and LCT 225 (Broad Steep-Sided Glen). There is potential for these landscapes to accommodate an alignment, particularly given their wooded character and the presence of other vertical features which reduce sensitivity to change, such as overhead lines (OHLs) and wind turbines (existing and proposed) within these LCTs and / or in adjacent areas.

7.2.60 Alignment Option 1 clusters OHL development together and therefore is not anticipated to represent a significant effect. However, there would be potential for cumulative effects in Glen Moriston, whereby the alignment and associated wayleave could increase the prominence of OHLs within the landscape (particularly between Dundreggan Dam and Fort Augustus Substation, where it would be experienced alongside existing OHLs). Where the alignment crosses the A887 road, there would also be a localised landscape effect, whereby an OHL would be introduced into an open area that does not currently feature other OHLs.

7.2.61 Potential effects on the landscape character of these areas could potentially be minimised by using undergrounding near Bhlaraidh Wind Farm Extension on-site substation and Fort Augustus Substation. In addition, consolidation of OHL structures (as a double circuit OHL for example) has the potential to minimise effects. These measures would reduce the prominence of OHLs within the landscape and potential for cumulative effects resulting from the introduction of the alignment. It is recognised that if consolidating to a double circuit the support structures would require to be larger than those present currently.

7.2.62 The alignment diversions would be associated with broadly similar landscape effects as Alignment Option 1, but with the following differences:

- Alignment Diversion 1: some increased localised landscape effects considering the diversion would be experienced in open areas in Glen Morriston.
- Alignment Diversion 3: some reduced localised landscape effects since OHLs may be less prominent in the Dundreggan Dam area. The additional wayleave corridor would represent a localised change but unlikely to affect the wider landscape character, assuming it does not become a dominant feature.
- Alignment Diversion 4: some slightly increased localised landscape effects given the additional wayleave required through native woodland.
- Alignment Diversion 6A: some increased localised landscape effects around Dundreggan Dam where the diversion would cross the A887, given required tree felling. Minimising disturbance to / removal of riparian vegetation would be important in retaining the local character of this area. Cabling the diversion across the dam would be preferable to reduce potential localised effects here too. Although there are several built structures in this local area, it may be approaching its capacity for features of this type, so minimising further change is recommended.
- Alignment Diversion 6B: some localised landscape effects at the A887 road crossing and nearby river crossing, where there are currently no breaks in the roadside or riverside trees. Minimising disturbance to / removal of trees (particularly riparian vegetation) would be important. In landscape terms, this diversion may be favoured over 6A, as it would reduce further cumulative effects at Dundreggan Dam (where it may have reached its capacity for development of this type). On the other hand, 6A may be preferred for clustering development and reducing effects on other areas that do not currently contain OHLs.
- Alignment Diversion 7: in comparison with Alignment Diversion 1, some increased localised landscape effects near the wind farm track due to the greater separation distance from the standing woodland block to the east and thus less association with existing landscape features.
- Alignment Diversion 8A: in comparison with Alignment Diversion 1, some increased localised landscape effects east of the quarry due to the increased prominence of a new OHL here and less

association with woodland blocks; however, this would be preferable to Alignment Option 1 and Alignment Diversion 8B.

- Alignment Diversion 8B: in comparison with Alignment Diversion 1, some increased localised landscape effects west of the quarry as a result of establishment of a new wayleave and likely removal of trees between this wayleave and the quarry to account for windthrow effects.

7.2.63 Overall, a combination of Alignment Option 1 with Diversions 1 or 7, then 8A into 2 and 3, potential undergrounded sections near Bhlaraidh Wind Farm and Fort Augustus Substation, and a double circuit OHL where possible (to consolidate existing OHL infrastructure) would be the preference in landscape terms. If a double circuit is not possible, then this combination is still the favoured option with placement of a new trident OHL on the south side of the existing steel lattice single circuit between Dundreggan Dam to the Beauly – Denny Corridor. A second choice would be for Alignment Option 1 with Diversions 1 or 7 into 8A then 6B (marginally preferred over 6A).

Visual

7.2.64 Alignment Option 1, at its northern end, would be visible in the context of wind turbines of Bhlaraidh Wind Farm from a nearby popular hilltop (Meal Fuar-mhonaidh) to the east of the wind farm. Whilst relatively distant in views, the alignment would be seen within an array of turbines, with potential for overlapping structures. From parts of the upper Great Glen Way east of Achnaconeran, it may also be perceptible in the distant in front of the wind farm track and forestry. Continuing south along the alignment, potential localised visual effects may occur for receptors on the A887, as it crosses the road in relatively open views; and receptors in properties at Bhlaraidh (partially screened by vegetation). Between the A887 road crossing and Dundreggan Dam, it would be largely screened by roadside and riverside trees. At Dundreggan Dam, receptors in nearby properties and areas overlooking the reservoir may have filtered views of the alignment, seen across the water, to the rear of an existing steel lattice OHL. Receptors would also experience filtered views of the alignment to varying degrees from the A887 road, properties at Dundreggan and Dalchreichart, and Core Paths and Scottish Hill Tracks near Dundreggan and within Inchnacardoch Forest. Views from the Torgyle Bridge area are likely to be screened by trees. From Fort Augustus, some visual effects may be experienced by receptors with views of the Beauly-Denny OHL corridor, but seen in the context of other OHLs. From Auchterawe, views are screened by trees, but there may be some views from the public road passing the substation.

