

# **Creag Dhubh to Dalmally 275kV Connection**

# **Consultation Document**

Alignment Selection - Connection to Proposed Glen Lochy Switching Station, Creag Dhubh Substation and Project Update.

June 2021





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# GLOSSARY

Term	Definition
Alignment	A centre line of an overhead line route, along with location of key angle structures.
Amenity	The natural environment, cultural heritage, landscape, and visual quality. Also includes the impact of SHE Transmission's works on communities, such as the effects of noise and disturbance from construction activities.
Ancient Woodland	Woodland which has been in continuous existing since before 1750 in Scotland and is important for biodiversity and cultural identity. Ancient semi-natural woodland is Ancient Woodland composed of mainly locally native trees and shrubs that derive from natural seed fall or coppice rather than from planting.
Angle Tower	Support structure (tower or pole) which allows a change in direction of the overhead line.
AOD	Above Ordnance Datum
Baseline Alignment	The Baseline Alignment aims to provide the optimal alignment within the Proposed Route, taking account of engineering criteria as per Table A7 of SSEN Transmission guidance.
ВВ	Balfour Beatty
ввор	Business and Biodiversity Offset Programme
bgl	Below ground level
BNG	Biodiversity Net Gain
СЕМР	Construction Environmental Management Plan
Centre Line	The linear connection between the central point of each support
	structure along the length of the overhead line.
CIEEM	Chartered Institute for Ecology and Environmental Management
CIRIA	Construction Industry Research and Information Association
Circuit	Overhead line or underground cable consisting of multiple conductors, to carry electric current.
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.
DTM	Digital Terrain Model
Environmental Impact Assessment (EIA)	A formal process set down in The Electricity Works (EIA) (Scotland) Regulations 2000 (as amended in 2008) used to systematically identify, predict, and assess the likely significant environmental impacts of a proposed project or development.
Gardens and Designed Landscapes (GDLs)	The Inventory of Gardens and Designed Landscapes lists those gardens or designed landscapes which are considered by a panel of experts to be of national importance.
GEMP	General Environmental Management Plan
GWDTE	Groundwater Dependent Terrestrial Ecosystem
Habitat	Term most accurately meaning the place in which a species lives, but also used to describe plant communities or agglomerations of plant communities.



IEMA	Institute of Environmental Management and Assessment
Indicative Proposed Alignment	An alignment for the overhead line identified following public consultation that is taken forward to EIA and detailed design.
IPA	Important Plant Area
Kilovolt (kV)	One thousand volts.
LOD	Limits of Deviation, an area which defines the practical limits within which micrositing of the OHL infrastructure can occur within the terms of the s37 consent which is to be sought. The purpose of Limits of Deviation is to allow flexibility within a s37 consent for the final micrositing of individual towers to respond to localised ground conditions, topography, engineering, and environmental constraints
Listed Building	Building included on the list of buildings of special architectural or historic interest and afforded statutory protection under the 'Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997' and other planning legislation. Classified categories $A - C(s)$ .
Micrositing	The process of positioning individual structures to avoid localised environmental or technical constraints.
Mitigation	Term used to indicate avoidance, remediation, or alleviation of adverse impacts.
National Scenic Area (NSA)	A national level designation applied to those landscapes considered to be of exceptional scenic value.
Operational Corridor	The area needed for operational maintenance.
OPGW	Optical Fibre Ground Wire
Overhead line (OHL)	An electric line installed above ground, usually supported by lattice steel towers or poles.
PAN	Proposal of Application Notice
Plantation Woodland	Woodland of any age that obviously originated from planting.
Preferred Alignment	An alignment for the overhead line taken forward to stakeholder consultation following a comparative appraisal of route options.
Proposed Alignment	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
Proposed Development	The construction and operation of a new 275 kV double circuit connection between Creag Dhubh and Dalmally (the Proposed Development) comprising:
	<ul> <li>a 13.4 kilometre (km) double circuit 275 kV overhead line (OHL), supported by lattice steel towers between a proposed substation at Creag Dhubh to a new switching station in Glen Lochy adjacent to the existing SPEN 275 kV OHL from Dalmally to Inverarnan;</li> </ul>
	<ul> <li>a new switching station in Glen Lochy on the existing SPEN 275 kV OHL from Dalmally to Inverarnan; and</li> </ul>
	a new substation at Creag Dhubh.
Proposed OHL	The proposed new 275 kV overhead transmission line between the proposed Dalchork substation, Lairg, and Loch Buidhe substation
RAG	Red/Amber/Green, rating applied for the comparative appraisal
Riparian Woodland	Natural home for plants and animals occurring in a thin strip of land bordering a stream or river.
Route	A linear area of approximately 1 km width (although this may be narrower/wider in specific locations in response to identified pinch points / constraints), which provides a continuous connection between defined connection points.



Routeing	The work undertaken which leads to the selection of a proposed alignment, capable of being taken forward into the consenting process under Section 37 of the Electricity Act 1989.
RVA	Residential Visual Amenity
Scheduled Monument	A monument which has been scheduled by the Scottish Ministers as being of national importance under the terms of the 'Ancient Monuments and Archaeological Areas Act 1979'.
Semi-natural Woodland	Woodland that does not obviously originate from planting. The distribution of species will generally reflect the variations in the site and the soil. Planted trees must account for less than 30% of the canopy composition
Sites of Special Scientific Interest (SSSI)	Areas of national importance. The aim of the SSSI network is to maintain an adequate representation of all natural and semi-natural habitats and native species across Britain.
Span	The section of overhead line between two structures.
Special Area of Conservation (SAC)	An area designated under the EC Habitats Directive to ensure that rare, endangered, or vulnerable habitats or species of community interest are either maintained at or restored to a favourable conservation status.
Special Landscape Area (SLA)	Landscapes designated by The Highland Council which are considered to be of regional/local importance for their scenic qualities.
Special Protection Area (SPA)	An area designated under the Wild Birds Directive (Directive74/409/EEC) to protect important bird habitats. Implemented under the Wildlife and Countryside Act 1981.
SSEN Transmission	Scottish and Southern Energy Networks Transmission
Stakeholders	Organisations and individuals who can affect or are affected by SHE Transmission works.
Study Area	The area within which the corridor, route and alignment study takes place.
Substation	Part of the electrical transmission and distribution system that transforms voltage from high to low, or the reverse, before switching to another electricity network.
Switching Station	A central node on the network where multiple lines of the same voltage can connect. Switches allow each line in and out to be controlled without affecting the other lines.
Terminal Structure	A structure (tower or pole) required where the line terminates either at a substation or at the beginning and end of an underground cable section.
The National Grid	The electricity transmission network in the Great Britain.
Volts	The international unit of electric potential and electromotive force.
VP	Vantage Point
Wayleave	A voluntary agreement entered between a landowner upon whose land an overhead line is to be constructed and SSEN Transmission
Wild Land Area (WLA)	Those areas comprising the greatest and most extensive areas of wild characteristics within Scotland.
ZTV	Zone of Theoretical Visibility - the theoretical visibility of a Proposed Development.

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# PREFACE

This Consultation Document has been prepared by Ramboll on behalf of Scottish and Southern Electricity Networks Transmission (SSEN Transmission), to seek comments from all interested parties on the Preferred Alignment selected between Tower 28 and the Proposed Glen Lochy switching station for the Proposed Creag Dhubh to Dalmally 275kV Connection project.

This consultation document consists of three elements:

- Presents the Preferred Alignment selected between Tower 28 and the Proposed Glen Lochy switching station for which SSEN seeks formal<sup>1</sup> comments from all interested parties.
- 2. Provides a status update on the Proposed Glen Lochy switching station including details of minor location and configuration changes. General feedback from all interested parties is welcomed and will be taken into consideration.
- Provides a status update on the Proposed Creag Dhubh substation including details of minor location and configuration changes. General feedback from all interested parties is welcomed and will be taken into consideration.

#### **Creag Dhubh Substation Proposal of Application Notice**

As part of the consultation event we will be formally consulting on Creag Dhubh Substation. This comprises the Proposal of Application Notice (PAN) Pre-Application Consultation process as prescribed by regulations under the Town and Country Planning (Scotland) Act 1997 (as amended). This PAN event has been co-joined with the wider consultation to set the proposals within the wider project context and to manage consultation fatigue due to multiple events in quick succession. The PAN is a statutory process and as such the Creag Dhubh Substation consultation has been clearly identified within the consultation event as a separate element with separate feedback in the context of the Pre-Application Consultation requirements for Town Planning applications. A similar event for Glen Lochy may be required at a later date.

# The Consultation Document is available online at: https://www.ssen-transmission.co.uk/projects/creag-dhubh-dalmally-275kv-connection/

Virtual public consultation events detailing the proposals described in this document will be held at the following times:

Date of Event	Website address to join consultation			
Wednesday 14th July: 10am – 1pm & 5pm - 7pm				
Thursday 15th July: 10am – 1pm & 5pm - 7pm	www.ssen-transmission.co.uk/projects/creag-dhubh- dalmally-275kv-connection/			
Thursday 29th July: 10am – 1pm & 5pm - 7pm				

Comments on this document should be sent to:

Jackie Taylor

Scottish Hydro Electric Transmission PLC

Inveralmond House, 200 Dunkeld Road, Perth, PH1 3AQ

Email: jackie.taylor@sse.com

All comments are requested by Friday 13<sup>th</sup> August.

<sup>&</sup>lt;sup>1</sup> Formal refers to the statutory requirement for consultation under the Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017

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# **EXECUTIVE SUMMARY**

This Consultation Document invites members of the public, statutory consultees, and other key stakeholders to provide comment on the Preferred Alignment selected between Tower 28 and the Proposed Glen Lochy switching station for the proposed Creag Dhubh to Dalmally 275kV Connection project<sup>2</sup>. This Consultation Document also provides an update on the latest proposals for the Creag Dhubh Substation and Glen Lochy Switching Station comprising elements of the wider project.

The Creag Dhubh Substation PAN event has been co-joined with the wider consultation to set the proposals within the project context and to manage consultation fatigue. The PAN is a statutory process and as such the Creag Dhubh Substation consultation has been clearly identified within the consultation event as a separate element with separate feedback<sup>3</sup> in the context of the Pre-Application Consultation requirements for Town & Country Planning applications.

An increase in renewable generation applying to connect to the Argyll and Kintyre network is the primary driver behind a need to reinforce this regional network. The level of generation applying to connect in the Argyll and Kintyre area has continued to increase. Power system studies undertaken to assess the impact of this new generation shows that the capability of the existing network would be exceeded. Therefore, reinforcement is needed to maintain compliance with the standards that we need to plan our network against. Individual projects, like the Creag Dhubh to Dalmally 275 kV connection, are being progressed to provide this additional capacity for new generation connections.

Following the route options appraisal undertaken by Ramboll in August 2020, an approximately 1 km wide Proposed Route (Route Option B1) was established as the starting point for developing an OHL alignment. The OHL design contractor, Balfour Beatty (BB), were instructed by SSEN Transmission to develop a Baseline Alignment for a 275 kV OHL, contained within the extents of the Proposed Route. The information gathered in the site assessment was used to determine the most suitable engineering alignment, hereafter called the 'Baseline Alignment'. The Baseline Alignment aims to provide the optimal alignment within the Proposed Route, taking account of engineering criteria as per Table A7 of SSEN Transmission guidance<sup>4</sup>.

Following the identification of the Baseline Alignment, amendments were suggested (referred to as 'deviations'). The following deviation options were suggested to address environment and engineering issues and previous consultation:

- Deviation GL1: This deviation option was chosen to minimise potential setting impacts on Scheduled Monument SM5149 and reduce the loss of blanket bog habitat (Annex 1 habitat).
- Deviation GL2: This deviation option was chosen to reduce visual impacts from Blarchaorain property and reduce potential setting impacts on Scheduled Monument SM5149.
- Deviation GL3: This deviation option was chosen to reduce the extent of commercial tree felling and woodland fragmentation, as well as reducing potential visual and setting impacts, as described in GL2.
- Deviation GL4: This deviation option was also chosen to reduce the extent of commercial tree felling and woodland fragmentation.
- Deviation GL5: This deviation option was chosen to reduce the loss of Ancient Woodland and blanket bog. GL5 also provides a slight improvement to visual receptors (Brackley and Glenview).

This report presents a summary of the comparative analysis of environment, engineering and cost criteria of the five alignment options and the baseline alignment. **Overall, a combined alignment of the Baseline Alignment plus GL5 is the Preferred Alignment.** 

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 in response to questions set out in Section 6. A Report on Consultation will be produced which will document the consultations received, and the decisions made considering these responses.

<sup>&</sup>lt;sup>2</sup> Project Details available at: https://www.ssen-transmission.co.uk/projects/creag-dhubh-dalmally-275kv-connection/

 $<sup>^{3}\</sup> https://www.ssen-transmission.co.uk/talk-to-us/feedback/creag-dhubh-substation-july-2021-feedback-form/$ 

<sup>4</sup> SSEN, 2020. Procedures for Routeing Overhead Lines and Underground Cables of 132kV and above. Document reference: PR-NET-ENV-501. September 2020



# 1. INTRODUCTION

#### 1.1 Background

SSEN Transmission is proposing to construct and operate a 275 kV connection between Creag Dhubh and Dalmally (the Proposed Development) comprising:

- a 13.4 kilometre (km) double circuit 275 kV overhead line (OHL), supported by lattice steel towers between a proposed substation at Creag Dhubh to a new switching station in Glen Lochy adjacent to the existing Scottish Power Energy Networks (SPEN) 275 kV OHL that runs from Dalmally to Inverarnan;
- 2. a new switching station in Glen Lochy; and
- 3. a new substation at Creag Dhubh.

The Proposed Development is illustrated in Annex A, Figure 1.1 and Figure 1.2.

SSEN Transmission has previously developed a Preferred Alignment for the new 275 kV OHL between Creag Dhubh substation and Tower 33. This alignment was selected following survey, assessment, and consultation in March 2018<sup>5</sup>. Following this, SSEN completed a Route Selection Study<sup>6</sup> between Tower 33 and the proposed Glen Lochy Switching Station. The preferred Route Option (Route Option B1) and Switching Station Site (Site 6) were selected following survey, assessment, and consultation in September 2020 (as documented in the Report on Consultation, November 2020)<sup>7</sup>. A brief overview of the project progress and consultation undertaken since March 2016 is illustrated in **Diagram 2.1**.

#### 1.2 Purpose of the Document

The overall purpose of this document is to inform a co-joined consultation event covering the three project elements summarised below and is intended to aid the overall project understanding for interested parties as well as allowing for potential cumulative effects to be understood.

Supplementary to this purpose, reference is made to the separate, but linked, pre-application consultation being undertaken for Creag Dhubh substation. A proposal of application notice (PAN) for Creag Dhubh was submitted to the Council on 10<sup>th</sup> June 2021. The public consultation events for the wider project are being co-joined with the PAN main event. The PAN main event is a statutory requirement of the planning process and will be clearly identified as such and separate feedback forms / routes will be identified.

#### 1.2.1 Tower 28 to Glen Lochy Switching Station – Alignment Options Consultation

This Consultation Document describes the different alignment deviation options (GL1-GL5) and invites interested parties to provide their views on the Preferred Alignment selected between T28 and the new Glen Lochy switching station (**Annex A, Figure 3.5**). Alignment deviations discussions held by SSEN Transmission on 5th March 2021 identified options back to T28 to allow deviations that, subject to further assessment, were considered to offer improvements to Residential Visual Amenity (RVA), backclothing and shorter or straighter alignments.

All comments received will inform further consideration of the Preferred Alignment and the selection of the Indicative Proposed Alignment, which will be taken forward for more detailed environmental and technical assessment prior to submission of an application for consent under section 37 of the Electricity Act 1989, as amended (hereafter referred to as s37 consent).

#### 1.2.2 Creag Dhubh Substation and Glen Lochy Switching Station

Glen Lochy switching station (Annex A, Figure 4.2) and Creag Dhubh substation (Annex A, Figure 5.1) will be the subject of separate applications for consents (under the Town and Country Planning (Scotland) Act 1997 Act, as amended). The

<sup>&</sup>lt;sup>5</sup> SSEN Transmission (2018). Alignment Consultation Document - Creag Dhubh substation to Dalmally substation 275kV Overhead Line: Available at Creag Dhubh - Dalmally 275kV Connection (ssen-transmission.co.uk).

<sup>&</sup>lt;sup>6</sup> SSEN Transmission 2020. North Argyll 275 kV Overhead Line Reinforcement (LT29) - Environmental Routing Study.

<sup>7</sup> SSEN Transmission 2020. Report on Consultation Craig Dhubh to Dalmally 275kV Connection. November 2020. Available at: https://www.ssentransmission.co.uk/projects/creag-dhubh-dalmally-275kv-connection/ [Accessed 07 April 2021]



preferred sites for the switching station and substation have previously been identified through SSEN's site selection process (See Chapter 4 & 5) and both sites have undergone public consultation

Comments are sought in respect of subsequent minor site and configuration amendments that have been updated since previous consultation.

#### 1.2.3 Creag Dhubh Substation Proposal of Application Notice

The inclusion of Creag Dhubh Substation as a separate entity in the formal consultation event comprises the main public consultation event as part of the statutory Proposal of Application Notice (PAN), which is required, as the proposals qualify as a major application through the Town and Country Planning (Hierarchy of Development) (Scotland) Regulations 2009. This PAN event has been co-joined with the wider consultation to set the proposals within the wider project context and to manage consultation fatigue due to multiple events in quick succession. The PAN is a statutory process and as such the Creag Dhubh consultation has been clearly identified within the consultation event as a separate element with separate feedback<sup>8</sup> (https://www.ssen-transmission.co.uk/talk-to-us/feedback/creag-dhubh-substation-july-2021-feedback-form/)in the context of the Pre Application Consultation requirements for Town Planning applications. A similar event for Glen Lochy may be required at a later date.

#### 1.3 Document Structure

This report is comprised of six sections as follows:

- 1. **Introduction** provides a summary of the project background, sets out the purpose of the Consultation Document and provides the document structure;
- 2. Project Overview describes project need, summarises the Proposed Development and the project history;
- 3. Alignment Option Selection a summary of the environmental, engineering and cost topics, followed by a comparative analysis summary of the Baseline Alignment and each alignment deviation (GL1-GL5) and identification of the Preferred Alignment;
- 4. Glen Lochy Switching Station provides a baseline description and a summary of the site selection process and identification of the Preferred Site;
- 5. **Creag Dhubh Substation** provides a baseline description and a summary of the site selection process and identification of the Preferred Site;
- 6. **Consultation on the Proposals** invites comments on the Preferred Alignment and Glen Lochy Switching Station and Creag Dhubh Substation Preferred Sites and describes the next steps.

The main body of this document is supported by a series of Figures and Annexes, as follows:

- Annex A: Figures and Diagram
- Annex B: Alignment Selection Process Overview of methodology
- Annex C: RVAA Photowires/Wirelines (Available on request)
- Annex D: Cultural Heritage Photowires/ Wirelines (Available on request)
- Annex E: Scottish Woodlands Report (Available on request)
- Annex F: OHL Alignment RAG Comparative Analysis
- Annex G: Further Survey Work

All annexes not included in this report can be requested from SSEN Transmission via Jackie Taylor - jackie.taylor@sse.com

<sup>&</sup>lt;sup>8</sup> https://www.ssen-transmission.co.uk/talk-to-us/feedback/creag-dhubh-substation-july-2021-feedback-form/



# 2. PROJECT OVERVIEW

#### 2.1 Project Need

SSEN Transmission owns and operates the electricity transmission network infrastructure in the north of Scotland. As part of its Electricity Transmission Licence, it has a number of obligations, including:

- the development and maintenance of an efficient, coordinated, and cost effective system of electricity transmission;
- facilitating competition in the supply and generation of electricity; and
- ensuring that the security of the network is maintained as the demand and/or generation connections change over time.

These licence obligations mean that SSEN Transmission must endeavour to connect generation to the network, and should do so in an efficient, coordinated, and cost effective way. An increase in renewable generation applying to connect to the Argyll and Kintyre network is the primary driver behind a need to reinforce this regional network. The level of generation applying to connect in the Argyll and Kintyre area has continued to increase, particularly within the past 12 months. Power system studies undertaken to assess the impact of this new generation shows that the capability of the existing network would be exceeded. Therefore, reinforcement is needed to maintain compliance with the standards that we need to plan our network against. Individual projects, like the Creag Dhubh to Dalmally 275 kV connection, are being progressed to provide this additional capacity for new generation connections.

#### 2.2 Proposed Development

The Proposed Development will comprise of a 13.4 km double circuit 275 kV OHL and supporting structures connecting a proposed substation at Creag Dhubh to a new switching station in Glen Lochy. The proposed OHL, substation and switching station will be the subject of separate applications for consent and therefore, each have been summarised below. All elements of the Proposed Development are illustrated in **Annex A, Figure 1.1** and **Figure 1.2**.

#### 2.2.1 Indicative OHL Design

The new OHL will be constructed using self-supporting fabricated galvanised steel lattice towers, L8(c) series (**Plate 2.1**), that are on average 50 metres (m) high and separated by an average distance of 280 m.







Proposed L8 (c) Tower Suite

#### Plate 2.1: Transmission Tower Design

The spacing (span length) between towers and the tower height would vary depending on environment and engineering constraints with maximum height of approximately 60 m and maximum span length of 350 m. Each tower would carry two circuits, with three horizontal cross arms on each side of the tower, each carrying an insulator string and two conductors. An earth wire, containing an optical fibre ground wire (OPGW), would be strung between the tower peaks.

Ancillary works will be required for the construction and maintenance of the OHL. This will include tree and vegetation clearance; upgrades of existing or new junction bell-mouths and access tracks; and road and other infrastructure (bridges, culverts etc.) alterations.

Construction of the Proposed Development would require the removal of sections of commercial forestry and broadleaved woodland for the creation of an operational corridor. The width of the corridor would be variable depending on the nature of the woodland; however, it is assumed that an average corridor of 80 m would be required (40 m either side of the tower centre line). In addition, minor vegetation management and felling may be required around the existing access track network to provide sufficient width.

It is anticipated that permanent access will be required for all angle towers and tension towers. Where possible, existing tracks will be used or upgraded. In other locations (e.g. to access section towers), it is anticipated that new temporary tracks would be installed. Floating stone road or trackway panel construction may be installed in sensitive areas such as over peat, depending on the sensitivity of constraints identified and the engineering feasibility of installing this type of track.

It is anticipated that construction would commence in 2023 (subject to consents and approvals being granted). A provisional construction period of 24 months is anticipated, with energisation of the project scheduled for 2025.



#### 2.2.2 Glen Lochy Switching Station

This switching station is currently at the design stage and is being progressed in parallel to the proposed OHL. project. A location plan is presented in **Plate 2.2**. The switching station will connect the proposed OHL with the existing SPEN 275 kV overhead line between Dalmally and Inverarnan Substation. The switching station will create a central node on the network where multiple lines of the same voltage can connect. Switches at this location will allow each line in and out to be controlled without affecting the other lines.



Plate 2.2: Indicative Glen Lochy Switching Station Platform Layout Plan

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#### 2.2.3 Creag Dhubh Substation

This substation is currently at the design stage (**Plate 2.3**) and is being progressed in parallel to the proposed OHL. The proposed substation will connect the existing 132 kV network between Inveraray to Taynuilt. It will also connect to the existing Dalmally 275 kV substation via the new OHL, to allow connection to the wider electricity network.



Plate 2.3: Indicative Creag Dhubh Substation Layout Plan

#### 2.3 Project History

The Proposal outlined above is currently at two stages of development. A Preferred Alignment and preferred substation location was selected following survey, assessment, and consultation in March 2018<sup>9</sup> (Annex A, Figure 1.1) for the new 275 kV OHL between Creag Dhubh substation and Tower 33.

Starting at Tower 33, a preferred route (Route Option B1) was identified (**Annex A, Figure 1.1**) between Tower 33 and the proposed Glen Lochy Switching Station (Site 6). This Route Option and Switching Station Site were selected following survey, assessment, and consultation in September 2020<sup>10</sup>.

Subsequently, an alignment selection process has been undertaken between Tower 28 and Glen Lochy Switching Station and a Preferred Alignment (GL5) has been identified (Annex A, Figure 1.2 and Figure 3.5).

The Indicative Proposed Alignment for the full length of the OHL will be developed following this consultation and will be assessed within the EIA Report prepared to accompany the application for s37 consent.

<sup>&</sup>lt;sup>9</sup> SSEN Transmission 2018. Consultation Document – Alignment Selection Creagh Dhubh Substation to Dalmally Substation 275kV Overhead Line. Available at: https://www.ssen-transmission.co.uk/media/4686/lt29-alignment-consultation-document-creag-dhubh-substation-to-dalmally-substation-275kv-overhead-line-2018.pdf [Accessed 28 April 2021]

<sup>&</sup>lt;sup>10</sup> SSEN Transmission 2020. Report on Consultation Craig Dhubh to Dalmally 275kV Connection. November 2020. Available at: https://www.ssentransmission.co.uk/projects/creag-dhubh-dalmally-275kv-connection/ [Accessed 28 April 2021]

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Separate applications for consent for the Creag Dhubh substation and Glen Lochy Switching Station will be submitted under the Town and Country Planning (Scotland) Act 1997, as amended by the Planning etc. (Scotland) Act 2006. Environmental Appraisals will be prepared to accompany these applications for consent, subject to the screening process that will be undertaken in summer 2021<sup>11</sup>.

A brief overview of the project progress and consultation undertaken since March 2016 is illustrated in Diagram 2.1 below.



#### **Diagram 2.1: Project History and Consultations**

#### September 2020

#### Virtual Consultation

#### Three options presented

- for consultation: 1. an overhead line from
- Creag Dhubh to the existing Dalmally substation (preferred solution from 2018),
- an underground cable connection to the existing
- Dalmally substation; and 3. an alternative overhead
- line connection location east of Dalmally and new Switching Station.

#### November 2020

#### **Report on Consultation**

Following public consultation, we publish our Report on Consultation, confirming the preferred option as Option 3: Glen Lochy Overhead Line and Switching Station. Since then, site work has been ongoing to determine alignments for the overhead line, and locations for the substation and switching station.



#### Summer 2021

#### Virtual Consultation

Updates provided on Creag Dhubh Substation and Glen Lochy Switching Station. Views sought on overhead line alignment from Tower 28 (on the preferred 2018 alignment) to Glen Lochy Switching Station and Proposal of Application Notice (PAN) process commences for Creag Dhubh Substation.

<sup>&</sup>lt;sup>11</sup> The preparation of an Environmental Appraisal, instead of an EIA Report, is under the assumption the Screening Opinion confirms the proposed substation and switching station do not constitute EIA developments.



# 3. ALIGNMENT OPTIONS AND COMPARATIVE APPRAISAL

#### 3.1 Introduction

This section summarises the approach used to identify the OHL alignment options and explains how the Preferred Alignment was selected. The OHL Alignment Options considered by SSEN Transmission include the Baseline Alignment and five deviation options (GL1-GL5) from the Baseline Alignment (see **Annex A, Figures 3.1 - 3.5**).

The methodology for the alignment selection process, including the comparative analysis and selection of the preferred option, is presented in **Annex B**.

#### 3.2 Identification of Baseline Alignment

Following the route options appraisal undertaken by Ramboll in August 2020 and consultation (Sept 2020), an approximately 1 km wide environmentally Preferred Route (Route B1) was established as the starting point for developing an OHL alignment. This route is taken to be the 'Proposed Route' according to the SSEN Transmission OHL Routing Guidance<sup>12</sup>.

Balfour Beatty (BB) were instructed by SSEN Transmission to produce a Baseline Alignment for a 275 kV OHL, contained within the extents (T28-T47) of the Proposed Route. BB carried out engineering assessments to review the Proposed Route and produce an alignment through the following steps:

- An initial desktop analysis allowed provisional angle points to be selected and marked on maps.
- Provisional ground lines and elevations were reviewed using Digital Terrain Model (DTM) data.
- An on-site walk over assessment of the initial alignment and angle points was made to investigate, photograph and record the locations (via hand held GPS) of key features including buildings, roads, public footpaths, water bodies, existing service markers, existing Low Voltage (LV) and High Voltage (HL) overhead lines and other infrastructure that may require specific clearance from the proposed OHL.

The information gathered in the site assessment was used to determine the most suitable engineering alignment, hereafter called the 'Baseline Alignment'. The Baseline Alignment aims to provide the optimal alignment within the Proposed Route, taking account of engineering criteria as per Table A7 of SSEN Transmission guidance<sup>13</sup> (Annex B, Table B1). The Baseline Alignment is shown in Figure 1.1, Annex A.

Subsequent to the identification of the Baseline Alignment a workshop was convened in March 2021 involving SSEN Transmission and our environmental consultant (Ramboll) to discuss the Baseline Alignment and to identify the deviations that should be considered in identifying the Preferred Alignment which offer localised improvements to sensitive receptors along T28 to T47 of the Baseline Alignment, including cultural heritage receptors (e.g. Duncan Ban Monument, Category B Listed Building), landscape and visual receptors (Including Blarchaorain and Brackley), ornithological receptors (e.g. black grouse) and designated habitats, such as Ancient Woodland and blanket bog (Annex 1).

#### 3.3 Alignment Options Analysis

Applying these principles, five deviations (GL1-GL5) were identified for further assessment, which were further reviewed during an alignment workshop held in March 2021 between representatives from Ramboll (environment) and SSEN Transmission (cost, engineering, consenting and environment). Four of the deviations (GL1-GL4) extend south west of T33 and include options between T28 and T31. The following sections provide a description and further information on the Baseline Alignment and proposed five deviations (GL1-GL5) from the Baseline Alignment and the reasoning for their suggestion.

 <sup>&</sup>lt;sup>12</sup> SSEN, 2020. Procedures for Routeing Overhead Lines and Underground Cables of 132kV and above. Document reference: PR-NET-ENV-501. September 2020.
 <sup>13</sup> SSEN, 2020. Procedures for Routeing Overhead Lines and Underground Cables of 132kV and above. Document reference: PR-NET-ENV-501. September 2020.



The reasoning for these deviations has been supported by the following information:

- Preparation of photowires/wirelines (Annex C) showing tower locations based on 4 x SSEN alignment options (GL1, GL2, GL3, GL5)<sup>14</sup>. This provided an understanding of the visual impacts within the Blarchaorain and Brackley areas.
- Preparation of photowires/wirelines (Annex D) from Tom a'Chaisteil Dun Scheduled Monument, showing 4 x SSEN alignments (GL1, GL2, GL3, GL5)<sup>15</sup>. These were produced to illustrate views of the five deviations from Tom a'Chaisteil Dun SAM. This allowed a more detailed understanding of any potential impacts on the setting of the SAM.
- Scottish Woodlands Report (Annex E) discusses the impact to forestry and amenity woodland within and directly adjacent the proposed operation corridor.

Annex C-E are available on request and further details of each alignment deviation are discussed in Section 3.5.

#### 3.4 Baseline Description

3.4.1 Environment Baseline

The Baseline Alignment is located approximately 3.5 km south east of Ben Lui SSSI, 1 km south east of Glen Etive and Glen Fyne SPA and 3.5 km south east of Ben Lui SAC.

The Baseline Alignment commences at T28, approximately 200 m south west of Tom a'Chaisteal, Dun (SAM4209) and 200 m north of and Dychlie Deserted Crofts (SAM5149). The alignment then runs on a sharp north east trajectory until T33, intersecting a small area of Ancient Woodland and an approximate 1.2 km section of commercial plantation (between T29 and T30). Blarchaorain property is situated approximately 600 m south-east of T29 and T30. Tower 30 forms a prominent element in the view from Blarchaorain. Existing woodland vegetation provides screening/ filtering of views of other towers.

From T33 the alignment then runs in a straight trajectory, angled slightly to the north east for approximately 2.5 km until connecting to T41. Vantage Point (VP) surveys conducted by Ramboll (October 2019- October 2020) recorded low levels of flight data from target species, including white-tailed eagle *Haliaeetus albicilla*, black grouse *Tetrao tetrix*, merlin *Falco columbarius*, and hen harrier *Circus cyaneus*. A black grouse Lek is located approximately 100 m from the Baseline Alignment (T36), illustrated on **Figure 3.8, Annex A**.

The central portion (between T38-T39) of the alignment goes through wet modified bog and clips approximately 328 m of Annex 1 Blanket bog habitat (**Figure 3.9, Annex A**). T40 is approximately 300 m north west of Auchtermally or Uachdar Mhaluidh, Deserted Township (SAM4019). An area approximately 2.2 ha of Ancient Woodland (of semi natural origin) would be lost directly north of Uachdar Mhaluidh. Woodland habitat present within the Baseline Alignment is suitable for protected species such as bats, pine marten *Martes martes,* badger *Meles meles,* and red squirrel *Sciurus vulgaris.* Watercourses, and associated riparian habitats, which intersect the Baseline Alignment are suitable to support protected species such as otter *Lutra lutra* and water vole *Arvicola amphibius.* 

From T41 the Baseline Alignment follows a straight easterly trajectory until T47, intersecting small areas of Ancient Woodland between T45-T46 and at T47. Brackley Farm is located approximately 200 m north of T44. At its closest point (T45-T46) the Baseline Alignment is approximately 1 km south east of Glen Etive and Glen Fyne Special Protection Area (SPA). The Baseline Alignment crosses five tributaries of the River Orchy including three named tributaries (Allt an Daimh, Allt Haloid and Allt Fhunaran) at T29, T37, T40, T44, and T47.

The key environmental constraints are illustrated on Figure 3.7, Annex A and further details on the environmental baseline are provided in Annex F.

15 As above, GL4 was not included as it follows the Baseline Alignment between T28-T31, therefore views from the Tom a'Chaisteal, Dun (SAM4209) would not change.

<sup>&</sup>lt;sup>14</sup> GL4 was not included as it follows the Baseline Alignment between T28-T31, therefore views from Blarchaorain would not change. From T31 to T36 views from Blarchaorain are then screened by woodland and therefore unlikely to result in any significant visual impact.





Plate 3.1: Figure 1.1: Baseline Alignment (Annex A)

#### 3.4.2 Engineering Baseline

The Baseline Alignment and the alignment deviations have been established and technically assessed following the SSEN Guidance<sup>16</sup> and following the assessment carried out by BB. The shortest connection/alignment which avoids or minimises interaction with the environmental constraints which remain within the route and challenging ground forms the Preferred Alignment.

#### 3.4.3 Cost Baseline

The baseline total cost of the project includes the 47 new OHL towers, the Creag Dhubh substation and the Glen Lochy switching station. The total project budget is not provided in this document because the details are commercially confidential. The cost comparison of the baseline with the assessed alignment deviations will be provided on a percentage basis, following SSEN Guidance<sup>17</sup>. The lowest cost alignment forms the baseline cost.

 $<sup>^{16}</sup>$  Procedures for Routeing Overhead Lines and Underground Cables of 132kV and above PR-NET-ENV-501 v2

 $<sup>^{17}</sup>$  Procedures for Routeing Overhead Lines and Underground Cables of 132kV and above PR-NET-ENV-501 v2



#### 3.5 Comparative Alignment Analysis

A total of five deviations have been considered in the comparative assessment. Four of the deviations (GL1-GL4) extend south west of T33 and include options between T28 and T31 (as described in Chapter 1). The description of each deviation is supported by a figure (see **Figures 3.1 to 3.5, Annex A**), with an overview of all deviations shown in **Figure 3.6**. The figures illustrate the deviation options considered against the Baseline Alignment. **Figure 3.7** illustrates the key constraints, upon which the decision regarding an overall preference was made.