7.2.65 As noted previously, undergrounding near Bhlaraidh Wind Farm Extension on-site substation and Fort Augustus Substation has the potential to reduce visual effect. In addition, consolidation of OHL structures (as a double circuit OHL for example) has the potential to minimise effects. These measures would reduce the prominence of OHLs within the landscape and potential for cumulative effects resulting from the introduction of the alignment. It is recognised that if consolidating to a double circuit the support structures would require to be larger than those present currently.

7.2.66 The Alignment Diversions would be associated with broadly similar visual effects as Alignment Option 1, but with the following differences:

- Alignment Diversion 1: increased visual effects west of Dundreggan Dam for receptors at / near the dam, on the A887 and in / around Dundreggan (due to visual sensitivity and lack of screening or potential felling); but reduced visual effects to the east of Dundreggan Dam (due to screening).
- Alignment Diversion 2: reduced visual effects for receptors in Bhlaraidh properties, although an alignment close to the edge of the forestry block and following topography could be explored.
- Alignment Diversion 3: reduced visual effects for receptors at / near Dundreggan Dam and the A887, assuming the new wayleave corridor is not visible from receptor locations.
- Alignment Diversion 4: slightly increased visual effects for receptors on the A887 and in / around Dundreggan and Dalchreichart where the diversion and corridor may be perceptible crossing the

hillside, joining the Beauly-Denny OHL corridor, potentially increasing the presence of OHLs in views by creating an additional feature for the eye to be drawn to.

- Alignment Diversion 5: slightly increased visual effects for receptors on the A887 and in / around Dundreggan and Dalchreichart, where the diversion would increase the prominence of OHLs within the Beauly-Denny wayleave, particularly given required tree felling and required terminal towers. On the Great Glen side, there would be reduced visual effects for receptors in Fort Augustus and the Auchterawe public road and forest paths given the undergrounding of a longer section into Fort Augustus Substation. The positioning of the terminal pole by a Core Path and Scottish Hill Track should be considered and set back from the track where possible.
- Alignment Diversion 6A: slightly reduced visual effects for receptors at Bhlaraidh; but increased visual effects for receptors on the A887 who would see the diversion near Bhlaraidh properties and at the road crossing. West of Bhlaraidh properties, an alignment close to the edge of the forestry block and following topography could be explored to reduce prominence in this open area. Increased visual effects would also be experienced for receptors at / near Dundreggan Dam, particularly associated with tree felling. Minimising disturbance to / removal of riparian vegetation would be important in reducing visual prominence of new structures. Cabling the diversion across the dam would be preferable to reduce potential localised effects here too. Although there are several built structures in this local area, it may be approaching its capacity for features of this type, so minimising further change is recommended.
- Alignment Diversion 6B: as with 6A, slightly reduced visual effects for receptors at Bhlaraidh; but increased visual effects for receptors on the A887 who would see the diversion near Bhlaraidh properties and at the road crossing. West of Bhlaraidh properties, an alignment close to the edge of the forestry block and following topography could be explored to reduce prominence in this open area. Compared to 6A, the road crossing for this diversion may be favoured since visual effects for receptors on the A887 would be less than visual effects of 6A on receptors at / around the dam.
- Alignment Diversion 7: in comparison with Alignment Diversion 1, this diversion would have some very limited potential for increased visual effects upon receptors in Bhlaraidh properties due to being situated at slightly higher elevation, however distance, location and vegetation screening would limit opportunities for views. In comparison with Alignment Option 1, this diversion would have reduced visual effects to the east of Dundreggan Dam by virtue of connecting into Alignment Diversion 1 within Levishie Forest and continuing as such to the west.
- Alignment Diversion 8A: in comparison with Alignment Diversion 1, this diversion would have reduced visual effects to the west of Dundreggan Dam and increased visual effects to the east of the dam due to its alignment along Diversion 6A. By stemming off Alignment Diversion 1 and crossing east of the quarry near Bhlaraidh properties to join Alignment Diversion 6A, properties at Bhlaraidh may potentially experience increased visibility of a new OHL on this alignment, as would users of the A887 near Bhlaraidh and further upstream at / around Dundreggan Dam where Alignment Diversion 6A crosses the River Moriston. Compared to Alignment Diversion 1, properties at Dundreggan, however, would experience reduced visual effects as the diversion would avoid introducing a new OHL across open ground south-east of this settlement. This diversion is overall marginally preferred over Alignment Option 1 due to reduced visual effects at Bhlaraidh properties.
- Alignment Diversion 8B: as with Alignment Diversion 8A, but passing west of the quarry near Bhlaraidh properties to join alignment Diversion 6A. A new wayleave would be required through standing forestry and potential removal of trees between this wayleave and the quarry may result in greater visual effects upon residents of Bhlaraidh and on users of the A887 near this point than Alignment Diversion 8A. Like Alignment Diversion 8A, this diversion is overall marginally preferred over Alignment Option 1 due to reduced visual effects at Bhlaraidh properties. It is less preferable than Alignment Diversion 8A given potential for tree removal.

7.2.67 Overall, a combination of Alignment Option 1 with Diversions 1 or 7, then 8A into 2 and 3, potential undergrounded sections near Bhlaraidh Wind Farm and Fort Augustus Substation, and a double circuit OHL where possible (to consolidate existing OHL infrastructure) would be the preference in visual terms. If a double circuit is not possible, then this combination is still the favoured option with placement of a new trident OHL to the south side of the existing steel lattice single circuit running along the south side of the River Moriston. A second choice would be for Alignment Option 1 with Diversions 1 or 7 into 8A then 6B (marginally preferred over 6A).