#### 3.5.1 Deviation GL1, Figure 3.1

This deviation option was proposed to reduce the impact on Class 2 peatland habitat, including areas of blanket bog (Annex 1 habitat), as well as reducing potential setting impacts on Scheduled Monument SM5149 (**Annex D**). Between T34 and T40, GL1 moves north from the Baseline Alignment into the plantation woodland, which also offers some screening.

#### 3.5.2 Deviation GL2, Figure 3.2

This deviation option was proposed to reduce potential setting impacts on Scheduled Monument SM5149 (**Annex D**) as well as reducing any visual impacts from Blarchaorain property (**Annex C**). GL2 is also set further back than the Baseline Alignment between T28 (this option would make T28 an angle instead of T29) and T33, which provides further woodland screening.

#### 3.5.3 Deviation GL3, Figure 3.3

This deviation option was proposed to reduce potential visual and setting impacts, as above (**Annex C&D**). As GL3 cuts straight across between T31 to T36, it would also result in a smaller area of woodland fragmentation. GL3 would be a lower cost option compared to the Baseline Alignment.

#### 3.5.4 Deviation GL4, Figure 3.4

This deviation option was proposed to straighten up the Baseline Alignment and bring it closer to the edge of the woodland, reducing the loss of commercial woodland and fragmentation. GL4 would also be a lower cost option compared to the Baseline Alignment.

#### 3.5.5 Deviation GL5, Figure 3.5

This deviation option was proposed to reduce the loss of Ancient Woodland between T45 to T46 (**Annex E**). GL5 reduces the loss of blanket bog (Annex 1) and slightly reduce impacts on areas of Rig and Furrow found scattered throughout between towers T40 and T45. GL5 also provides a slight improvement to visual receptors (Brackley and Glenview) (**Annex C**).

#### 3.5.6 RAG Comparative Analysis

To select a Preferred Alignment a comparative appraisal of the environmental, engineering, and cost sensitivities and risks was undertaken for each option in accordance with the methodology set out in SSEN Transmission guidance<sup>18</sup>. The guidance states that each environmental topic (as well as topics within the engineering and cost categories) should be considered in terms of the potential for the development to be constrained with a Red/Amber/Green (RAG) rating applied as appropriate.

<sup>&</sup>lt;sup>18</sup> SSEN Transmission (2020) Procedures for Routeing Overhead Lines and Underground Cables of 132kV and above, PR-NET-ENV-501, REV 2.00;



Performance	Comparative Appraisal
Most Preferred	Low potential for the development to be constrained
	G = Green
	Intermediate potential for the development to be constrained A = Amber
	High potential for the development to be constrained
•	R = Red
Least Preferred	

The RAG rating criteria are contained within **Annex B**. The OHL Alignment RAG Comparative Analysis is presented in **Annex F**, which summarises the RAG rating for environmental, technical, and cost characteristics for each option (**Tables C1-C3**) as well as providing a detailed environmental comparative analysis (**Tables C4-C8**).

For ease of reference the RAG ratings for the environment and engineering comparative analysis are provided below (see Tables C1 and C3). From a cost perspective the differences were marginal resulting in all options receiving a green rating.

	RAG	RAG Impact Rating														
Natural Heritage			Cu He	ıltural eritage	People	Lan and	dscaj Visu	pe Ial	Lá	and U	se	Plan	ining			
Alignment options	Designations	Protected Species	Habitats	Ornithology	Hydrology / Geology	Designated Assets	Non-designated Assets	Proximity to	Designations	Character	Visual	Agriculture	Forestry	Recreation	Policy	Proposals
Baseline	А	A	А	А	G	А	G	A	G	G	G	G	A	G	A	A
GL1	А	А	А	G	G	А	G	А	G	G	G	G	А	G	А	А
GL2	А	А	А	А	G	А	G	А	G	G	G	G	А	G	А	А
GL3	А	А	А	А	G	А	G	А	G	G	G	G	А	G	А	А
GL4	А	А	А	А	G	А	G	А	G	G	G	G	А	G	А	А
GL5	А	А	А	А	G	А	G	А	G	G	G	G	А	G	А	А

#### Table C1: Summary of Environmental RAG Ratings



#### Table C3: Alignment Options Engineering Comparison Table

Alignment Options	RAG Impact Rating - Engineering									
	Infrastructu	re Crossing	Ground Con	dition	Construction and Maintenance	Proximity				
	Major Crossings	Road Crossings	Terrain	Peat	Angle Towers	Clearance Distance				
Baseline	G	G	A	R	G	G				
GL1	G	G	А	G	R	G				
GL2	G	G	A	R	R	G				
GL3	G	G	А	R	R	G				
GL4	G	G	A	R	R	G				
GL5	G	G	A	R	G	G				

A summary of the comparative appraisal between each deviation options (GL1-GL5) and the Baseline Alignment for environment, engineering, and cost, is presented In **Table 3.1** below. The rationale for the selection of the Preferred Alignment is discussed in Section 3.6.

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#### Table 3.1: Summary of Comparative Appraisal

Alignment Deviation (GL1- GL5)	Comparison Summary
GL1	Environment
	In relation to Annex 1 habitats GL1 is slightly preferable as it would reduce the area of Class 2 peatland habitat crossed by the alignment by approximately 1.3 km, including an area of blanket bog (an Annex 1 habitat with potential to be restored).
	In relation to habitat loss and fragmentation on protected species, the Baseline Alignment is preferable as GL1 Intersects a greater area (8.5 ha increase) of coniferous plantation woodland (Annex E), reducing the foraging and nesting habitat available for pine martin and red squirrel.
	In relation to breeding bird disturbance, GL1 is preferable as it is located further north of the black grouse lek (approximately 500 m), the minimum distance recommended (Nature Scot) to avoid disturbance. However, any disturbance issues could be easily mitigated.
	In respect of the setting of the Tom A'Chaisteal Dun (SAM4209), the Baseline Alignment would be preferred due to the close proximity of GL1, approximately 114 m away.
	On balance there is no significant environmental difference between the Baseline and GL1. When considering the potential impacts on blanket bog could be mitigated through micrositing and disturbance to the Black grouse lek site can be mitigated through management of construction activities, <b>the Baseline Alignment would be slightly preferable</b> .
	Mitigation Opportunity – Between T34 to T40 the alignment could be moved further south, closer to the edge of the woodland, thereby reducing forestry loss and fragmentation whilst still reducing the impact on blanket bog and maintaining a greater distance from the Black grouse lek.
	Engineering
	Angle towers and terrain are assessed as red and amber respectively against the engineering appraisal RAG criteria. However, there is little difference in the number of angle tower numbers when compared to the Baseline Alignment.
	GL1 avoids a large part of the peated area, giving it a potential advantage against the all the other options. However, ground conditions in the GL1 area are unknown and could potentially have the same risk as the rest of the alignment options. Accordingly, there is no clear preference between GL1 and the other alignment options Baseline Alignment.
	Cost
	GL1 has a 17 % greater cost than the lowest cost options in Tree Felling and Consents Mitigations. Assessed against the other criteria, GL1 has a 1 % greater cost than the lowest cost options in the criteria for Capital, Land Assembly, Inspections and Maintenance. Accordingly, the Baseline Alignment would be preferable.
GL2	Environment
	In respect of the setting of the Tom A'Chaisteal Dun (SAM4209), the Baseline Alignment would be preferred due to the close proximity of GL2, approximately 95 m away (Annex D).
	In relation to residential visual amenity (Annex C), GL2 is slightly preferable to the Baseline Alignment due to its lower positioning in the view, the backclothing provided by topography and slightly greater woodland screening provided as a result of being further set back within the woodland between T28 and T33.
	As per the Baseline Alignment, GL2 is also located approximately 100 m away from of a black grouse lekking site. However, this would be a temporary construction impact that could be mitigated against.

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Alignment Deviation (GL1- GL5)	Comparison Summary
	On balance there is no significant environmental difference between the Baseline Alignment and GL2. When balancing the potential impacts of GL2 on the setting of Tom A'Chaisteal Dun (SAM4209) against the slight improvements to residential visual amenity which could be even less if T30 of the Baseline Alignment was micro sited to the north to increase backclothing) <b>the Baseline Alignment would be slightly preferable.</b>
	Mitigation Opportunity – micrositing of Tower 30 could be undertaken to achieve a position that increases backclothing of the tower and offers visual improvements in the view from Blarchaorain.
	Engineering
	Similar to the Baseline Alignment, terrain and peat are assessed as amber and red respectively against the engineering appraisal RAG criteria. Angle towers are also assessed as red; however, there is little difference in the number of angle tower numbers between the options.
	Accordingly, there is no clear preference between GL2 and the Baseline Alignment.
	Cost
	GL2 has a 2 % greater cost than the lowest cost options in the criteria for Tree Felling, Land Assembly, Consents Mitigations; GL2 is equal to the lowest cost options in the other criteria.
GL3	Environment
	In respect of the setting of the Tom A'Chaisteal Dun (SAM4209), the Baseline Alignment would be preferred due to the close proximity of GL3, approximately 98 m from the Tom A'Chaisteal Dun (SAM4209).
	In relation to residential visual amenity (Annex C), GL3 is slightly preferable due to its lower positioning in the view, the backclothing provided by topography and slightly greater woodland screening provided as a result of being further set back within the woodland between T28 and T33.
	As per the Baseline, GL3 is situated within 100 m of a black grouse lekking site. However, this would be a temporary construction impact that could be mitigated against
	On balance there is no significant environmental difference between the Baseline Alignment and GL3. When balancing the potential impacts of GL3 on the setting of Tom A'Chaisteal Dun (SAM4209) against the slight improvements to residential visual amenity (which could be even less if T30 of the Baseline Alignment was micro sited to avoid being skylined), <b>the Baseline Alignment would be slightly preferable</b> .
	Mitigation Opportunity – micrositing of Tower 30 could be undertaken to achieve a position that increases backclothing of the tower and offers visual improvements in the view from Blarchaorain.
	Engineering
	There is <b>no clear preference</b> between GL3 and the Baseline Alignment.
	Cost
	GL3 is the lowest cost option of the six alignment options in all criteria and is therefore preferable when compared to the Baseline Alignment.

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Alignment Deviation (GL1- GL5)	Comparison Summary
GL4	Environment
	GL4 would result in a 1.3 ha reduction in loss of commercial plantation, beneficial to protected species. However, GL4 would result in a slight increase in the area of blanket bog (Annex 1) impacted (22 m) compared to the Baseline Alignment, which could be reduced through micrositing.
	For all other topics, any changes in comparison to the Baseline Alignment are marginal and are not deemed significant.
	As per the Baseline, GL4 is within 100 m of a black grouse lekking site. However, this would be a temporary construction impact and could be mitigated against. On balance there is no clear environmental preference between the Baseline Alignment and GL4.
	Engineering
	Same as GL2. There is no clear preference between GL4 and the Baseline Alignment.
	Cost
	GL4 is the lowest cost option of the six alignment options in all criteria and is therefore preferable when compared to the Baseline Alignment.
GL5	Environment
	In respect of Ancient Woodland felling (Annex E), GL5 is slightly preferable as the alignment would run along the edge of the commercial conifer plantation to Tower 47 and drastically reduce the scale of the Ancient Woodland felling (0.8 ha less than the baseline).
	In relation to Annex 1 habitats, GL5 would be marginally preferable with the smallest overall loss of blanket bog (Annex 1), providing more opportunity for restoration.
	As per the Baseline, GL5 is within 100 m of a black grouse lekking site. However, this would be a temporary construction impact and could be mitigated.
	In relation to residential visual amenity, GL5 is slightly preferable as a result of setting the OHL alignment further from the properties (i.e. Brackley) and reduced scale of felling when compared to the Baseline Alignment would allow for greater woodland screening from Brackley and Glenview (Annex C).
	Therefore, on balance GL5 is deemed to be preferable when compared to the Baseline Alignment.
	Engineering
	Same as the Baseline Alignment. There is <b>no clear preference</b> between GL5 and other alignment options.
	Cost
	GL5 has a 7 % greater cost than the lowest cost options in Tree Felling and Consents Mitigations. Accordingly, the Baseline Alignment would be preferable.



#### 3.6 Preferred Alignment

From an environment perspective, on balance GL5 would be the preference as it would greatly reduce the loss of Ancient Woodland in comparison to the Baseline Alignment (**Annex E**), has the lowest impact on blanket bog habitat, as well as providing a slight improvement to visual receptors (Brackley and Glenview) (**Annex C**).

Mitigation opportunity was identified to microsite T30 to gain visual improvements from the Blarchaorain property and early investigations show that this can be achieved. The extent of the tower move will be subject to further site investigation and detailed design.

The Preferred Alignment is closer to the black grouse lek compared with GL1; however, mitigation could be put in place to reduce disturbance to the black grouse lek during construction.

In respect of engineering considerations, the number of angle towers and peat are the main categories that differentiates each alignment. However, the lower number of angle towers for the Baseline Alignment and GL5 is not of any significance in the RAG assessment. In respect of avoiding peated areas, GL1 could have the same risk as the other alignment options as it runs through existing forestry with unknown ground conditions but is also anticipated to be planted on areas of peat. Accordingly, there is no clear preference between all options.

From a cost perspective, GL3 and GL4 have the lowest cost for all criteria, albeit marginal.

**Therefore, the Preferred Alignment selected is deviation alignment GL5, as shown in Plate 3.2.** The full length (T1-T47) Preferred Alignment is shown in **Annex A, Figure 1.2** 



Plate 3.2: LT29 Baseline Alignment with Deviation Option GL5 (Annex A, Figure 3.5)



# 4. GLEN LOCHY SWITCHING STATION

#### 4.1 Overview

This section provides a summary of the Glen Lochy Switching Station Preferred Site, its project status in relation to the EIA process, and the next steps required to carry forward the proposals to the consenting stage.

#### 4.2 Preferred Site

Following the initial Preferred Alignment consultation process undertaken in 2018 (Diagram 2.1), SSEN Transmission identified the possibility of connecting the proposed OHL to an alternative switching station location in Glen Lochy, avoiding the need to cross the Strath of Orchy to connect into the existing Dalmally substation. Six potential switching station sites on the existing SPEN 275 kV OHL between Brackley and Meall nan Gabhar were identified as shown in **Figure 4.1, Annex A**. Switching station site 5 was discounted from further assessment due to the engineering difficulties.

A switching station site selection exercise (Stage 1<sup>19</sup>) was undertaken in July 2020 to consider the five remaining switching station locations (1-4 and 6) for the alternative connection option. This facilitated the assessment of further route options (Stage 2) to take the OHL south east of Dalmally, into Glen Lochy and avoiding crossing the Strath of Orchy.

The methodology used to identify and assess the five switching station options is consistent with relevant SSEN Transmission guidance<sup>20</sup>. In line with this guidance, each environment, engineering, and cost topic was considered in terms of the potential for the development to be constrained and a RAG rating was applied as appropriate.

Based on the comparative analysis of proposed switching station locations against environment, engineering, and cost criteria, as presented within the 2020 Consultation Report<sup>21</sup>, Site 3 was identified as the least preferred site given the likely direct impacts on the water environment, the Important Plant Area (IPA) designation, and associated habitats. Overall, Site 6 was identified as the preferred option, on the basis that Site 6 was scheduled to be clear felled between 2016 and 2020, avoiding direct impacts on natural heritage designations and reducing impacts on habitats and protected species (relative to other sites). However, based on the most recent site surveys (April 2021) and aerial imagery, the coniferous plantation is still present.

#### 4.2.1 Design updates

Following the consultation process in 2020, where Site 6 remained the Preferred Site, the location of Site 6 has been shifted by approximately 30 m to the north and rotated by approximately 10 degrees, as shown in **Plate 4.1** below. This is to accommodate the electrical equipment and provide the optimal orientation to align the towers with the existing SPEN overhead line. SSEN Transmission is working closely with SPEN to identify the best connection arrangement.

Technology options are being developed that will refine the area and size of the switching station with key considerations including environmental impact during both construction and operation. However, at present, the current footprint stands at roughly 280m by 165m plus an extra area of roughly 60m by 30m for the control building. This gives a switching station size of 4.8 hectares. Additional land take will be required for cut and fill to tie the platform into the existing ground levels, the overhead line towers, an access track to enter the site and any landscaping. Some land take will also be required during construction for laydown, welfare and processing of material during earthworks.

transmission.co.uk/projects/creag-dhubh-dalmally-275kv-connection/ [Accessed 28 April 2021]

<sup>&</sup>lt;sup>19</sup> Scottish and Southern Electricity Networks (March 2018) PR-NET-ENV-501: Procedures for Routeing Overhead Lines of 132kV and Scottish and Southern Electricity Networks (Jan 2014) PR-PS-453: Switching station Site Selection

Guidelines for Voltages at or above 33kv.

<sup>&</sup>lt;sup>20</sup> SSEN Transmission (March 2018) PR-NET-ENV-501: Procedures for Routeing Overhead Lines of 132kV and Scottish and

Southern Electricity Networks (Jan 2014) PR-PS-453: Substation Site Selection Guidelines for Voltages at or above 33kv

<sup>21</sup> SSEN Transmission 2020. Report on Consultation Craig Dhubh to Dalmally 275kV Connection. November 2020. Available at: https://www.ssen-





#### Plate 4.1:Glen Lochy Switching Station Layout Amendment (Figure 4.2, Annex A)

Site 6 has been moved to accommodate the electrical equipment and provide the optimal orientation to align the towers with the existing SPEN OHL. Otter *Lutra lutra* spraint was identified approximately 150 m north east of the switching station, on the Allt a' Chruaidh-ghrainne tributary. A potential badger sett was also identified approximately 100 m north of the switching station. This change in orientation has moved the substation further from the potential sett, therefore reducing the risk of disturbance.

#### 4.2.2 Planning Position

The new Site 6 location will be taken forward to EIA screening in summer 2021, parallel to this consultation process. SSEN Transmission will then commence formal consultation via a PAN and thereafter apply for consent under the Town and Country Planning (Scotland) Act 1997, as amended by the Planning etc. (Scotland) Act 2006, for which an Environmental Appraisal<sup>22</sup> will be prepared to accompany the application for consent. The preferred location for the Glen Lochy Switching Station for which planning consent is being sought will be reviewed considering comments received during this consultation process, as well as further surveys and site configuration design work.

<sup>&</sup>lt;sup>22</sup> The preparation of an Environmental Appraisal, instead of an EIA Report, is under the assumption the Screening Opinion confirms the proposed substation and switching station do not constitute EIA developments.



# 5. CREAG DHUBH SUBSTATION

#### 5.1 Overview

This section provides a summary of the Creag Dhubh Substation Preferred Site, its project status in relation to the EIA process, and the next steps required to carry forward the proposals to the consenting stage.

The site selection process presented below was concluded in March 2018, when the preferred substation location was taken forward to EIA Screening<sup>23</sup> where it was agreed the proposals would be screened out of an EIA. Given, the timescale that has passed and in agreement with Argyll & Bute Council, SSEN Transmission will undertake a second Screening exercise for the Creag Dhubh Substation during Summer 2021.

#### 5.2 Preferred Site

Creag Dhubh substation is required for the connection of the proposed OHL to the existing network. The Creag Dhubh substation site selection process (initially known as the 'North Argyll substation') commenced in 2015, parallel to the OHL route selection process. The site selection process as per SSEN Transmission guidance<sup>24</sup>. Whilst it is noted the site selection process for the substation was undertaken in accordance with previous guidelines (PR-PS-453), these are materially consistent with the updated guidelines presented in **Annex B**.

In August 2015, an independent environmental consultancy undertook an Options Appraisal exercise for the proposed new Creag Dhubh Substation. The preferred substation search area (see **Plate 5.1**) was provided during the Consultation Events held in March 2016<sup>25</sup>.



#### Plate 5.1: Preferred Creag Dhubh Substation search area (2016)

<sup>23</sup> SSEN Transmission (2018). Creag Dhubh Substation: The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017 – Request for an EIA Screening Opinion (Regulation 6) Request for a Screening Opinion.

<sup>&</sup>lt;sup>24</sup> SSEN Transmission (March 2018) PR-NET-ENV-501: Procedures for Routeing Overhead Lines of 132kV and Scottish and

Southern Electricity Networks (Jan 2014) PR-PS-453: Substation Site Selection Guidelines for Voltages at or above 33kv

<sup>&</sup>lt;sup>25</sup> Consultation Booklet, 2016. Available at: https://www.ssen-transmission.co.uk/projects/creag-dhubh-dalmally-275kv-connection/



Following the site selection process two sites were initially identified for further survey. Site investigations identified the presence of significant volumes of environmentally sensitive and technically challenging peatland, meaning further site selection would be required to arrive at the preferred site.



#### Plate 5.2: Creag Dhubh Site Selection October 2016

Further site selection investigation was undertaken between October 2016 and March 2018, when the preferred site was identified.

The selection of the preferred site was undertaken as a combination of the environment, engineering, and cost assessment scores for each site. The preferred option shown in **Plate 5.3** was selected to be taken forward for consultation and detailed design in March 2018. Please refer to **Figure 1.2** to view the Creag Dhubh Substation location in the context of the wider project.







#### 5.2.1 Substation Details

The proposed development at Creag Dhubh substation comprises of the following:

- To allow for a reduced substation surface area, gas insulated switchgear (GIS) has been chosen rather than air insulated switchgear (AIS).
- One side of the substation will consist of a 275 kV double busbar GIS, housed in the larger of the two main buildings and will include connection of two 275 kV overhead line bays. The other side will consist of 132 kV double busbar GIS, housed in the smaller of the two main buildings and will include four 132 kV overhead line bays and a possible grid transformer bay.
- Sufficient space has been allowed within the current design to allow the phased connection of the new 275 kV overhead line between Creag Dhubh and Inveraray with the aim of minimising impact to customers.
- Both sets of GIS will have two bays to connect to the centrally located supergrid transformers which sit between the two buildings. The 275/132 kV supergrid transformers (SGT) will be rated at 480 MVA.

At present, the current footprint stands at roughly 190m by 200m. This gives a substation size of 3.8 hectares. Additional land take will be required for cut and fill to tie the platform into the existing ground levels, the adjacent overhead line towers, an access track to enter the site and any landscaping. Some land take will also be required during construction for laydown, welfare and processing of material during earthworks.

#### 5.2.2 Design Updates

Since the consultation events in 2018, the preferred site location has undergone further assessment. This has resulted in minor changes taking into consideration key constraints as shown in **Annex A**, **Figure 3.7**. As shown in **Plate 5.3**) the site has moved approximately 30 m to the north.





Plate 5.4: Proposed Creag Dhubh Substation Layout Amendment (Figure 5.1, Annex A)

#### 5.2.3 Planning Position

The new Site E location will be taken forward to EIA screening in summer 2021, parallel to this consultation process. SSEN Transmission will then apply for consent under the Town and Country Planning (Scotland) Act 1997, as amended by the Planning etc. (Scotland) Act 2006, for which an Environmental Appraisal<sup>26</sup> will be prepared to accompany the application for consent. The site is currently subject to a Proposal of Application Notice (PAN) and the main consultation event associated within this document is co-joined with PAN event for this site. The preferred location for the Creag Dhubh Substation for which planning consent is being sought will be reviewed considering comments received during this consultation process<sup>27</sup>, as well as further surveys and site configuration design work.

<sup>&</sup>lt;sup>26</sup> The preparation of an Environmental Appraisal, instead of an EIA Report, is under the assumption the Screening Opinion confirms the proposed substation and switching station do not constitute EIA developments.

<sup>&</sup>lt;sup>27</sup>https://www.ssen-transmission.co.uk/talk-to-us/feedback/creag-dhubh-substation-july-2021-feedback-form/



# 6. CONSULTATION ON THE PROPOSALS

SSEN Transmission places great importance on, and is committed to, consultation and engagement with all relevant 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.

#### 6.1 Questions for Consideration by Consultees

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 to select as an Indicative Proposed Alignment. The Indicative Alignment will be taken forward to the Consenting Process for more detailed environmental assessment, prior to submission of an application for consent under section 37 of the Electricity Act 1989.
- 6.1.1 The Creag Dhubh PAN is a separate consultation process regulated by the Town and Country Planning (Scotland) Act 1997 (amended) and comments and feedback on the details to be exhibited at the public consultation event are encouraged via separate comment form and process<sup>28</sup>. Details are set out clearly in public information provided at the exhibition, in flyers sent in direct mailing and within the statutory advert for the event.

#### 6.2 Next Steps

6.2.1 Tower 28 to Glen Lochy Switching Station – Alignment Options Consultation

Virtual online consultation events will be held, as detailed in the preface of this document. All relevant comments received during this consultation will inform further consideration of the Preferred Alignment and design of our proposals to confirm the Proposed Alignment which SSEN Transmission would take forward to the final stage of the SSEN Transmissions route selection process: Stage 4: Consenting Process<sup>29</sup>.

All comments are requested by Friday 5<sup>th</sup> August 2021. A Report on Consultation will be produced which will document the consultations received, and the decisions made in light of these responses.

A Final Alignment Selection Study Report will be prepared to detail any modifications made to the Preferred Alignment as a result of stakeholder input. The Final Alignment Selection Study Report will define the Indicative Proposed Alignment to be carried forward to Environmental Impact Assessment (EIA) and consenting.

6.2.2 Creag Dhubh Substation and Glen Lochy Switching Station

The preferred location for Creag Dhubh substation and Glen Lochy Switching Station for which planning consent is being sought will be reviewed considering comments received during this consultation process, as well as further surveys and site configuration design work.

Creag Dhubh substation and Glen Lochy switching station will undergo individual EIA screening exercises in June 2021, parallel to this consultation process. SSEN Transmission will then submit an application for consent under the Town and Country Planning (Scotland) Act 1997, as amended by the Planning etc. (Scotland) Act 2006, for which an Environmental Appraisal will be prepared to accompany the application for consent.

<sup>&</sup>lt;sup>28</sup> https://www.ssen-transmission.co.uk/talk-to-us/feedback/creag-dhubh-substation-july-2021-feedback-form/

<sup>&</sup>lt;sup>29</sup> SSEN Transmission (2020) Procedures for Routeing Overhead Lines and Underground Cables of 132kV and above, PR-NET-ENV-501, REV 2.00;



6.2.3 Creag Dhubh Substation Proposal of Application Notice

A proposal of application notice (PAN) was submitted to Argyll and Bute Council on the 10<sup>th</sup> of June 2021, as the Proposed Development qualifies as a major application through the Town and Country Planning (Hierarchy of Development) (Scotland) Regulations 2009. This PAN event forms part of the pre-application consultation and feedback received will inform the forthcoming planning application. As stated above, Creag Dhubh substation will then undergo individual EIA screening exercise in June 2021, parallel to this consultation process, followed by preparation of an Environmental Appraisal to accompany the application for consent.

#### 6.2.4 Further Surveys

Ramboll's landscape team will undertake a site visit later this year (August 2021) and capture viewpoint photography for production of wirelines and photomontages.

All other survey work has been completed, with further details provided in Annex G Table 6.1.



### **ANNEX A: FIGURES AND DIAGRAM**

Diagram 1.1: The SSEN Transmission Approach to Routeing and Key Outputs Figure 1.1: LT29 Baseline Alignment, Glen Lochy Switching Station and Creag Dhubh Substation Figure 1.2: LT29 Preferred Alignment, Glen Lochy Switching Station and Creag Dhubh Substation Figure 3.1: LT29 Baseline Alignment with Deviation GL1 Figure 3.2: LT29 Baseline Alignment with Deviation GL2 Figure 3.3: LT29 Baseline Alignment with Deviation GL3 Figure 3.4: LT29 Baseline Alignment with Deviation GL4 Figure 3.5: LT29 Baseline Alignment with Deviation Options Figure 3.6: LT29 Baseline Alignment with All Deviation Options Figure 3.7: LT29 Baseline Alignment with All Deviation Options Figure 3.8: Ornithology Data Figure 3.9: Phase 1 Habitat Data Figure 4.1: Switching Site Locations (1-6) and Environmental Constraints Figure 4.2: Glen Lochy Switching Station Layout Amendment

Figure 5.1: Creag Dhubh Substation, Layout Amendment





Diagram 1.1: The SSEN Transmission Approach to Routeing and Key Outputs



# ANNEX B: ALIGNMENT SELECTION PROCESS OVERVIEW OF METHODOLOGY

#### TRANSMISSION

The methodology adopted has sought to develop the alignment selection in a robust and systematic manner, resulting in the selection of a Proposed Alignment which is technically feasible, economically viable and which causes the least disturbance to the environment; and those who live, work, visit or use the area for recreation. The approach to develop and assess alignment options is consistent with relevant SSEN Transmission guidance<sup>30</sup>. This guidance recommends that the identification and comparison of alignment options should follow these overarching principles:

- preference for an option which could involve using or adapting existing infrastructure, rather than building new infrastructure;
- preference for a shorter option over a longer one;
- preference for a financially less expensive option over more expensive options to comply with licence obligations; and,
- preference for options which avoid or mitigate environmental and socio-economic impacts.

At the alignment stage engineering considerations including existing network outages, operational maintenance and terrain may increase in prominence. Many of the major environmental considerations informing routeing have been addressed in earlier stages. The focus in Stage 3 is on how localised constraints can be avoided – for example, views from individual properties; the setting of features of cultural heritage interest; Ground Water Dependant Terrestrial Ecosystems<sup>31</sup> (GWDTE) habitat and areas prone to flooding.

Holford Rules<sup>32</sup> 3 to 7 are applied to help guide the alignment process, making use of topography, minimising direction changes and addressing the visual interaction with existing infrastructure. These will be balanced alongside other environment, engineering and cost considerations which will inform angle locations or transition points and in turn the length, extent, cost, and economic viability of the new infrastructure. It is important that integrated decision making and engagement from all SSEN Transmission participants takes place throughout the appraisal process to ensure a balanced and informed decision on the Preferred Alignment.

The Holford Rules are reproduced in **Box 1** below.

#### **Box 1: The Holford Rules**

**Rule 1:** Avoid altogether, if possible, the major areas of highest amenity value, by so planning the general route of the line in the first place, even if the total mileage is somewhat increased in consequence;

**Rule 2:** Avoid smaller areas of high amenity value or scientific interest, by deviation; provided that this can be done without using too many angle towers (i.e. the more massive structures which are used when line change direction);

**Rule 3:** Other things being equal, choose the most direct line, with no sharp changes of direction and thus fewer angle towers;

**Rule 4:** Choose tree and hill backgrounds in preference to sky background wherever possible and when the line has to cross a ridge, secure this opaque background as long as possible and cross obliquely when a dip in the ridge provides an opportunity. Where it does not, cross directly, preferably between belts of trees.

**Rule 5:** Prefer moderately open valleys with woods, where the apparent height of the towers will be reduced and the views of the line will be broken by trees.

**Rule 6:** In country which is flat and sparsely planted, keep the higher voltage lines as far as possible independent of smaller lines, converging routes, distribution lines and other masts, wires, and cables so as to avoid a concatenation or 'wirescape'.

**Rule 7:** Approach urban areas through industrial zones where they exist and where pleasant residential and recreational land intervenes between the approach line and substation, go carefully into the costs of undergrounding, for lines other than those of the highest voltage.

The alignment selection study (Stage 3 in the overall routeing process, see **Diagram 1.1, Annex A**) has been completed using a three-step approach, as detailed below:

 <sup>&</sup>lt;sup>30</sup> SSEN, 2020. Procedures for Routeing Overhead Lines and Underground Cables of 132kV and above. Document reference: PR-NET-ENV-501. September 2020
 <sup>31</sup> GWDTE's are terrestrial ecosystems which require access to groundwater on a permanent or intermittent basis to meet all or some of their water requirements to maintain their communities of plants and animals, ecological processes, and ecosystem services.

<sup>&</sup>lt;sup>32</sup> The Holford Rules were first developed in 1959 by Sir William Holford and continue to inform transmission line routeing in the UK. These rules advocate the application of a hierarchical approach to routeing which first avoids major areas of highest amenity, then smaller areas of high amenity, and finally considers factors such as backdrop, woodland, and orientation.



- Step 1: Identification of Baseline Alignment.
- Step 2: Review of Baseline Alignment with reference to environment, engineering, and cost criteria.
- Step 3: Comparative Alignment Analysis
- Step 3a: Description of Deviations from Baseline Alignment.
- Step 3b: Alignment Option Analysis and Identification of Preferences.

The methodology employed within each of these stages is detailed below.

#### Step 1: Identification of Baseline Alignment

Following the route options appraisal undertaken by Ramboll in August 2020, an approximately 1 km wide Proposed Route (Route Option B1) was established as the starting point for developing an OHL alignment. Route Option B1 is illustrated in **Annex 1, Figure 1.1**.

The OHL design contractor, Balfour Beatty (BB), were instructed by SSEN Transmission to develop a Baseline Alignment for a 275 kV OHL, contained within the extents of the Proposed Route. BB therefore carried out engineering assessments to review the Proposed Route and produce an alignment through the following steps:

- An initial desktop analysis allowed provisional angle points to be selected and marked on maps.
- Provisional ground lines and elevations were reviewed using LiDAR survey data.
- An on-site assessment of the initial alignment and angle points was made, involving traversing the initial alignment to investigate, photograph and record the locations (via hand held GPS) of key features including buildings, roads, public footpaths, water bodies, existing service markers, existing Low Voltage (LV) and High Voltage (HL) OHLs and other infrastructure that may require specific clearance from the Proposed OHL.

The information gathered in the site assessment was used to determine the most suitable engineering alignment, hereafter called the 'Baseline Alignment'. The Baseline Alignment aims to provide the optimal alignment within the Proposed Route, taking account of engineering criteria as per Table A7 of SSEN Transmission guidance<sup>33</sup> summarised in **Table B1**.

Infrastructure Crossing	<u>Major Crossings:</u> Review of major crossings (132kV, 275kV, Rail, 200m+ wide river, navigable canal, and hydro/gas pipeline) (Holford Rule 6). <u>Road Crossing:</u> Review number of road crossings.
Ground Conditions	Terrain:         Review of topography, with a preference for lower gradients and avoiding slope gradients >50% where possible.         Peat:         Site survey to avoid unfavourable ground, such as peat, extensive areas of rocky outcrops and wet areas and water courses/ bodies.
Construction and Maintenance	Angle Towers: Review of angle tower requirements. Least number of angle tower is preferable (Holford Rule 3).
Proximity	<u>Clearance Distance:</u> Review distance to existing buildings or properties. Aiming at least 200m distance.

#### Table B1: Alignment Options – Engineering Appraisal Criteria

The Baseline Alignment was identified within the Proposed Route, based on the engineering criteria set out in **Table B1**. The Baseline Alignment is shown in **Figure 1.1, Annex A**.

#### Step 2: Baseline Alignment Review

<sup>&</sup>lt;sup>33</sup> SSEN, 2020. Procedures for Routeing Overhead Lines and Underground Cables of 132kV and above. Document reference: PR-NET-ENV-501. September 2020



#### Engineering Criteria

An engineering review of the Baseline Alignment was completed based on the criteria set out in Table B1.