Land Use

Agriculture

7.2.68 The agricultural land within the Proposed Route is identified as being of Class 4.2 or lower, as shown on **Figure 10**.

7.2.69 Alignment Option 1 would pass through an area of Class 4.2 land for approximately 3 km south-east of Dundreggan, and then a short section of Class 5.2 before joining the Beauly – Denny Corridor. Two further short sections of Class 5.2 and Class 4.2 would be crossed prior to arriving at the Fort Augustus connection point. As these land classifications are not considered to be particularly sensitive, and the overall land take would be small, agriculture is not considered to pose a constraint to this alignment.

7.2.70 Some variation exists between the alignment diversions in terms of distance crossed through these land classifications, however all options are considered to be broadly similar in the level of constraint with only a marginal preference for Alignment Diversion 4 given its slightly reduce presence within both land classifications.

Forestry

7.2.71 Areas of forestry within and around the Proposed Route are displayed on **Figure 11**. The Native Woodland Survey of Scotland (NWSS) indicates areas of Upland birchwoods, native pinewoods and Plantations on Ancient Woodland Sites (PAWS) throughout the Proposed Route. Areas of native woodland are considered to be the most sensitive forestry areas for this development. The Caledonian Pinewood Inventory for this alignment includes Dundreggan Caledonian pinewood, Caledonian pinewood regeneration zone and Caledonian pinewood buffer zone.

7.2.72 Alignment Option 1 initially pass through an area of recently young-planted pinewoods east of the wind farm access track. These are newly planted and would not be at risk from wind throw effects but would still present a constraint to the alignment to be addressed with the Estate directly. Opportunities exist to direct the alignment to the edge of this crop and minimise loss. The alignment would then pass through an area of pole stage upland birchwood, identified at native woodland before crossing felled but as yet unplanted ground prior to crossing the wind farm access track. On the south side of the track, the alignment would cross the Allt Bhlaraidh and a mixture of PAWS and native woodland comprising mainly birchwood. Passing Bhlaraidh, the alignment would cross a recently felled area of conifer (PAWS) woodland, then through a stretch of native woodland after crossing the A887 and the River Moriston; minimal opportunities are present here to avoid the native woodland areas. The alignment would continue through a mixture of native and PAWS woodland until reaching Dundreggan Dam. From here, Alignment Option 1 would follow a parallel course to the existing 132 kV OHL along the River Moriston, at the north edge of mature coniferous plantation, and some edge felling would be required with potential windthrow consequences. The alignment would continue through areas largely defined as PAWS and shorter stretches of native woodland on the approach to the Beauly – Denny Corridor.

7.2.73 Approximately 0.5 km from the existing OHL of the Corridor, Alignment Option 1 would take a south-west heading, passing west of the large block of native woodland at Inverwick and minimising felling requirements. It would then travel down the east side of the Beauly – Denny Corridor through areas of native woodland and Caledonian Pine; this would require further edge felling to ensure a sufficient separation from the existing OHL and thus safe working conditions. This edge felling may result in longer term windthrow effects to this block.

Alignment Option 1 would continue through undesignated conifer plantation through much of Inchnacardoch Forest, with potential for further windthrow effects resulting from edge felling. The alignment would pass through an area delineated for felling between 2026 – 2030 north-west of Fort Augustus substation for approximately 1 km; as such, windthrow effects resulting from edge felling for this alignment would be shorter term than for forestry blocks otherwise left standing. Some opportunities exist along this alignment to make use of open ground; however, it is deemed to be generally constrained by forestry along the majority of its length.

7.2.74 Alignment Diversion 1 would travel down the west side of the wind farm access track, also through an area of recently young-planted pinewoods under the land ownership of the Estate. It would pass close to the west edge of this young plantation, and opportunities exist to slightly realign this to the edge and minimise removal of the young crop; care would need to be taken to also minimise felling of the native woodland block immediately to the west of this. Continuing south towards the quarry, the diversion would pass through a short section of native woodland and a length of PAWS woodland, largely delineated by FLS for felling in the near future. Depending on construction times, it may be possible to avoid felling within this delineation altogether. From the quarry, the diversion would pass through mature plantations of Coille Bhlaraidh, primarily areas identified as PAWS rather than Native Woodland, with consequential windthrow. However, it would pass through several areas identified by FLS for felling in the near future around Coille Bhlaraidh and in the vicinity of Dundreggan Dam, again reducing the potential adverse effects on forestry structure from a new OHL along this diversion. A short section of this diversion would cross through Caledonian Pinewood north-west of Dundreggan Dam, which would be difficult to avoid in practice due to other constraints at this location. Some opportunities exist to direct this diversion to areas of open ground or less dense forestry, potentially reducing felling requirements. Given that this diversion would pass through several areas of planned felling, it is potentially preferable to Alignment Option 1; this would depend on construction timings and FLS' restocking plans.

7.2.75 Alignment Diversion 2 would pass through a slightly greater length of felled PAWS woodland and a shorter length of native woodland in comparison with Alignment Option 1, however the difference would be marginal over the full length of the connection.