#### Environmental Criteria

The environmental criteria considered in completing the review of the Baseline Alignment are shown on **Figure 3.7, Annex A** and summarised in **Table B2**.

In areas where no obvious benefits can be derived from alternative alignment options, the Baseline Alignment is proposed as the Preferred Alignment. By following the SSEN Transmission OHL routeing process and Holford Rules, the areas of highest amenity value were avoided in the route selection stage. As a result, the environmental criteria listed below in **Table B2** are proportionate to the detail required at alignment selection stage. In some instances, buffers have been applied to designations where the Proposed OHL could have an indirect effect on an environmental criterion, for example an OHL could cause setting effects on a Scheduled Ancient Monument (SAM) from 6 km away. The size of the buffer applied to designations varies according to the area in which indirect effects may occur on the designation.

Table B2: Alignmen	t Options:	Environmental	Appraisal	Criteria
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Natural Heritage	Designations, protected species, habitats, ornithology, and hydrology / geology.
Cultural Heritage	Designations and cultural heritage assets.
Proximity to Dwellings	Residential properties.
Landscape and Visual	Designations, landscape character and visual amenity.
Land Use	Agriculture, forestry, and recreation.
Planning	Policy and proposals.

#### Cost Criteria

To comply with SSEN Transmission's licence obligations under the Electricity Act 1989, there is a preference for financially less expensive options over more expensive options when selecting an OHL alignment. This preference is balanced with a consideration of the need to avoid or mitigate environmental impacts. The Baseline Alignment is considered to represent the shortest possible alignment within the Proposed Route, taking account of engineering criteria. The lowest cost alignment is considered to represent the base cost option the Baseline Alignment is not always the lowest cost; an alternative alignment option may be of a lower cost than the Baseline Alignment.

#### Step 3: Comparative Alignment Analysis

#### Step 3a: Deviations from Baseline Alignment

Following the identification of the Baseline Alignment, amendments were suggested (referred to as 'deviations'). These options were suggested to address environment and engineering issues and previous consultation. The deviations are detailed in Section 3 and are illustrated in **Annex 1**, **Figure 3.6**.

#### Step 3b: Alignment Option Comparative Analysis and Identification of Preferences

#### Environmental Comparative Analysis Methodology

The deviations are assessed against the Baseline Alignment environmental criteria outlined in **Table B2**. The option (deviation or Baseline Alignment) which, on balance, would have the least impact on the environment was selected as the preferred option from an environmental perspective. In some cases, there was little difference from an environmental perspective between the Baseline Alignment and the suggested deviation(s) and as such there was no preferred environmental option. In these instances, it was stated that there was no preferred option from an environmental perspective and the decision to select or reject the deviation was determined by engineering or cost factors.

Desk based assessment to identify environmental constraints was suitable for the comparative analysis of options for the majority of deviations. In some cases, further detail was gathered from field surveys or modelling/visualisation tools to support the comparative analysis.



#### Engineering Comparative Analysis Methodology

The deviations to the Baseline Alignment were assessed technically in line with the engineering criteria detailed in in **Table B1**. The criteria includes, inter alia, the engineering preference to select the alignment option which requires the fewest numbers of towers, including angle/tension towers, which require a greater amount of steelwork compared with suspension towers. During the tower sighting process, the shortest alignment from set angle tower positions was assessed, where this was technically unfeasible, deviations were applied such that the overall alignment length be kept to a minimum while providing a constructible and maintainable solution.

#### Cost Comparative Analysis Methodology

It is recognised that each deviation will potentially result in an increase or decrease in overall capital and operational cost for the replacement OHL. A comparison of each deviation against the lowest cost alignment has been undertaken based on unit cost rate per km of OHL (£/km). The lowest cost alignment is defined as the base cost (or 100%), the cost for each deviation has then been calculated using the cost criteria described in PR-NET-ENV-501. This has been presented as a percentage above or below the lowest cost option (base cost). The construction cost includes, but is not limited to, the foundations, towers, conductor system, earthing and dismantling. A pre-construction cost estimate for SSEN Transmission OHL projects has been utilised as the basis for the cost rates.

#### **Combined Comparative Analysis**

A RAG rating has been applied to each topic area within each section, indicating potential impacts. This rating is based on a three point scale as follows:

Performance	Comparative Appraisal
Most Preferred	Low potential for the development to be constrained
	G = Green
	Intermediate potential for the development to be constrained A = Amber
	High potential for the development to be constrained
•	R = Red
Least Preferred	

The option (deviation or Baseline Alignment) which, on balance, would represent the optimum balance of cost efficiency, engineering feasibility and environmental considerations was identified for each deviation.

Although cost efficiency is a consideration when determining options and final alignment, for most deviations the cost differences between the deviation or Baseline Alignment is not necessarily the determining factor in selection.

#### Alignment Options Analysis

An alignment workshop was held in March 2021. The workshop was attended by representatives from Ramboll (environment) and SSEN Transmission (cost, engineering, consenting & environment).

The purpose of this workshop was to review the suggested deviations with input provided on environment, engineering, and cost criteria. A number of follow-up actions were identified during the workshop, which required the provision of further environmental information, including:

- Update of the RVAA<sup>34</sup>;
- Preparation of photowires showing tower locations based on 4 x SSEN alignment options (GL1, GL2, GL3, GL5) (Annex D);
- Preparation of technical note for input into RAG assessment to assist in identifying the preferred OHL alignment (Annex F); and

<sup>&</sup>lt;sup>34</sup> Please note that, following preparation of the Memo, this output has been put on hold until a final alignment has been determined.



• Preparation of wirelines from Tom a'Chaisteil Dun Scheduled Monument, showing 4 x SSEN alignments (GL1, GL2, GL3, GL5) (Annex D).

Following review of all the potential alignment options, the environment, engineering, and cost criteria will be considered in a balanced approach to arrive at a Preferred Alignment option



## **ANNEX C: RVAA PHOTOWIRES/WIRELINES**

(Available on request)



# **ANNEX D: CULTURAL HERITAGE PHOTOWIRES/WIRELINES**

(Available on request)



## **ANNEX E: SCOTTISH WOODLANDS REPORT**

(Available on request)



### **ANNEX F: OHL ALIGNMENT RAG COMPARATIVE ANALYSIS**



#### Table C1: Summary of Environmental RAG Ratings

	RAG	RAG Impact Rating														
	Natu	ral Hei	ritage	9		Cult Her	tural itage	People	Lan and	dscap l Visu	e al	Land	d Use		Plan	ning
Alignment options	Designations	Protected Species	Habitats	Ornithology	Hydrology / Geology	<b>Designated Assets</b>	Non-designated Assets	Proximity to Dwellings	Designations	Character	Visual	Agriculture	Forestry	Recreation	Policy	Proposals
Baseline	A	A	A	A	G	A	G	А	G	G	G	G	А	G	А	A
GL1	А	А	A	G	G	A	G	А	G	G	G	G	А	G	А	А
GL2	А	А	A	A	G	A	G	А	G	G	G	G	А	G	А	А
GL3	А	А	A	A	G	A	G	А	G	G	G	G	А	G	А	А
GL4	А	А	А	A	G	А	G	А	G	G	G	G	А	G	А	А
GL5	А	А	А	А	G	А	G	А	G	G	G	G	А	G	А	А

#### Table C2: Alignment Options Cost Comparison Table

	RAG Imp	RAG Impact Rating – Cost						
Route	Capital	Diversions	Public Road Improvement	Tree Felling	Land Assembly	Consent Mitigations	Inspections	Maintenance
Baseline	101	100	100	103	101	103	101	101
GL1	101	100	100	117	101	117	101	101
GL2	101	100	100	102	100	102	100	100
GL3	100	100	100	100	100	100	100	100
GL4	100	100	100	100	100	100	100	100
GL5	101	100	100	107	101	107	101	101



#### Table C3: Alignment Options Engineering Comparison Table

Alignment Options	RAG Impact Rating - Engineering								
options	Infrastructu	re Crossing	Ground Condition		Construction and Maintenance	Proximity			
	Major Crossings	Road Crossings	Terrain	Peat	Angle Towers	Clearance Distance			
Baseline	G	G	A	R	G	G			
GL1	G	G	A	G	R	G			
GL2	G	G	A	R	R	G			
GL3	G	G	A	R	R	G			
GL4	G	G	A	R	R	G			
GL5	G	G	A	R	G	G			

#### Table C4: GL1 Environmental Comparative Analysis

Deviation GL1: Alignment Option Analysis									
Guidance Criteria	Summary of Environmental Sensitivities – Baseline Alignment	Summary of Environmental Sensitivities – Deviation GL1	Summary of						
Natural Heritage (Designations)	At its closest point the Baseline Alignment is located approximately 3.5 km South East of Ben Lui SSSI, 1 km South East of Glen Etive and Glen Fyne SPA (T45-T46) and 3.5 km South East of Ben Lui SAC ( <b>Figure 3.7, Annex A</b> ). The Baseline Alignment is situated between the northern and southern component areas of the Glen Etive and Glen Fyne SPA potentially acting as a barrier to connectivity between these sites, as it may affect the movement of golden eagles throughout their territory, as well as hunting and breeding behaviour., An area approximately 2.2 ha of Ancient Woodland (of semi natural origin) would be lost at four points throughout the alignment ( <b>Figure 3.7, Annex A</b> ). Considering the impact on Ancient Woodland and the potential to impact the connectivity between the SPA sites, the Baseline Alignment has been rated as AMBER <sup>35</sup> .	In comparison to the Baseline Alignment there is no change to the distance to designated sites, at the closest alignment point (T45-T46). As with the Baseline Alignment an area approximately 2.2 ha of Ancient Woodland (of semi natural origin) would be lost at four points throughout the alignment ( <b>Figure 3.7</b> , <b>Annex A</b> ). GL1 is rated as AMBER due to the impact on Ancient Woodland and the potential to impact the connectivity between the SPA sites.	Between T34 and moving into con peatland habitat area of blanket assessed as bein however this hal Therefore, as GL restoration poten is the potential demonstrated th						
Natural Heritage – Habitats (Annex 1, GWDTE's, Biodiversity)	The Baseline Alignment traverses areas of felled, mixed and coniferous plantation woodland to the east and west, along areas of semi improved and marshy grassland to the south of Dalmally. The central portion of the alignment goes through wet modified bog and clips approximately 328 m of Blanket bog (Annex 1 Habitat) between T38-T39. The areas of blanket bog were assessed as being poor condition and not considered to be irreplaceable habitat, however this habitat is still protected and has the potential to be restored. The Phase 1 habitats within the Study Area are shown on <b>Figure 3.9</b> , <b>Annex A</b> . Considering the potential loss of Annex 1 habitat, the Baseline Alignment has been rated as AMBER.	ignment traverses areas of felled, mixed and coniferous plantation east and west, along areas of semi improved and marshy grassland to the y. rtion of the alignment goes through wet modified bog and clips 28 m of Blanket bog (Annex 1 Habitat) between T38-T39. The areas of e assessed as being poor condition and not considered to be irreplaceable r this habitat is still protected and has the potential to be restored. The within the Study Area are shown on <b>Figure 3.9, Annex A.</b> potential loss of Annex 1 habitat, the Baseline Alignment has been rated							
Natural Heritage (non-avian protected species)	The woodland habitat (mainly coniferous plantation (9.8 ha) with small sections (2.2 ha) of Ancient Woodland) present within the Baseline Alignment is suitable for protected species such as bats, pine marten and red squirrel. Habitat suitable for badger is also present. Watercourses, and associated riparian habitats, which intersect the Baseline Alignment are suitable to support protected species such as otter and water vole. As per the routing assessment, the Baseline Alignment has been rated as AMBER for protected species (intermediate potential for the development to be constrained.), as the loss of woodland (12 ha altogether) has the potential to impact upon red squirrel and pine martin populations (both UK BAP species).	In comparison to the Baseline Alignment, there is no change to the number of watercourses intersected by GL1. GL1 results in the loss of 18.3 ha of coniferous plantation woodland (as well as 2.2 ha of Ancient Woodland) which will reduce the foraging and nesting, as well as fragmenting the reamianing habitat. Again this has the poteential to impact upon pine martin and red squirrel populations. GL1 results in a total loss of 20.5 ha of woodland, and has been assigned the same Amber RAG rating as the Basline Alignment, due to the potential impact on red squirrel and pine martin populations (UK BAP species).	easily mitigated. GL1 is situated a slightly lower ele Development to surroundings suc significant and a be preferred. For all other topi						
Natural Heritage (Ornithology)	<ul> <li>Vantage point (VPs) surveys conducted in 2016 (WSP) recorded golden eagle, white-tailed eagle, hen harrier, peregrine and merlin (all Schedule 1 protected) close to, or within, the Baseline Alignment.</li> <li>More recent and ongoing VP surveys conducted by Ramboll (October 2019- October 2020). These surveys recorded low levels of flight data from target species. Flights of white-tailed eagle, black grouse, merlin, and hen harrier were recorded. Notably, no golden eagle flights were recorded during the year of surveys.</li> <li>A black grouse (a red listed Bird of Conservation Concern) Lek<sup>36</sup> was also located approximately 100 m south-east of T36 (Figure 3.8, Annex A).</li> <li>As per the routing assessment the Baseline Alignment has been rated as AMBER for ornithology (intermediate potential for the development to be constrained). The This</li> </ul>	GL1 is located further north of the black grouse lek (approximately 500 m), which is the minimum distance recommended (Nature Scot <sup>37</sup> ) to avoid disturbance. Therefore GL1 has been rated as GREEN as it is unlikely to comprimise the breeding activity of the black grouse.	Therefore, on ba Baseline and GL commercial plant (SAM4209). Pote and disturbance to construction acti lek sites, Conside Opportunity – Be to the edge of the						

<sup>&</sup>lt;sup>35</sup> This varies from the GREEN rating of the routing assessment, as the SPA and Ancient Woodland have been included in this section as per the guidance.

#### FEnvironmental Preference

d T40, Deviation GL1 is situated to the north of the Baseline Alignment, mmercial plantation woodland. This reduces the area of Class 2 crossed by the alignment by approximately 1.3 km. In particular, the bog impacted is slightly reduced. The areas of blanket bog were ng poor condition and not considered to be irreplaceable habitat, bitat is still protected habitat and has the potential to be restored. L1 would reduce the impact on an Annex 1 habitat and allow for ntial. In relation to Annex 1 habitats GL1 is slightly preferable. There to reduce the amount of compensatory planting required if it-is hat woodland removal will aid the restoration of the surrounding itat (Annex 1 and Priority habitat).

greater area (8.5 ha increase) of coniferous plantation woodland in h the Baseline which will reduce the foraging and nesting habitat e martin and red squirrel. This alignment will also result in further tation between T36 and T38. In relation to loss of protected species eline Alignment is preferable.

arther north of the black grouse lek (approximately 500 m), which is stance recommended (Nature Scot) to avoid disturbance. This is likely ed for further mitigation during construction activities. In relation to sturbance, GL1 is preferable, however any disturbance issues could be

around 100m from the Tom A'Chaisteal Dun (SAM4209), at a very evation to the Dun (Annex D). The close proximity of the Proposed of the monument would likely result in a discernible change to its ch that its baseline would be partly altered and potentially result in a dverse effect on its setting. Therefore the Baseline Alignment would

cs, any changes in comparison to the Baseline Alignment are marginal ned significant.

alance, there is no significant environmental difference between the L1. Hhowever, the Baseline Alignment results in smaller loss of tation woodland and is set further back from the Tom A'Chaisteal Dun ential impacts on blanket bog could be mitgated through micrositing to the Black grouse lek site can be mitigated through management of ivities. with mitigation in place to avoid disturbance to black grouse ering this, the Baseline Alignment would be slightly preferable.

etween T34 – T40 the alignment could be moved further south, closer ne woodland, thereby reducing forestry loss and fragmentation whilst

<sup>&</sup>lt;sup>36</sup> A lek is an aggregation of male animals gathered to engage in competitive displays and courtship rituals, known as lekking, to entice visiting females which are surveying prospective partners to mate with.