7.2.76 Alignment Diversion 3 would pass directly through an area of PAWS woodland on the higher ground south of Dundreggan Dam, rather than passing along the woodland edge, resulting in greater felling requirements and subsequent windthrow. As such, this diversion is less preferred than Alignment Option 1.

7.2.77 Alignment Diversion 4 would result in the dissection of a mature conifer compartment and further loss of Native Woodland areas and Caledonian Pine regeneration zones. It would introduce forestry management difficulties and potentially result in windthrow effects. This is the least preferred of all options in forestry terms.

7.2.78 Alignment Diversion 5 would run between the two existing OHLs of the Beauly – Denny Corridor rather than pass down the east side. This would likely result in the complete removal of the mature Native Woodland strip due to potential windthrow at the northern end of this diversion; however, it would avoid the need to fell the edge of the Native Woodland to the east. This would be preferable from a forestry management perspective, as the woodland within the Beauly – Denny Corridor currently presents operational challenges. The woodland loss would also be confined to the area between the OHLs, whereas edge felling on the east side, for Alignment Option 1, may result in greater tree loss over time due to windthrow effects. This diversion is more favourable than Alignment Option 1.

7.2.79 Alignment Diversion 6A, after stemming off Alignment Option 1, would pass through a felled area of PAWS woodland and then, from the quarry, through an existing wayleave for a 33 kV OHL all the way to Dundreggan Dam and reducing felling requirements. This would be accomplished through undergrounding of the 33 kV OHL; however, an expansion of the wayleave would be required to accommodate the larger 132 kV OHL for this development, leading to some loss of the established conifer tree crop. It is noted that much of the length of this diversion passes through areas delineated for felling by FLS in the near future (including native

woodland) and felling to expand the wayleave could, depending on construction times, be avoided or reduced to short term effects. Alignment Diversion 6A is preferred to Alignment Option 1.

7.2.80 Alignment Diversion 6B, like 6A, would cross felled PAWS woodland and make use of the existing wayleave for the 33 kV OHL. It would cross the River Moriston approximately 1 km downstream of Dundreggan Dam to rejoin Alignment Option 1, through two small sections of native woodland. This would result in greater woodland loss than Alignment Diversion 6A, but would still be preferable to Alignment Option 1.

7.2.81 Alignment Diversion 7 would cross through the same section of recently planted pinewood to the east of the wind farm access track as per Alignment Option 1 but would travel more parallel to the track and reduce the bisecting of this plantation. It would then cross to the west side of the access track to join Alignment Diversion 1 and in doing so avoid most the of area of native woodland situated at the north edge of Levishie Forest. The woodland at the particular crossing point appears to be sparse and opportunities exist to limit felling requirements through sensitive siting of poles. The last 100 m (approximately) of this diversion would make use of an area identified by FLS for felling between 2020 and 2025, reducing long term effects of a new OHL here. Forestry constraints would otherwise be as per Alignment Diversion 1 from this point.

7.2.82 Alignment Diversion 8A stems off Alignment Diversion 1 and heads south-east through a short section of standing PAWS forestry. It then traverses an area of previously felled ground before joining Alignment Diversion 6A to make use of the existing wayleave as it travels further south-west. This diversion minimises the need for further felling that would be associated with Alignment Diversion 1 west of the quarry, including stretches of native woodland, and is also preferred to Alignment Option 1.

7.2.83 Alignment Diversion 8B is similar to Alignment Diversion 8A but passes to the west side of the quarry through standing PAWS woodland. This would require the establishment of a new wayleave and isolate the forestry block between the wayleave and the quarry. This would potentially subject this isolated block to windthrow effects and require felling of the entire block along with the wayleave, resulting in greater woodland loss than the wayleave alone. This diversion is thus less preferable to Alignment Diversion 8A, but still preferred to Alignment Diversion 1 and Alignment Option 1 as it reduces required felling of native woodland areas.

Recreation

7.2.84 The main points of recreational interest within the Proposed Route are shown on **Figure 10** and include salmon fishing and canoeing activities downstream of Dundreggan Dam and the Core Paths and Scottish Hill Tracks which criss-cross the Beauly – Denny Corridor, offering walking and hiking opportunities. The Glenmoriston Shooting Ground is situated immediately east of the Proposed Route at Bhlaraidh. Other recreational and tourism activities in the wider area are considered unlikely to be affected by a new OHL within the Proposed Route and thus do not pose development constraints.

7.2.85 Alignment Option 1 passes approximately 250 m west of the shooting ground. Given the screening by mature conifers around the boundary of the shooting ground, disturbance of shooting activities is unlikely outwith the construction phase. The alignment runs roughly parallel with the River Moriston for several kilometres, which facilitates fishing activities. Fishing is more popular downstream of the Glenmoriston hydro power station, as is canoeing. There may be some construction-phase disturbance of these activities, but it is anticipated these would be temporary and of limited disruption. The crossing point of the River Moriston for this alignment is over a kilometre downstream of the approximate favoured location for fishing and canoeing in a quiet section more distant from the A887 and unlikely to be frequented. The alignment would pass near to and cross a number of Core Paths in the area of Inchnacardoch Forest, along the Beauly – Denny Corridor, leading to potential indirect influence on recreation due to visual effects, and potential short-term disruption when paths are crossed by construction works. This is unlikely to lead to any notable compromise of amenity value.

7.2.86 Alignment Diversion 1 would be further from the Glenmoriston Shooting Ground, but this is not anticipated to result in any notable difference on activities here. The diversion would be less constrained by fishing and

canoeing activities as a result of crossing the River Morison upstream of Dundreggan Dam, away from the site of these activities. As such, Alignment Diversion 1 is marginally preferred to Alignment Option 1.

7.2.87 Alignment Diversion 5 would run closer to the Scottish Hill track through Inchnacardoch Forest, but it is not anticipated that this would present any greater level of constraint. The last 2 km (approximate) of this diversion into Fort Augustus substation would be UGC, resulting in fewer overhead crossings of core paths. This has the potential to reduce adverse effects on users of these paths, however a new sealing end structure adjacent to one of the core paths may present a significant nearby infrastructure feature. Opportunities exist to set this back from the path's edge to reduce its presence, and / or make use of screen planting to reduce its visibility.

7.2.88 The other options have variations in proximity to core paths or crossing point of the River Moriston which may result in differences in localised effects but are considered to have broadly similar recreational constraints as Alignment Option 1. While Alignment Diversion 1 is preferred to Alignment Option 1, the difference is marginal and there is no clear preference in terms of recreation.

Planning Context

7.2.89 Adherence to National, Regional and Local planning policy will in large part depend on avoiding or minimising potential constraints noted, particularly in relation to potential impacts on the natural environment given presence of designated sites and areas of landscape importance.

7.2.90 It is considered that opportunities exist to minimise potential impacts for all alignment options, through design, micro-siting of pole locations, or mitigation measures, and allow adherence with planning policy. As such, there is no clear preference for any option in planning policy terms.

7.2.91 At the current stage there do not appear to be any notable planning proposals within or adjacent to the Proposed Route that would present potential for constraint of any of the alignment options. Consequently, there is no clear preference for any option in relation to other planning proposals.

7.3 Engineering Topic Areas

7.3.1 Given the similarities between the alignment options, many of the engineering constraints are comparable. The following section draws out where notable differences exist in constraints between options, or otherwise identifies that options are similar and no preference has been identified.

Infrastructure Crossings

Major Crossings

7.3.2 Major infrastructure crossings[32] can present many obstacles when designing and constructing an OHL and therefore, it is advantageous to avoid multiple crossings if possible.

7.3.3 All alignment options would cross the 132 kV underground cable running between the Bhlaraidh Wind Farm to Dundreggan Dam, adjacent to the existing wind farm access track north of Bhlaraidh. Alignment Diversion 1 would cross the 132 kV OHL between Dundreggan Dam and the Beauly – Denny Corridor, south of the River Moriston, whereas all other options would avoid crossing this line, making Alignment Option 1 less preferable. Alignment Diversion 5 would cross beneath the east OHL of the Beauly – Denny Corridor to travel south-east towards Fort Augustus substation, then cross beneath the west OHL as UGC; all other options would cross beneath both existing OHLs near Fort Augustus substation as UGC.

[32] Major infrastructure crossings include high voltage transmission lines, rail lines, wide rivers (greater than 200 m), navigable canals, gas pipelines, and hydro pipelines.

7.3.4 As noted later in this Section (7.3), Alignment Diversion 1 crosses an identified hydro scheme pipeline. No other hydro scheme pipelines have been identified.

7.3.5 No other major infrastructure crossing requirements have been identified. Alignment Diversion 1 is the least preferred, with other options broadly comparable. It is noted that all alignment options would be required to negotiate several lower voltage OHLs, including 11 kV and 33 kV rated lines, west of the wind farm access track and between Bhlaraidh and Dundreggan Dam. All options would also make one crossing of the River Moriston at perpendicular or near-perpendicular angles.

Road Crossings

7.3.6 The main road crossing affecting all alignment options is the A887 running along the north side of the River Moriston. All options would make use of a singular perpendicular or near-perpendicular crossing at various points between Bhlaraidh and Dundreggan, resulting in no clear preference in this regard.

7.3.7 All alignment options except Alignment Diversion 5 would cross a minor / local road at Inverwick, east of Torgyle Bridge. All options would cross the minor / local road immediately north of Fort Augustus substation. Alignment Diversion 5 is thus marginally preferable in regards to road crossings.

Environmental Design

Elevation

7.3.8 The elevation on which an OHL is constructed can have a significant effect in terms of influencing both wind and ice loading. In order to limit the effects of wind and ice loading due to elevation, it is favourable to minimise the erection of overhead lines on lands above 200 m AOD.

7.3.9 Over 25 % of all alignment options exceed 200 m AOD, with the highest ground encountered near the Bhlaraidh Extension Wind Farm (over 500 m AOD) and along the Beauly – Denny Corridor (over 400 m AOD). All alignment options are comparable in terms of elevation constraints, and there is no clear preference.

Pollution Areas

7.3.10 Based on publicly accessible information[33], areas of high pollution are not found within the study area of any of the alignment options and all are thus comparable.

Flooding

7.3.11 There are three types of flooding which must be considered; Coastal, Surface and River. Potential for flood risk has been based on SEPA[34] publicly available data, from which flooding within 1:200 and 1:10 year events is found to be less than 80 % of the option route lengths for less than 2 % of all the alignment options. The main potential impact on the alignment options is seen along River Moriston, with Alignment Diversion 1 subject to the greatest constraint at its crossing point near Dundreggan. Flood risks are also present in the immediate vicinity of minor watercourses, such as the Allt Bhlaraidh, and Fort Augustus substation; however, these are not considered to pose significant constraints to the alignment options.