Deviation GL1: Alignment Option Analysis							
	alignment is also within close proximity to a black grouse Lek site, with the potential to disturb breeding activity		still reducing the i Black grouse lek.				
Natural Heritage (Hydrology/geology)	The Baseline Alignment crosses five tributaries of the River Orchy including three named tributaries: Allt an Daimh, Allt Mhaluidh and Allt Fhunaran. As per the routing assessment the Baseline Alignment has been rated as GREEN, as it does not cross any main watercourses, only a small number of tributaries and it-is unlikey to comprimise the quality or quantity of surface or groundwater.	Deviation GL1 crosses the same five tributaries of the River Orchy including three named tributaries: Allt an Daimh, Allt Mhaluidh and Allt Fhunaran that the Baseline Alignment crossed. Deviation GL1 crossed Allt an Daimb approximately 600 m downstream compared to the Baseline Alignment. GL1 crosses the same number of tributaries as the Baseline Alignment and has also been assigned a GREEN rating.					
Cultural Heritage - Designated Assets	<ul> <li>There are no World Heritage Sites or Listed Buildings within the Study Area and no part of the OHL lies within 2 km of any Inventory status Garden and Designed Landscape, Inventory status Historic Battlefield, or Conservation Area.</li> <li>The following SAM are within 300 m (T29) from the Baseline Alignment: <ul> <li>Tom a'Chaisteal, Dun (SAM4209) - approximatley 231 m.</li> <li>Dychlie Deserted Crofts (SAM5419) – approximatley 164 m.</li> <li>Auchtermally or Uachdar Mhaluidh Deserted Township (SAM4019) is approximately 260 m of the Baseline Aignment (T40).</li> </ul> </li> <li>Category B Listed Buildings (Duncan Ban McIntyre Monument (LB12167) is approximately 600 m north wesdt of the Baseline alignment.</li> <li>Between 2 and 2.5 km of the Baseline Alignment there are: <ul> <li>two Scheduled Monuments (Glen Orchy Parish Church (SAM3810), Barr a'Chaistealain Dun (SAM3858); and</li> <li>one Category A Listed Building (Glen Orchy Kirk (LB12192)), two Category B Listed Buildings Dalmally Bridge (LB12193), and Glen Orchy Manse (LB13808)), and one Category C Listed Building (Dalmally Railway Station (LB13352).</li> </ul> </li> <li>Tom A'Chaisteal Dun (SM4209) occupies the summit of a rocky knoll on the left bank of the Teatle Water. The dun currently stands in a forestry clearing and is surrounded by commercial forestry plantation. Wide-ranging views are afforded from the dun all in all directions, particularly looking southwest towards Loch Awe and north across the Teatle Burn. An entrance to the dun is visible on the east south-east side. Key aspects of the monuments setting are its topographical position, its relationship with the Teatle Burn and its wide views to the surrounding landscape.</li> </ul>	GL1 is also within 200 m of Dychlie Deserted Crofts (SAM5419) and 300 m of Auchtermally or Uachdar Mhaluidh Deserted Township (SAM4019). GL1 is situated 114 m from the Tom A'Chaisteal Dun (SAM4209), at a very slightly lower elevation to the Dun ( <b>Annex D</b> ). This alignment would run in a line from the south west to the north east passing the Scheduled Monument on its south east side. The current forestry would provide some screening of the towers; however if the plantation currently present were to be felled in the future this would open up the surrounding landscape. GL1 would be visible in the immediate surrounding landscape of the dun and the character of the landscape within which the monument is located, and out over which it looks, would be altered by the presence of the Proposed OHL. The close proximity of the Proposed Development to the monument would likely result in a discernible change to its surroundings such that its baseline would be partly altered and potentially result in a significant and adverse effect on its setting. Therefore the Baseline Alignment would be preferred. Considering the impact on setting, GL1 has also been assigned an AMBER rating.					
Cultural Heritage – Non- Designated Assets	There are two non-designated heritage assets approximately 100 m of the Baseline Alignment: A corn-drying kiln at Allt Mhaluidh (19134); and A possible whisky still at Brackley (19135). There are also areas of rig and furrow throughout the alignment, especially in the eastern section between towers 40 and 47	GL1 avoids one small area of rig and furrow, just south of T38 but comes marginally closer to cultural heritage site 13914. Therefore, there are no significant changes from the Baseline Alignment.					
People	Blarchaorain is approximately 600 m south east of T31 and Brackley Farm is located approximately 200 m north of T44. As Brackley Farmproperty is within 2-4 times the height of the tower structure, the Baseline Alignment has been rated AMBER.	Therefore no significant difference with regard to effects on residential receptors is predicted, between the Baseline Alignment and the GL1 deviation. Therefore GL1 is also rated as AMBER.					
Landscape and visual - Designations	<ul> <li>The Baseline Alignment is located within the Argyll and Bute APQ.</li> <li>The following national designations are within 10 km of the Baseline Alignment (Figure 3.7):</li> <li>Loch Lomond and Trossachs National Park – approximately 5.3 km east of the Baseline Alignment.</li> </ul>	There is no significant change from the Baseline Alignment, therefore GL1 has also been rated as GREEN.					

the impact on blanket bog and maintaining a greater distance from the

Deviation GL1: Alignment Option Analysis								
	Ben Lui WLA is located approximately 2.7 km south of the Baseline Alignment.							
	• The Loch Etive Mountains WLA is located 3.8 km north of the Baseline Alignment.							
	<ul> <li>Ardanaiseig House GDL is located approximately 5.8 km east of the Baseline Alignment.</li> </ul>							
	The Baseline Alignment is unlikely to comprismise the special qualities of the landscape and has been rated as GREEN.							
Landscape and visual – Landscape Character	The Baseline Alignment is located within the Craggy Uplands LCT. The Baseline Alignment runs across the lower slopes of Beinn Bhalgairean (providing back- clothing) and is intersected by two small watercourses (Alt Mhaluiodh and Alt an Daimh), which outflow into the River Orchy. To the eastern and western extent of the Baseline Alignment, large areas of coniferous forestry are present, with some felling scars present within the landscape, forming part of the rotational felling cycle. The central extent of the Baseline Alignment would be predominately comprised of rough grass moorland, with riparian woodland situated throughout the landscape along watercourses. Considering the above factors, it is unlikely that the Baseline Alignment would comprimise	There will be no significant change from the Baseline Alignment. the elevation is similar to the Baseline Alignment elevation and the intervening coniferous forestry would greatly reduce intervisibility across the Strath of Orchy. As per the Baseline Alignment, GL1 would be back-clothed by the upper slopes of Beinn Bhalgairean and Beinn Bhoidheach reducing the potential effect of the OHL on the local landscape. Therefore, GL1 has also been assigned a GREEN rating.						
	the characteristics of the surrounding landscape. Therefore is has been assigned a GREEN rating.							
Landscape and visual - Visual receptors (residential and recreational)	<ul> <li>The Baseline Alignment would be theoretically visible to the following visual receptors:</li> <li>A85</li> <li>West Highland Railway</li> <li>Dalmally Golf Course</li> <li>Kilchurn Castle</li> <li>Ardanaiseig House Graden Designed Landscape (GDL)</li> <li>Brackley Farm</li> <li>Blarchorain property</li> <li>Tower 30 forms a prominent element in the view from Blarchaorain. The tower would break the skyline. It is located at a point on the horizon where the slope of Ben Cruachan draws the eye. Existing woodland vegetation provides screening/ filtering of views of other towers. Conductors would form a notable linear feature across the view.</li> </ul>	The GL1 alignment has been shifted marginally to the north west, which would result in the most prominent tower in the view (Tower 30) being located slightly lower in the view than in the Baseline alignment. From Blarchaorain, Tower 30 would be backclothed by Ben Cruachan. However due to the alignment movement in this area being only marginal, any increase in vertical profile within the vertical LOD would result in Tower 30 breaking the skyline and becoming more prominent in the view ( <b>Annex C</b> ). However, careful consideration would be required when siting towers to ensure any alteration in vertical profile, or any slight micrositing of tower locations, does not result in the skylining of the tower. Conductors would be visible across the full view. These would be located at a slightly lower level than the Baseline alignment, however this difference is unlikely to be perceptible.						
	From properties at Brackley and North Brackley, the Baseline Alignment would position towers on the lower slopes of Bienn Bhoidheach, which forms the skyline to the view from this property. The towers and conductors would be largely skylined and would sit across a 180-degree view to the south, south west and south east. Vegetation surrounding the properties, and the presence of large-scale farm buildings would provide some screening and filtering of views. The baseline alignment option would not be considered overbearing in relation to a Residential Visual Amenity Assessment (RVAA), however there is potential for cumulative visual issues, such as encirclement. The Baseline Alignment is unlikely to comprimise the view or visual amenity from these receptors and has therefore been assigned a GREEN rating.	The GL1 alignment option would not be considered overbearing in relation to a Residential Visual Amenity Assessment (RVAA). Therefore a GL1 is also rated as GREEN.						
Land Use- Agriculture	Scottish Government Soil Maps indicate that most of the Baseline Alignment runs through an area with an agricultural land classification of Grade 6.3. The OHL crosses a small area to the east with an agricultural land classification of Grade 5.3 <sup>38</sup> .	There is no significant change from the Baseline Alignment, therefor a rating of GREEN is also applied.						
	As the Baseline Alignment only impacts low quality agricultural land, a rating of GREEN has been assigned.							

 $<sup>^{\</sup>mbox{38}}$  Land in this class has the potential for use as improved grassland.

Deviation GL1: Alignment Option Analysis								
Land use – Forestry	Approximately 9.8 ha of commercial forestry will be lost. As the Baseline Alignment passes through commercial forestry and has the potential to impact upon forestry operations from Towers 1-4 and 45-57, a rating of AMBER has been assigned.	GL1 would result in a large loss (18.3 ha) of commercial forestry and greater fragmentation. However due to the size of the area it is unlikely to comprimise the commercial viability. Therefore a rating of AMBER is assigned.						
Land use - Recreation	T33 runs eastwards and away from the core path leading to the Duncan MacIntyre Monument. T33 is approximately 600 m from the core path at its closest point. However the surorunding topography and forestry would provide screening, therefore the Baseline Alignment is unliley to comprimise the visual amenity and has been rated GREEN.	Deviation GL1 runs parallel with the core path leading to the Duncan MacIntyre Monument in a north eastward's direction. At its closest point deviation GL1 is approximately 800 m from the core path. Again GL1 is unliley to comprimise the visual amenity and has been rated GREEN.						
Planning	Land is allocated in the Argyll and Bute Adopted Local Development Plan (LDP) 2015 <sup>39</sup> . The Baseline Alignment is predominantly located in an area allocated as a Countryside Zone. Other relevant projects known to the planning system include the proposed Upper Sonachan Forest Wind Farm (currently under appeal), located near Portsonachan, approximately 9 km form the Study Area.	No material difference.						

#### Table C5: GL2 Environmental Comparative Analysis

Deviation GL2: Alignment Option Analysis							
Guidance Criteria	Summary of environmental sensitivities – Baseline Alignment	Summary of environmental sensitivities – Deviation GL2					
Natural Heritage (Designations)	The Baseline Alignment is located approximately 3.5 km South East of Ben Lui SSSI, 1 km south east of Glen Etive and Glen Fyne SPA and 3.5 km south east of Ben Lui SAC. Baseline Alignment is situated between the northern and southern component areas of the Glen Etive and Glen Fyne SPA potentially acting as a barrier to connectivity between these sites, as it may affect the movement of golden eagles throughout their territory, as well as hunting and breeding behaviour., An area approximately 2.2 ha of Ancient Woodland (of semi natural origin) would be lost directly north of Uachdar Mhaluidh. Considering the impact on Ancient Woodland and the potential to impact the connectivity between the SPA sites, the Baseline Alignment has been rated as AMBER.	There is no change to the distance from designated sites, at the closest alignment point. An area approximately 2.3 ha of Ancient Woodland (of semi natural origin) would be lost directly north of Uachdar Mhaluidh. The loss of Ancient Woodland (of semi-natural origin) remains similar to the Baseline Alignment. GL1 has also been rated as AMBER, due to the impact on Ancient Woodland and the potential to impact the connectivity between the SPA sites.					
Natural Heritage (non- avian protected species)	The woodland habitat (mainly coniferous plantation (9.8 ha) with small sections (2.2 ha) of Ancient Woodland) present within the Baseline Alignment is suitable for protected species such as bats, pine marten and red squirrel. Habitat suitable for badger is also present. Watercourses, and associated riparian habitats, which intersect the Baseline Alignment are suitable to support protected species such as otter and water vole. As per the routing assessment, the Baseline Alignment has been rated as amber for protected species (intermediate potential for the development to be constrained.), as the loss of woodland (12 ha altogether) has the potential to impact upon red squirrel and pine martin populations (both UK BAP species).	There is no change to the number of watercourses intersected in comparison to the Baseline Alignment. GL2 intersects less coniferous plantation (0.5 ha) compared to the baseline, however this is not likely to have a significant effect on the populations of red squirrel and pine martin.					
Natural Heritage – Habitats (Annex 1, GWDTE's, Biodiversity)	The Baseline Alignment traverses areas of felled, mixed and coniferous plantation woodland to the east and west, along with areas of semi improved and marshy grassland to the south of Dalmally. The central portion of the alignment goes through wet modified bog and clips approximately 328 m of Blanket bog (Annex 1 Habitat) between T38-T39. The areas of blanket bog were assessed as being poor condition and not considered to be irreplaceable habitat, however this habitat is still protected and has the potential to be restored. The Phase 1 habitats within the Study Area are shown on <b>Figure 3.9</b> , <b>Annex A</b> . Considering the potential loss of Annex 1 habitat, the Baseline Alignment has been rated as AMBER.	An area approximately 328 m of blanket bog (Annex 1 Habitat) is present within deviation GL2 ( <b>Figure 3.8, Annex A</b> ). This area remains the same as the Baseline Alignment.					
Natural Heritage (Ornithology)	Vantage point (VPs) surveys conducted in 2016 (WSP) recorded golden eagle, white-tailed eagle, hen harrier, peregrine and merlin (all Schedule 1 protected) close to, or within, the Baseline Alignment.	Distance from the black grouse lek remains the same as the baseline (approximately 100 m).with the potential to disturb breeding activity. However this would be a temporary construction impact and it is likely that mitigation measures can be agreed with NatureScot					

 $<sup>^{39}\,{\</sup>rm LDP2}\,{\rm is\,currently\,under\,preparation\,and\,available\,to\,view\,here\,https://www.argyll-bute.gov.uk/ldp2.}$ 

#### Summary of Environmental Preference

Overall there is little difference in environmental sensitivities between the two options however due to the close proximity of GL2 to SAM4209 (Figure 3.7, Annex A) and the potential for a significant and adverse effect on its setting, the Baseline Alignment is preferred.

GL2 is approximately 100 m from a black grouse lek site. However, this would be a temporary construction impact and it is likely that mitigation measures can be agreed with NatureScot to reduce any potential impact. For example, avoiding certain construction activities during the breeding/lekking season.

The GL2 alignment option would not be considered overbearing in relation to a Residential Visual Amenity Assessment (RVAA). The GL2 alignment is preferred due to its lower positioning in the view and the backclothing provided by topography.

On balance there is no significant environmental difference between the Baseline Alignment and GL2. However the Baseline Alignment is set further back (approximately 200 m) from Tom A'Chaisteal Dun (SAM4209) reducing any potential setting impact. In accordance with Holdford Rule 4, GL2 is in a lower position providing backclothing, however this improvement is slight. The Baseline Alignment is also not considered to be overbearing in relation to RVAA and T30 (the most prominent), could be microsited to avoid being skylined. Mitigation can be put in place to avoid disturbance to black grouse lek sites during construction works. Considering this, the Baseline Alignment would be slightly preferable.

Deviation GL2: Alignment Option Analysis				
	More recent and ongoing VP surveys conducted by Ramboll (October 2019- October 2020). These surveys recorded low levels of flight data from target species. Flights of white-tailed eagle, black grouse, merlin, and hen harrier were recorded. Notably, no golden eagle flights were recorded during the year of surveys. A black grouse Lek was also located approximately 100 m south-east of the Baseline Alignment(T36) (Figure 3.8, Annex A). As per the routing assessment the Baseline Alignment has been rated as AMBER for ornithology (intermediate notation for the dauglement to be constrained). This alignment is also within close provimity to a black	to reduce any potential impact. For example avoiding certain construction activitys during the breeding/lekking season.		
	grouse Lek site, with the potential to disturb breeding activity.			
Natural Heritage (Hydrology/geology)	The Baseline Alignment crosses five tributaries of the River Orchy including three named tributaries: Allt an Daimh, Allt Mhaluidh and Allt Fhunaran. As per the routing assessment the Baseline Alignment has been rated as GREEN, as it doesnt cross any main watercourses, only a small number of tributaries and it-is unlikey to comprimise the quality of quantaty of	Deviation GL2 crosses the same five tributaries of the Strath of Orchy including three named tributaries: Allt an Daimh, Allt Mhaluidh and Allt Fhunaran that the Baseline Alignment crossed.		
Cultural Heritage- Deignated Assets	<ul> <li>surrace or groundwater.</li> <li>There are no World Heritage Sites or Listed Buildings within the Study Area and no part of the OHL lies within 2 km of any Inventory status Garden and Designed Landscape, Inventory status Historic Battlefield, or Conservation Area.</li> <li>The following SAM are within 300 m (T29) from the Baseline Alignment: <ul> <li>Tom a'Chaisteal, Dun (SAM4209) - approximatley 231 m.</li> <li>Dychlie Deserted Crofts (SAM5419) – approximately 164 m.</li> <li>Auchtermally or Uachdar Mhaluidh Deserted Township (SAM4019) is approximately 260 m of the Baseline Alignment (T40).</li> </ul> </li> <li>Category B Listed Buildings (Duncan Ban McIntyre Monument (LB12167) is approximately 600 m north wesdt of the Baseline alignment.</li> <li>Between 2 and 2.5 km of the Baseline Alignment there are: <ul> <li>two Scheduled Monuments (Glen Orchy Parish Church (SAM3810), Barr a'Chaistealain Dun (SAM3858);and</li> <li>one Category A Listed Building (Glen Orchy Kirk (LB12192)), two Category B Listed Buildings Dalmally Bridge (LB12193), and Glen Orchy Manse (LB13808)), and one Category C Listed Building (Dalmally Railway Station (LB13352).</li> </ul> </li> <li>Tom A'Chaisteal Dun (SM4209) occupies the summit of a rocky knoll on the left bank of the Teatle Water. The dun currently stands in a forestry clearing and is surrounded by commercial forestry plantation. Wideranging views are afforded from the dun all in all directions, particularly looking southwest towards Loch Awe and north across the Teatle Burn. An entrance to the dun is visible on the east south-east side. Key aspects of the monuments setting are its topographical position, its relationship with the Teatle Burn and its wide views to the surrounding landscape.</li> </ul>	GL2 would pass the dun's location on its south east side, at their closest (T29) at 95 m from the Scheduled Monument running in a line from the south west to the north east. The current forestry that surrounds the Scheduled Monument andis likley to be lost to the operational corridor. This would result in the proposed towers would be visible in the immediate surrounding landscape of the dun and the character of the landscape within which the monument is located, and out over which it looks, would be altered by the presence of the Proposed OHL. Therefore it is recomended that the operational corridor is reduced as much as possible to provide some screening, The close proximity of the Proposed Development to the monument would likely result in a discernible change to its surroundings such that its baseline would be partly altered and potentially result in a significant and adverse effect on its setting. Considering this potential impact on setting, GL2 has been rated as AMBER.		
Cultural Heritage- Non- Designated Assets	There are two non-designated heritage assets approximately 100 m of the Baseline Alignment: A corn-drying kiln at Allt Mhaluidh (19134); and A possible whisky still at Brackley (19135). There are also areas of rig and furrow throughout the alignment, especially in the eastern section between towers 40 and 47.			
People	Blarchaorain is approximately 600 m south east of T31 and Brackley Farm is located approximately 200 m north of T44. As Brackley Farmproperty is within 2-4 times the height of the tower structure, the Baseline Alignment has been rated AMBER.	No significant difference in proximity to residential receptors between the Baseline Alignment and the GL2 deviation, therefore GL2 is rated as AMBER.		
Landscape and visual - Designations	<ul> <li>The Baseline Alignment is located within the Argyll and Bute APQ.</li> <li>The following national designations are within 10 km of the Baseline Alignment:</li> <li>Loch Lomond and Trossachs National Park – approximately 5.3 km east of the Baseline Alignment</li> </ul>	There is no significant change from the Baseline Alignment, therefore GL2 is also rated as GREEN.		