7.3.12 Other than a slight reduced preference for Alignment Diversion 1, all options are considered to be comparable in terms of flooding constraints with no clear preference.

[33] https://uk-air.defra.gov.uk/interactive-map

[34] Scottish Environment Protection Agency

Ground Conditions

Terrain

7.3.13 Unfavourable terrain can lead to many design and construction related challenges for new OHL builds. Steep slopes, mountainous terrain and / or cliffs create difficult obstacles for OHLs to cross and it is therefore preferred to limit construction in this terrain where possible. Another consideration is pinch points and areas within the Proposed Route with limited options to achieve a potential alignment.

7.3.14 All alignment options would traverse comparable terrain, encountering slopes between the Bhlaraidh Extension Wind Farm on-site substation and the A887, and again through the Beauly – Denny Corridor. None of the alignments would encounter steep slopes (i.e. in excess of 40 %), and micrositing of pole locations would be implemented to avoid localised steep gradients. As such, all options are considered to be comparable, with no clear preference.

Peat

7.3.15 Construction in areas of peat can pose engineering challenges during both the design and construction stages of an OHL build. In addition, construction in peat can lead to increased construction and maintenance costs and therefore, should be reduced or avoided where possible.

7.3.16 Based on publicly accessible data, all alignment options would cross isolated, small areas of peat which could largely be avoided subject to careful placement of poles. Based on this data, there is little variation between options in terms of peat constraints, and thus all are comparable. Determination of peat depths will require detailed survey of the Proposed Alignment at the next project stage.

Geology

7.3.17 Desk studies indicate that for most locations, ground bearing foundations will be sufficient for a new OHL, although there may be some modifications for groundwater or bands of weaker material. Where lacustrine deposits of alluvium are identified, this risk is elevated, and where peat is present some form of modification or special foundation may be required.

7.3.18 As all options encounter a similar geological profile, predominantly psammite bedrock with very small isolated avoidable incursions of other bedrocks, and thus all alignments are comparable with no clear preference.

Construction / Maintenance

7.3.19 Constructability is an important consideration for all OHL developments considering the wide-ranging terrain and multiple obstacles that are often encountered. Therefore, giving some forethought to access routes and the number of critical angle masts to be used on this OHL is important for the construction and future maintenance requirements of the line.

Access

7.3.20 Adequate access is an important consideration for both construction and maintenance activities. Positioning an OHL in close proximity to existing public roads and networks of tracks will provide ease of access and can greatly reduce costs associated with the construction stage.

7.3.21 All alignment options are within 1 km of existing networks of tracks and the public road network for the majority of their length. The existing wind farm access track north of Bhlaraidh and the access tracks through the Beauly – Denny Corridor were observed during site visits to be in good condition and capable of supporting construction traffic. Alignment diversions 1 and 4 would likely require the greatest degree of work to establish new access, however it is anticipated that these would be temporary access arrangements and are thus only marginally less preferred. All other options are broadly comparable, with no clear preference.

Angle Towers

7.3.22 Angle towers are important components of an OHL as they are primarily used in 'stringing' operations and failure containment. Due to the nature of the angle towers, higher loads are required to be designed into the structures and larger foundations and more complex installations are often required.

7.3.23 Alignment Diversion 3 presents a slight overall preference in terms of number of angle towers, given its straightening of the section of Alignment Option 1 south of Dundreggan Dam. All other alignment options would require similar numbers of angle towers.

Proximity

7.3.24 The location of an OHL relative to structures and settlement of people is an important consideration when selecting a Preferred Alignment. OHLs must be an adequate distance from buildings in order to ensure electrical clearance limits are achieved, but also in order to reduce the impact on households of the construction of a piece of key infrastructure in their vicinity. From an operability and maintenance viewpoint, wind turbines near OHLs have been found to potentially increase the occurrence of conditions suitable for aeolian vibration leading to the premature wear of the conductor through fatigue. Potential structural failure of wind turbines leading to collapse onto an OHL is also a consideration.

Clearance Distance

7.3.25 Assessment of the alignment options was undertaken to determine the clearance distances available between buildings and dwellings.

7.3.26 Alignment Option 1 and alignment diversions 1, 2 and 6A are all situated approximately 100 m from identified residences. Alignment Diversion 8B is between 100m and 250 m from a non-residential building south of the Quarry near Bhlaraidh, and the UGC section of Alignment Diversion 5 is between 100 m and 250 m of residential properties at Auchterawe. All other options are further than 250 m from residences and other buildings. Consequently, alignment diversions 3, 4, 6B and 8A are the preferred in terms of clearance distance.

Proximity to Windfarms

7.3.27 Due to the necessity of the grid connection, all alignment options are within 750 m of the Bhlaraidh Extension Wind Farm and thus comparable. Other than this, there are no wind farms within 1 km of any of the alignment options.

Urban Environments

7.3.28 All alignment options have less than 10 % presence within urban environments, and consequently are all comparable. Alignment Diversion 1 is slightly closer to the settlement of Dundreggan than Alignment Option 1, and Alignment Diversion 5 would be underground cable for the last 2 km reducing the requirement for above-ground infrastructure near Auchterawe, however these are considered to be marginal differences.

Metallic Pipes

7.3.29 A hydroelectric pipeline has been identified within Alignment Diversion 1 which will require to be marked out and avoided as part of any construction works. No other metallic pipelines have been identified at this stage. Alignment Diversion 1 is thus the least preferred, with all other options considered to be comparable.