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Deviation GL2: Alignment Option Analysis				
Landscape and visual – Landscape Character	<ul> <li>Ben Lui WLA is located approximately 2.7 km south of the Baseline Alignment.</li> <li>The Loch Etive Mountains WLA is located 3.8 km north of the Baseline Alignment.</li> <li>Ardanaiseig House GDL is located approximately 5.8 km east of the Baseline Alignment.</li> <li>The Baseline Alignment is unlikely to comprismise the special qualities of the landscape and has been rated as GREEN.</li> <li>The Baseline Alignment is located within the Craggy Uplands LCT.</li> <li>The Baseline Alignment runs across the lower slopes of Beinn Bhalgairean (providing back-clothing) and is intersected by two small watercourses (Alt Mhaluiodh and Alt an Daimh), which outflow into the Strath of Orchy. To the eastern and western extent of the Baseline Alignment, large areas of coniferous forestry are present, with some felling scars present within the landscape, forming part of the rotational felling cycle. The central extent of the Baseline Alignment would be predominately comprised of rough grass moorland, with riparian woodland situated throughout the landscape along watercourses.</li> <li>Considering the above factors, it is unlikely that the Baseline Alignment would comprimise the characteristics of the surrounding landscape. Therefore is has been assigned a GREEN rating.</li> </ul>	There will be no significant change from the Baseline Alignment. the elevation is similar to the Baseline Alignment elevation and the intervening coniferous forestry would greatly reduce intervisibility across the Strath of Orchy. As per the Baseline Alignment, GL2 would be back-clothed by the upper slopes of Beinn Bhalgairean and Beinn Bhoidheach reducing the potential effect of the OHL on the local landscape. Therefore GL2 has also been assigned a GREEN rating.		
Landscape and visual - Visual receptors (residential and recreational)	<ul> <li>The Baseline Alignment would be theoretically visible to the following visual receptors: <ul> <li>A85</li> <li>West Highland Railway</li> <li>Dalmally Golf Course</li> <li>Kilchurn Castle</li> <li>Ardanaiseig House Graden Designed Landscape (GDL)</li> <li>Brackley Farm</li> <li>Blarchorain propoerty</li> </ul> </li> <li>Tower 30 forms a prominent element in the view from Blarchaorain. The tower would break the skyline. It is located at a point on the horizon where the slope of Ben Cruachan draws the eye. Existing woodland vegetation provides screening/ filtering of views of other towers. Conductors would form a notable linear feature across the view.</li> <li>From properties at Brackley and North Brackley, the Baseline Alignment would position towers on the lower slopes of Bienn Bhoidheach, which forms the skyline to the view from this property. The towers and conductors would be largely skylined and would sit across a 180-degree view to the south, south west and south east. Vegetation surrounding the properties, and the presence of large-scale farm buildings would provide some screening and filtering of views.</li> <li>The baseline alignment option would not be considered overbearing in relation to a Residential Visual Amenity Assessment (RVAA), however there is potential for cumulative visual issues, such as encirclement.</li> <li>The Baseline Alignment is unlikely to comprimise the view or visual amenity from these receptors and has therefore been assigned a GREEN rating.</li> </ul>	The GL2 alignment has been shifted north, setting towers further downslope than the Baseline and GL1 alignments, and away from the minor ridge which forms the middle horizon in the view from Blarchaorain. Due to this movement, the most prominent tower in the view (Tower 31) would be backclothed by landform which forms the background to the view, reducing its prominence. Existing woodland vegetation provides screening/ filtering of views of other towers. However, it is acknowledged that given the commercial woodland is of significant risk of windthrow and would require wider management areas to achieve windfirm edges, the woodland screening benefit would be reduced while the woodland matures as part of the replanting. Due to the positioning of towers further to the north, conductors would be less prominent in the view than the Baseline alignment. The GL2 alignment option would not be considered overbearing in relation to a Residential Visual Amenity Assessment (RVAA). The GL2 alignment is preferred due to its lower positioning in the view and the backclothing provided by topography. Considering this, GL2 is also rated as GREEN.		
Land Use- Agriculture	Scottish Government Soil Maps indicate that most of the Baseline Alignment runs through an area with an agricultural land classification of Grade 6.3. The OHL crosses a small area to the east with an agricultural land classification of Grade 5.3. The Baseline Alignment would be likely to impact areas of croft land located around Uachdar Mhaluidh during construction and there may be limitations to crofting activity in the future. As the Baseline Alignment only impacts low quality agricultural land, a rating of GREEN has been assigned.	There is no change from the Baseline Alignment, therefore GL2 is also rated as GREEN.		
Land Use- Forestry Land Use - Recreation	Approximately 9.8 ha of commercial forestry will be lost. As the Baseline Alignment passes through commercial forestry and has the potential to impact upon forestry operations, a rating of AMBER has been assigned. T33 runs eastwards and away from the core path leading to the Duncan MacIntyre Monument (Cat B LB). T33	Approximately 9.3 ha of commercial forestry will be lost, therefore GL2 has also been assigned a rating of AMBER. There is no significant change from the Baseline Alignment, therefore GL2 has also been		
	forestry would provide screening, therefore the Baseline Alignment is unliley to comprimise the visual amenity and has been rated GREEN.			

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Deviation GL2: Alignment Option Analysis				
Planning	Land is allocated in the Argyll and Bute Local Development Plan 2015	There is no change from the Baseline Alignment.		
	The Baseline Alignment is predominantly located in an area allocated as a Countryside Zone.			
	Other relevant projects known to the planning system include the proposed Upper Sonachan Forest Wind Farm (currently under appeal), located near Portsonachan, approximately 9 km form the Study Area.			

#### Table C6: GL3 Environmental Comparative Analysis

Deviation GL3: Alignment Option Analysis				
Guidance Criteria	Summary of environmental sensitivities – Baseline Alignment	Summary of environmental sensitivities – Deviation GL3		
Natural Heritage (Designations)	The Baseline Alignment is located approximately 3.5 km South East of Ben Lui SSSI, 1 km south east of Glen Etive and Glen Fyne SPA and 3.5 km south east of Ben Lui SAC. Baseline Alignment is situated between the northern and southern component areas of the Glen Etive and Glen Fyne SPA potentially acting as a barrier to connectivity between these sites, as it may affect the movement of golden eagles throughout their territory, as well as hunting and breeding behaviour., An area approximately 2.2 ha of Ancient Woodland (of semi natural origin) would be lost directly north of Uachdar Mhaluidh. Considering the impact on Ancient Woodland and the potential to impact the connectivity between the SPA sites, the Baseline Alignment has been rated as AMBER.	There is no change to the distance from designated sites, at the closest alignment point. An area approximately 2.2 ha of Ancient Woodland (of semi natural origin) would be los directly north of Uachdar Mhaluidh. The loss of Ancient Woodland (of semi-natural origin remains the same as the Baseline Alignment. GL3 is also rated as AMBER due to the impact on Ancient Woodland and the potential to impact the connectivity between the SPA sites.		
Natural Heritage (non- avian protected species)	The woodland habitat (mainly coniferous plantation (9.8 ha) with small sections (2.2 ha) of Ancient Woodland) present within the Baseline Alignment is suitable for protected species such as bats, pine marten and red squirrel. Habitat suitable for badger is also present. Watercourses, and associated riparian habitats, which intersect the Baseline Alignment are suitable to support protected species such as otter and water vole. As per the routing assessment, the Baseline Alignment has been rated as AMBER for protected species (intermediate potential for the development to be constrained.), as the loss of woodland (12 ha altogether) has the potential to impact upon red squirrel and pine martin populations (both UK BAP species).	There is no change to the number of watercourses intersected in comparison to the Baseline Alignment. A smaller area of coniferous plantation will be lost (1.4 ha less) compared with the baseline This may be beneficial for protected species such as pine martin and red squirrel, however i is not likely to cause a significant change. Therefore GL3 has also been rated as AMBER.		
Natural Heritage – Habitats (Annex 1, GWDTE', Biodiversity)	The Baseline Alignment traverses areas of felled, mixed and coniferous plantation woodland to the east and west, along with areas of semi improved and marshy grassland to the south of Dalmally. The central portion of the alignment goes through wet modified bog and clips approximately 328 m of Blanket bog (Annex 1 Habitat) between T38-T39. The areas of blanket bog were assessed as being poor condition and not considered to be irreplaceable habitat, however this habitat is still protected and has the potential to be restored. The Phase 1 habitats within the Study Area are shown on <b>Figure 3.9, Annex A.</b> Considering the potential loss of Annex 1 habitat, the Baseline Alignment has been rated as AMBER.	An area approximately 328 m of blanket bog (Annex 1 Habitat) is present within deviation GL3 as per the Baseline Alignment.		
Natural Heritage (Ornithology)	<ul> <li>Vantage point (VPs) surveys conducted in 2016 (WSP) recorded golden eagle, white-tailed eagle, hen harrier, peregrine and merlin (all Schedule 1 protected) close to, or within, the Baseline Alignment.</li> <li>More recent and ongoing VP surveys conducted by Ramboll (October 2019- October 2020). These surveys recorded low levels of flight data from target species. Flights of white-tailed eagle, black grouse, merlin, and hen harrier were recorded. Notably, no golden eagle flights were recorded during the year of surveys.</li> <li>A black grouse Lek was also located approximately 100 m south-east of the Baseline Alignment (T36) (Figure 3.8, Annex A).</li> <li>As per the routing assessment the Baseline Alignment has been rated as AMBER for ornithology (intermediate potential for the development to be constrained). This alignment is also within close proximity to a black grouse Lek site, with the potential to disturb breeding activity.</li> </ul>	GL3 is located approximately 100 m from the black grouse lek, with the potential to disturl breeding activity. However this would be a temporary construction impact and it is likely tha mitigation measures can be agreed with NatureScot to reduce any potential impact. Fo example avoiding certain construction activitys during the breeding/lekking season. Therefore GL3 has also been rated as AMBER.		
Natural Heritage (Hydrology/geology)	The Baseline Alignment crosses five tributaries of the River Orchy including three named tributaries: Allt an Daimh, Allt Mhaluidh and Allt Fhunaran. As per the routing assessment the Baseline Alignment has been rated as GREEN, as it doesnt cross any main watercourses, only a small number of tributaries and it-is unlikey to comprimise the quality of quantaty of surface or groundwater.	Deviation GL3 crosses the same five tributaries of the River Orchy including three name tributaries: Allt an Daimh, Allt Mhaluidh and Allt Fhunaran that the Baseline Alignmen crossed. Therefore GL3 has also been rated as GREEN.		

	Summary of Environmental Preference
t )	Overall there is little difference in environmental sensitivities between the two options however due to the close proximity of GL3 to SAM4209 and the potential for a significant and adverse effect on its setting, the Baseline Alignment is preferred.
e	As per the baseline, GL3 is within 100 m of the black grouse lek. However this would be a temporary construction impact and it is likely that mitigation measures can be agreed with NatureScot to reduce any potential impact. For example avoiding certain construction activitys during the breeding/lekking season.
t.	The GL3 alignment option would not be considered overbearing in relation to a Residential Visual Amenity Assessment (RVAA). The GL3 alignment is preferred due to its lower positioning in the view and the backclothing provided by topography.
n	On balance there is no significant environmental difference between the Baseline Alignment and GL3. However, the Baseline Alignment is set further back (approximately 200 m) from Tom A'Chaisteal Dun (SAM4209) reducing any potential setting impact. In accordance with Holdford Rule 4, GL3 is in a lower position providing backclothing, however this improvement is slight. The Baseline Alignment is also not considered to be overbearing in relation to RVAA and T30 (the most prominent), could be micro- sited to avoid being skylined. Mitigation can be put in place to
b t r	avoid disturbance to black grouse lek sites during construction works. Considering this, the Baseline Alignment would be slightly preferable.
d t	

Deviation GL3: Alignment Option Analysis				
Deviation GL3: Align Cultural Heritage- Designated Assets	<ul> <li>There are no World Heritage Sites or Listed Buildings within the Study Area and no part of the OHL lies within 2 km of any Inventory status Garden and Designed Landscape, Inventory status Historic Battlefield, or Conservation Area.</li> <li>The following SAM are within 300 m (T29) from the Baseline Alignment: <ul> <li>Tom a'Chaisteal, Dun (SAM4209) - approximatley 231 m.</li> <li>Dychlie Deserted Crofts (SAM5419) – approximately 164 m.</li> <li>Auchtermally or Uachdar Mhaluidh Deserted Township (SAM4019) is approximately 260 m of the Baseline Alignment (T40).</li> </ul> </li> <li>Category B Listed Buildings (Duncan Ban McIntyre Monument (LB12167) is approximately 600 m north wesdt of the Baseline alignment.</li> <li>Between 2 and 2.5 km of the Baseline Alignment there are: <ul> <li>two Scheduled Monuments (Glen Orchy Parish Church (SAM3810), Barr a'Chaistealain Dun (SAM3858);and</li> <li>one Category A Listed Building (Glen Orchy Kirk (LB12192)), two Category B Listed Buildings Dalmally Bridge (LB12193), and Glen Orchy Manse (IB13808)) and one</li> </ul> </li> </ul>	GL3 pass the dun's location on its south east side, at their closest (T29) within c. 100m of th Scheduled Monument (approximately 80m distant) running in a line from the south west t the north east. Although the current forestry that surrounds the Scheduled Monument an through which the Proposed OHL would pass, would provide some screening of the towers if the plantation currently present were to be felled in the future this would open up th surrounding landscape. The proposed towers would be visible in the immediate surroundin landscape of the dun and the character of the landscape within which the monument located, and out over which it looks, would be altered by the presence of the Proposed OH! The close proximity of the Proposed Development to the monument would likely result in discernible change to its surroundings such that its baseline would be partly altered an potentially result in a significant and adverse effect on its setting. Considering the potential impact on setting, GL3 has been rated as AMBER.		
	<ul> <li>Buildings Damany Bridge (LB12193), and Glen Orchy Marise (LB13808)), and Orle Category C Listed Building (Dalmally Railway Station (LB13352).</li> <li>Tom A'Chaisteal Dun (SM4209) occupies the summit of a rocky knoll on the left bank of the Teatle Water. The dun currently stands in a forestry clearing and is surrounded by commercial forestry plantation. Wide-ranging views are afforded from the dun all in all directions, particularly looking southwest towards Loch Awe and north across the Teatle Burn. An entrance to the dun is visible on the east south-east side. Key aspects of the monuments setting are its topographical position, its relationship with the Teatle Burn and its wide views to the surrounding landscape.</li> <li>As per the routing assessment, the Baseline Alignment has been rated as AMBER, as it passes in close proximity to three SAM's, with the potential to impact setting.</li> </ul>			
Cultural Heritage- Non- designated Assets-	There are two non-designated heritage assets wapproximately 100 m of the Baseline Alignment: A corn-drying kiln at Allt Mhaluidh (19134); and A possible whisky still at Brackley (19135). There are also areas of rig and furrow throughout the alignment, especially in the eastern section between towers 40 and 47. Therefore a rating of GREEN is applied.	No significant change from the baseline, therefore a rating of GREEN apllies.		
People	Blarchaorain is approximately 600 m south east of T31 and Brackley Farm is located approximately 200 m north of T44. As Brackley Farmproperty is within 2-4 times the height of the tower structure, the Baseline Alignment has been rated AMBER.	No significant difference in proximity to residential receptors between the Baselin Alignment and the GL3 deviation., therefore GL3 has been rated as AMBER.		
Landscape and visual - Designations	<ul> <li>The Baseline Alignment is located within the Argyll and Bute APQ.</li> <li>The following national designations are within 10 km of the Baseline Alignment: <ul> <li>Loch Lomond and Trossachs National Park – approximately 5.3 km east of the Baseline Alignment</li> <li>Ben Lui WLA is located approximately 2.7 km south of the Baseline Alignment.</li> <li>The Loch Etive Mountains WLA is located 3.8 km north of the Baseline Alignment.</li> <li>Ardanaiseig House GDL is located approximately 5.8 km east of the Baseline Alignment.</li> </ul> </li> <li>The Baseline Alignment is unlikely to comprismise the special qualities of the landscape and has been rated as GREEN.</li> </ul>	There is no significant change from the Baseline Alignment, therefore the rating of GREE remians applicable.		
Landscape and visual – Landscape Character	The Baseline Alignment is located within the Craggy Uplands LCT. The Baseline Alignment runs across the lower slopes of Beinn Bhalgairean (providing back-clothing) and is intersected by two small watercourses (Alt Mhaluiodh and Alt an Daimh), which outflow into the Strath of Orchy. To the eastern and western extent of the Baseline Alignment, large areas of coniferous forestry are present, with some felling scars present within the landscape, forming part of the rotational felling cycle. The central extent of the Baseline Alignment would be predominately comprised of rough grass moorland, with riparian woodland situated throughout the landscape along watercourses.	There will be no significant change from the Baseline Alignment. The elevation is similar to the Baseline Alignment elevation and the intervening coniferous forestry would great reduce intervisibility across the Strath of Orchy. As per the Baseline Alignment, GL3 would be back-clothed by the upper slopes of Beinn Bhalgairean and Beinn Bhoidheach reducin the potential effect of the OHL on the local landscape. Therefore GL3 has also been rated as GREEN.		