7.4 Cost Topic Areas

7.4.1 Costs were not assessed in detail as part of this alignment selection process but were considered during development design meetings in which the alignment options were discussed. The following provides an overview of the main considerations relating to costs.

Capital

7.4.2 The preferred technology solution is a new 132 kV single circuit OHL supported on a trident wood pole. From a capital cost perspective this option reduces costs when compared to other technologies. This is largely due to the reduced foundation and access requirements.

7.4.3 All alignment options may require use of larger, more robust technologies on higher ground which require greater capital costs associated with material procurement, transport and construction, and potentially public road improvements. Further engineering studies will be undertaken to determine the specific point at which the OHL would require to change from trident wood pole to a more robust structure, however this would be comparable for all options.

7.4.4 Underground cable would be utilised for approximately 2 km to connect into Fort Augustus substation. Underground cable is notably more expensive than OHL solutions for any given distance, and generally used only in instances where an OHL is unsuitable. Based on consultation carried out with FLS, all connection options would require to use underground cable for the last 2 km to Fort Augustus substation, and thus capital costs would be comparable for all alignments in this regard.

7.4.5 Tree felling and associated compensatory planting would be a particular consideration for this development due to the presence of woodland along all alignment options. Alignments which require less felling are thus preferred due to reduced tree felling costs, giving slight preference to Alignment Diversion 5, which runs between the existing Beauly – Denny Corridor OHLs, and Alignment Diversion 6A which makes best use of the existing wayleave between Dundreggan Dam and the quarry.

7.4.6 Given the similarities between the alignments, all are considered comparable in terms of capital costs, with a slight preference for alignment diversions 5 and 6A given reduced tree felling costs.

Operational

7.4.7 Operational costs relate to inspections and maintenance. Compared to other overhead line technologies a single circuit OHL supported on a trident wood pole is relatively straight forward technology to inspect and maintain. As noted previously, areas of higher elevation are likely to require more robust structures, which may entail higher operational costs, and underground cables entail higher maintenance costs than OHLs.

7.4.8 Given the similarities between all alignment options, operational costs are considered to be comparable with no notable preference.

7.5 Comparative Analysis Summary

Environmental Summary

7.5.1 The key environmental considerations for the selection of a Preferred Alignment are presence of Annex 1 habitats, landscape and visual impacts, and forestry.

7.5.2 Annex 1 heathland, mixed / native woodland and flush / mire are present along the length of the Proposed Route, and discrete areas of blanket bog are located around the Bhlaraidh Extension Wind Farm on-site substation. The Preferred Alignment should minimise loss of these habitats through avoidance in the first instance, and sensitive pole placement to reduce likely habitat loss where avoidance is not possible.

7.5.3 Alignment Diversion 4 is the least preferred option due to it crossing through a block of native woodland habitat which Alignment Option 1 otherwise avoids. Alignment Diversion 5 is also less preferred due to greater potential for loss of flush / mire habitat within the Beauly – Denny Corridor in comparison with Alignment Option 1. Alignment Diversion 6A makes best use of an existing wayleave, reducing potential loss of native woodland habitat and as a result is a preference over Alignment Option 1. Alignment Diversion 1 passes through slightly

less heathland, but passes through other habitats which, while not classed as Annex 1, are still considered sensitive: conifer woodland and grassland habitats between the A887 and River Moriston, east of Dundreggan. A combination of alignment diversions 7, 1, 8A / 8B and 6A would have the greatest overall opportunities to avoid Annex 1 and other sensitive habitats and would thus be the preference for Annex 1 habitat constraints.

7.5.4 The Preferred Alignment from and landscape and visual standpoint should seek to avoid exceeding the capacity of the landscape to accommodate this type of development, and minimise visual impact on views from nearby sensitive visual receptors, such as residential properties.

7.5.5 As discussed in Section 7.2, the preferred combination is for Alignment Option 1 with Alignment Diversions 1 or 7, then 8A into 2 and 3, undergrounded sections near Bhlaraidh Wind Farm and Fort Augustus Substation, and a double circuit OHL where possible (along Dundreggan Reservoir to Fort Augustus substation ideally, but at least to the Beauly-Denny Corridor). If a double circuit is not possible, then this combination is still the favoured option with placement of a new trident OHL to the south side of the existing steel lattice single circuit running along the south side of the River Moriston. A second choice would be for Alignment Option 1 with Diversions 1 or 7 into 8A then 6B.

7.5.6 In the eastern part of the route, Alignment Diversion 6B is marginally preferred over 6A; and both are preferred over Alignment Diversion 1. In the western part of the route, Alignment Diversion 4 and 5 would both be associated with increased landscape and visual effects whereby the alignment and required wayleave corridor would increase the prominence of OHLs, but in different ways. Alignment Diversion 4 would disperse development, while Alignment Diversion 5 would cluster development. Alignment Diversion 5 may therefore be the preference in theory, but there is potential that this diversion could exceed the capacity of the Beauly-Denny Corridor, since felled forestry between the existing OHLs would increase the prominence of the existing and new structures here.

7.5.7 Forestry is abundant throughout the Proposed Route, complex in structure and sensitive to impacts, particularly native woodland areas. The Preferred Alignment should seek to minimise felling wherever practicable, with a particular focus on avoiding felling of native woodland.

7.5.8 As discussed in Section 7.2, Alignment Diversion 3 and 4 are the least preferred options as these would result in otherwise avoidable felling of PAWS and native woodland, respectively. Alignment Diversion 6A makes best use of recently felled ground and an existing wayleave, reducing felling requirements in comparison with Alignment Option 1. A combination of alignment diversions 7, 1, 8A and 6A would further reduce loss of native woodland and felling requirements overall by making best use of the felled area east of the quarry near Bhlaraidh and the existing wayleave which Alignment Diversion 6A follows.

7.5.9 Alignment Diversion 5, while still resulting in the loss of native woodland and Caledonian Pine, is considered preferable to Alignment Option 1 as the woodland loss would be confined to the standing block between the existing OHLs of the Beauly – Denny Corridor, and would have the added benefit of removing an existing operational restriction for FLS given that additional measures must be taken when felling adjacent to operational OHLs.

7.5.10 The overall preference from a forestry perspective would be alignment diversions 7, 1, 8A and 6A to the east of Dundreggan Dam with Alignment Diversion 5 to the west of the dam.

Engineering Summary

7.5.11 While a small number of marginal or slight preferences have been identified through the engineering constraints assessment, all options are considered broadly comparable and reasonable in terms of construction. Consequently, there no preference has been identified in engineering terms.

Cost Summary

7.5.12 Tree felling has been identified as the only capital cost consideration likely to differ between the alignment options considered, with preference given to Alignment Diversion 5 and Alignment Diversion 6A due to their reduced felling requirements compared with other options.

7.6 Preferred Alignment

7.6.1 A Preferred Alignment has been identified following consideration of environmental, engineering and cost considerations.

7.6.2 From an environmental perspective, while less preferable from an LVIA standpoint, this alignment would minimise potential forestry loss and adverse effects on Annex 1 habitats. While Alignment Diversion 7 would cross the Allt Bhlaraidh watercourse and some of its tributaries, it would accord with the general preferences for soils and hydrology by avoiding the larger areas of flood extents and be further from licenced hydropower schemes identified near the Beauly – Denny Corridor. Alignment Diversion 8A makes best use of the felled area east of the quarry near Bhlaraidh, reducing felling requirements, and by transferring 'off' Alignment Diversion 1 near the quarry, avoids the felling requirements and impacts on Annex 1 and other sensitive habitats which would result from Diversion 1 further upstream. Alignment Diversion 6A would be less preferred than Alignment Option 1 due to potential for direct impact on recorded assets, but these are considered to be only a minor constraint to development. Alignment Diversion 6A is also preferable in terms of proximity to dwellings by veering west from Bhlaraidh rather than passing by it. It is potentially less favourable for ornithology due to the presence of the osprey nest, however the nature of this constraint will be determined during full breeding bird surveys. Alignment Diversion 6A may have a slightly greater adverse effect on recreational activities downstream of Dundreggan Dam given its closer proximity to such, however this is likely to be offset by Alignment Diversion 5 switching from OHL to UGC approximately 2 km from Fort Augustus substation, reducing its presence during operation for core paths through Inchnacardoch Forest.

7.6.3 From an engineering perspective there is no clear preference; all alignments are reasonable options in terms of construction, with only slight or marginal differences in constraint to development.

7.6.4 From a cost perspective, Alignment Option 1 with alignment diversions 6A and 5 is a slight preference given the reduced tree felling requirements. However, it is noted that this would be a small saving in comparison with the overall capital costs of the development and is not weighted as heavily as environmental considerations.

7.6.5 Taking the key considerations for all three main topics into account, selection of a Preferred Alignment has largely been driven by environmental constraints and the overall preference identified through comparative analysis as **Alignment Option 1 with alignment diversions 7, 1, 8A, 6A and 5**.

7.6.6 The Preferred Alignment in context with the other options is shown on **Figure 12**, while **Figure 13** shows the Preferred Alignment only.

7.6.7 The Proposed Alignment will require careful consideration during the EIA and Consenting stage of the project. Should further site and desk-based analysis at the EIA and Consenting stage identify a particular constraint, a further review of alignment options may be required.

8. CONSULTATION ON THE ALIGNMENT OPTIONS

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

8.2 Questions for Consideration by Consultees

8.2.1 When providing your comments and feedback, SSEN Transmission would be grateful for your consideration of the questions below:

- Have we explained the need for this Project adequately?
- Have we explained the approach taken to select the Preferred Alignment adequately?
- Are there any factors, or environmental features, that you consider may have been overlooked during the preferred alignment selection process?
- Do you feel, on balance, that the Preferred Alignment selected is the most appropriate for further consideration at the EIA and Consenting stage?

8.3 Next Steps

8.3.1 Virtual online consultation events will be held, as detailed in the preface of this document. The responses received from these consultation events, and those sought from statutory consultees and other key stakeholders, will inform further consideration of the alignment options going forwards, and the identification of a Proposed Alignment to take forward to the next stage in the routeing process (EIA and Consenting).

8.3.2 All comments are requested by **30 July 2021**. A Report on Consultation will be produced which will document the consultations received, and the decisions made in light of these responses.

8.3.3 The subsequent identification and confirmation of an acceptable alignment will form the basis of a Proposed Alignment to take forward into Stage 4: EIA and Consenting. Should further site and desk-based analysis at the EIA and Consenting stage identify a particular constraint, a further review of the Proposed Alignment may be required.

8.3.4 It is anticipated that an application for consent for a proposed alignment will be submitted in July 2022.