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Deviation GL3: Alignment Option Analysis		
	Considering the above factors, it is unlikely that the Baseline Alignment would comprimise the characteristics of the surrounding landscape. Therefore is has been assigned a GREEN rating.	
Landscape and visual - Visual receptors (residential and recreational)	The Baseline Alignment would be theoretically visible to the following visual receptors:         • A85         • West Highland Railway         • Dalmally Golf Course         • Kilchurn Castle         • Ardanaiseig House Graden Designed Landscape (GDL)         • Brackley Farm         • Blarchorain propoerty         Tower 30 forms a prominent element in the view from Blarchaorain. The tower would break the skyline. It is located at a point on the horizon where the slope of Ben Cruachan draws the eye. Existing woodland vegetation provides screening/ filtering of views of other towers. Conductors would form a notable linear feature across the view.         From properties at Brackley and North Brackley, the Baseline Alignment would position towers on the lower slopes of Bienn Bhoidheach, which forms the skyline to the view from this property. The towers and conductors would be largely skylined and would sit across a 180-degree view to the south, south west and south east. Vegetation surrounding the properties, and the presence of large-scale farm buildings would provide some screening and filtering of views.         The baseline alignment ontion would not be considered overhearing in relation to a Besidential Visual	The view of the GL3 alignment from this location is very similar to that of the GL alignment <sup>40</sup> . Additionally, Tower 32 would be less visible along the skyline within the centre of the view ( <b>Annex C</b> ) Due to the positioning of the alignment further to the north, conductors would alse be less prominent in the view than the Baseline alignment. The GL3 alignment option would not be considered overbearing in relation to Residential Visual Amenity Assessment (RVAA). The GL3 alignment is preferred du to its lower positioning in the view and the backclothing provided by topography Furthermore, the GL2 alignment is set back within the woodland between T28 an T33 and would benefit from greater screening; however, it is acknowledge that give the commercial woodland is of significant risk of windthrow and would require wide management areas to achieve windfirm edges, the woodland screening benefit would be reduced while the woodland matures as part of the replanting Considering this, GL3 is also rated as GREEN.
	Amenity Assessment (RVAA), however there is potential for cumulative visual issues, such as encirclement. The Baseline Alignment is unlikely to comprimise the view or visual amenity from these receptors and has therefore been assigned a GREEN rating.	
Land Use- Agriculture	Scottish Government Soil Maps indicate that most of the Baseline Alignment runs through an area with an agricultural land classification of Grade 6.3. The OHL crosses a small area to the east with an agricultural land classification of Grade 5.3. The Baseline Alignment would be likely to impact areas of croft land located around Uachdar Mhaluidh during construction and there may be limitations to crofting activity in the future. As the Baseline Alignment only impacts low quality agricultural land, a rating of GREEN has been assigned.	There is no change from the Baseline Alignment, and the rating for GL3 remains GREEN.
Land Use- Forestry	Approximately 9.8 ha of commercial forestry will be lost. As the Baseline Alignment passes through commercial forestry and has the potential to impact upon forestry operations, a rating of AMBER has been assigned.	Approximately 8.4 ha of commercial forestry will be lost, and the AMBER rating remains i place.
Land Use- Recreation	T33 runs eastwards and away from the core path leading to the Duncan MacIntyre Monument. T33 is approximately 600 m from the core path at its closest point. However the surorunding topography and forestry would provide screening, therefore the Baseline Alignment is unliley to comprimise the visual amenity and has been rated GREEN.	There is no significant change from the Baseline Alignment, therefore GL3 has also been rate as GREEN.
Planning	Land is allocated in the Argyll and Bute Local Development Plan 2015 The Baseline Alignment is predominantly located in an area allocated as a Countryside Zone. Other relevant projects known to the planning system include the proposed Upper Sonachan Forest Wind Farm (currently under appeal), located near Portsonachan, approximately 9 km form the Study Area.	There is no change from the Baseline Alignment.

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<sup>40</sup> Please Note: the most south eastern tower within the view presented (shown on Figures 2 and 3) would also be visible in the GL2 (Teal) Alignment. It is not shown as Tower 34 forms part of the Baseline Tower alignment which is not modelled in Figure 3.

#### Table C7: GL4 Environmental Comparative Analysis

Deviation GL4: Alignment Option Analysis					
Guidance Criteria	Summary of environmental sensitivities – Baseline Alignment	Summary of environmental sensitivities – Deviation GL4	Summary of Environmental Preference		
Natural Heritage (Designations)	The Baseline Alignment is located approximately 3.5 km South East of Ben Lui SSSI, 1 km south east of Glen Etive and Glen Fyne SPA and 3.5 km south east of Ben Lui SAC. Baseline Alignment is situated between the northern and southern component areas of the Glen Etive and Glen Fyne SPA potentially acting as a barrier to connectivity between these sites, as it may affect the movement of golden eagles throughout their territory, as well as hunting and breeding behaviour ( <b>Figure 3.7, Annex A</b> ). An area approximately 2.2 ha of Ancient Woodland (of semi natural origin) would be lost directly north of Uachdar Mhaluidh. Considering the impact on Ancient Woodland and the potential to impact the connectivity between the SPA sites, the Baseline Alignment has been rated as AMBER.	There is no change to the distance from designated sites, at the closest alignment point. An area approximately 2.1 ha of Ancient Woodland (of semi natural origin) would be lost directly north of Uachdar Mhaluidh. The loss of Ancient Woodland (of semi-natural origin) remains the same as the Baseline Alignment. GL4 is also classed as AMBER due to the impact on Ancient Woodland and the potential to impact the connectivity between the SPA sites.	As per the Baseline, GL4 is within 100 m of a black grouse lekking site. However this would be a temporary construction impact and it is likely that mitigation measures can be agreed with NatureScot to reduce any potential impact. For example avoiding certain construction activitys during the breeding/lekking season.		
Natural Heritage (non- avian protected species)	The woodland habitat (mainly coniferous plantation (9.8 ha) with small sections (2.2 ha) of Ancient Woodland) present within the Baseline Alignment is suitable for protected species such as bats, pine marten and red squirrel. Habitat suitable for badger is also present. Watercourses, and associated riparian habitats, which intersect the Baseline Alignment are suitable to support protected species such as otter and water vole. As per the routing assessment, the Baseline Alignment has been rated as AMBER amber for protected species (intermediate potential for the development to be constrained.), as the loss of woodland (12 ha altogether) has the potential to impact upon red squirrel and pine martin populations (both UK BAP species).	There is no change to the number of watercourses intersected in comparison to the Baseline Alignment. A smaller area of coniferous plantation will be lost (1.3 ha less) compared with the baseline. This may be beneficial for protected species such as pine martin and red squirrel, however it is not likely to cause a significant change. Therefore GL4 is also rated as AMBER.	The GL4 alignment option would not be considered overbearing in relation to a Residential Visual Amenity Assessment (RVAA). GL4 follows the same alignment as the Baseline until T31, from which point it is screened by forestry from Blarchaorain. Therefore there is no clear preference.		
Natural Heritage – Habitats (Annex 1, GWDTE's, Biodiversity)	The Baseline Alignment traverses areas of felled, mixed and coniferous plantation woodland to the east and west, along with areas of semi improved and marshy grassland to the south of Dalmally. The central portion of the alignment goes through wet modified bog and clips approximately 328 m of Blanket bog (Annex 1 Habitat) between T38-T39. The areas of blanket bog were assessed as being poor condition and not considered to be irreplaceable habitat, however this habitat is still protected and has the potential to be restored. The Phase 1 habitats within the Study Area are shown on <b>Figure 3.9, Annex A.</b> Considering the potential loss of Annex 1 habitat, the Baseline Alignment has been rated as AMBER.	An area approximately 350 m of blanket bog (Annex 1 Habitat) is present within deviation GL4. This area is slightly greater than the Baseline Alignment. Considering this, GL4 is also rated as AMBER.	plantation, however there is a slight increase in the area of blanket bog (Annex 1) impacted (22 m) compared to the Baseline Alignment. While there are some marginal differences in sensitivities between the Baseline Alignment and GL4, overall the environmental sensitivities are either similar or balance		
Natural Heritage (Ornithology)	Vantage point (VPs) surveys conducted in 2016 (WSP) recorded golden eagle, white-tailed eagle, hen harrier, peregrine and merlin (all Schedule 1 protected) close to, or within, the Baseline Alignment. More recent and ongoing VP surveys conducted by Ramboll (October 2019- October 2020). These surveys recorded low levels of flight data from target species. Flights of white-tailed eagle, black grouse, merlin, and hen harrier were recorded. Notably, no golden eagle flights were recorded during the year of surveys. A black grouse Lek was also located approximately 100 m south-east of the Baseline Alignment (T36) ( <b>Figure 3.8, Annex A</b> ). As per the routing assessment the Baseline Alignment has been rated as AMBER for ornithology (intermediate potential for the development to be constrained). This alignment is also within close proximity to a black grouse Lek site, with the potential to disturb breeding activity.	GL4 is located approximately 100 m from the black grouse lek, with the potential to disturb breeding activity. Therefore GL4 has also been rated as AMBER. However this would be a temporary construction impact and it is likely that mitigation measures can be agreed with NatureScot to reduce any potential impact. For example avoiding certain construction activitys during the breeding/lekking season.	out, therefore there is no clear environmental preference. On balance there is no significant environmental difference between the Baseline and GL4. However, the disturbance to the black grouse lek could be mitigated during construction and there is the potential to microsite towers to reduce the impact on blanket bog. The reduction in woodland loss and fragmentation would be beneficial to protected species.		
Natural Heritage (Hydrology/geology)	The Baseline Alignment crosses five tributaries of the River Orchy including three named tributaries: Allt an Daimh, Allt Mhaluidh and Allt Fhunaran. As per the routing assessment the Baseline Alignment has been rated as GREEN, as it doesnt cross any main watercourses, only a small number of tributaries and it-is unlikey to comprimise the quality of quantaty of surface or groundwater.	Deviation GL4 crosses the same five tributaries of the River Orchy including three named tributaries: Allt an Daimh, Allt Mhaluidh and Allt Fhunaran that the Baseline Alignment crossed. GL4 is also rated as GREEN.			
Cultural Heritage- Designated Assets	<ul> <li>There are no World Heritage Sites or Listed Buildings within the Study Area and no part of the OHL lies within 2 km of any Inventory status Garden and Designed Landscape, Inventory status Historic Battlefield, or Conservation Area.</li> <li>The following SAM are within 300 m (T29) from the Baseline Alignment: <ul> <li>Tom a'Chaisteal, Dun (SAM4209) - approximatley 231 m.</li> <li>Dychlie Deserted Crofts (SAM5419) – approximately 164 m.</li> <li>Auchtermally or Uachdar Mhaluidh Deserted Township (SAM4019) is approximately 260 m of the Baseline Aignment (T40).</li> </ul> </li> <li>Category B Listed Buildings (Duncan Ban McIntyre Monument (LB12167) is approximately 600 m north wesdt of the Baseline alignment.</li> <li>Between 2 and 2.5 km of the Baseline Alignment there are:</li> </ul>	GL4 follows the same alignment as the Baseline until T31, therefore the constraints remain the same and GL4 is rated as AMBER.			

Deviation GL4: Align	ment Option Analysis	
	• two Scheduled Monuments (Glen Orchy Parish Church (SAM3810), Barr a'Chaistealain Dun (SAM3858);and	
	<ul> <li>one Category A Listed Building (Glen Orchy Kirk (LB12192)), two Category B Listed Buildings Dalmally Bridge (LB12193), and Glen Orchy Manse (LB13808)), and one Category C Listed Building (Dalmally Railway Station (LB13352).</li> </ul>	
	Tom A'Chaisteal Dun (SM4209) occupies the summit of a rocky knoll on the left bank of the Teatle Water. The dun currently stands in a forestry clearing and is surrounded by commercial forestry plantation. Wide-ranging views are afforded from the dun all in all directions, particularly looking southwest towards Loch Awe and north across the Teatle Burn. An entrance to the dun is visible on the east south-east side. Key aspects of the monuments setting are its topographical position, its relationship with the Teatle Burn and its wide views to the surrounding landscape.	
	As per the routing assessment, the Baseline Alignment has been rated as AMBER, as it passes in close proximity to three SAM's, with the potential to impact setting.	
Cultural Heritage- Non- designated Assets	There are two non-designated heritage assets approximately 100 m of the Baseline Alignment: A corn-drying kiln at Allt Mhaluidh (19134); and A possible whisky still at Brackley (19135). There are also areas of rig and furrow throughout the alignment, especially in the eastern section between towers 40 and 47.	No significant change from the baseline, therefore a GREEN rating applies.
	Therefore a GREEN rating applies.	
People	Blarchaorain is approximately 600 m south east of T31 and Brackley Farm is located approximately 200 m north of T44. As Brackley Farmproperty is within 2-4 times the height of the tower structure, the Baseline Alignment has been rated AMBER.	No significant difference in proximity to residential receptors between t Baseline Alignment and the GL4 deviation. Therfore GL4 has also been rated AMBER.
Landscape and visual - Designations	<ul> <li>The Baseline Alignment is located within the Argyll and Bute APQ.</li> <li>The following national designations are within 10 km of the Baseline Alignment: <ul> <li>Loch Lomond and Trossachs National Park – approximately 5.3 km east of the Baseline Alignment</li> <li>Ben Lui WLA is located approximately 2.7 km south of the Baseline Alignment.</li> <li>The Loch Etive Mountains WLA is located 3.8 km north of the Baseline Alignment.</li> <li>Ardanaiseig House GDL is located approximately 5.8 km east of the Baseline Alignment.</li> </ul> </li> <li>The Baseline Alignment is unlikely to comprismise the special qualities of the landscape and has been rated as GREEN.</li> </ul>	There is no significant change from the Baseline Alignment, therefore the GRE rating remains in place.
Landscape and visual – Landscape Character	The Baseline Alignment is located within the Craggy Uplands LCT. The Baseline Alignment runs across the lower slopes of Beinn Bhalgairean (providing back-clothing) and is intersected by two small watercourses (Alt Mhaluiodh and Alt an Daimh), which outflow into the Strath of Orchy. To the eastern and western extent of the Baseline Alignment, large areas of coniferous forestry are present, with some felling scars present within the landscape, forming part of the rotational felling cycle. The central extent of the Baseline Alignment would be predominately comprised of rough grass moorland, with riparian woodland situated throughout the landscape along watercourses. Considering the above factors, it is unlikely that the Baseline Alignment would comprimise the characteristics of the surrounding landscape. Therefore is has been assigned a GREEN rating.	There will be no significant change from the Baseline Alignment. the elevation similar to the Baseline Alignment elevation and the intervening coniferce forestry would greatly reduce intervisibility across the Strath of Orchy. As p the Baseline Alignment, GL5 would be back-clothed by the upper slopes of Bei Bhalgairean and Beinn Bhoidheach reducing the potential effect of the OHL the local landscape. GL4 has also been assigned a GREEN rating.
Landscape and visual - Visual receptors (residential and recreational)	<ul> <li>The Baseline Alignment would be theoretically visible to the following visual receptors: <ul> <li>A85</li> <li>West Highland Railway</li> <li>Dalmally Golf Course</li> <li>Kilchurn Castle</li> <li>Ardanaiseig House Graden Designed Landscape (GDL)</li> <li>Brackley Farm</li> <li>Blarchorain propoerty</li> </ul> </li> <li>Tower 30 forms a prominent element in the view from Blarchaorain. The tower would break the skyline. It is located at a point on the horizon where the slope of Ben Cruachan draws the eye. Existing woodland vegetation provides screening/ filtering of views of other towers. Conductors would form a notable linear feature across the view.</li> </ul> From properties at Brackley and North Brackley, the Baseline Alignment would position towers on the lower slopes of Bienn Bhoidheach, which forms the skyline to the view from this property. The towers and conductors would be largely skyline and	The GL4 alignment option would not be considered overbearing in relation to Residential Visual Amenity Assessment (RVAA). GL4 follows the same alignme as the Baseline until T31, from which point it is screened by forestry fro Blarchaorain. Considering this, GL4 is also rated as GREEN.

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Deviation GL4: Alignment Option Analysis		
	would sit across a 180-degree view to the south, south west and south east. Vegetation surrounding the properties, and the presence of large-scale farm buildings would provide some screening and filtering of views.	
	The baseline alignment option would not be considered overbearing in relation to a Residential Visual Amenity Assessment (RVAA), however there is potential for cumulative visual issues, such as encirclement.	
	The Baseline Alignment is unlikely to comprimise the view or visual amenity from these receptors and has therefore been assigned a GREEN rating.	
Land Use- Agriculture	Scottish Government Soil Maps indicate that most of the Baseline Alignment runs through an area with an agricultural land classification of Grade 6.3. The OHL crosses a small area to the east with an agricultural land classification of Grade 5.3.	There is no change from the Baseline Alignment, therefore GL4 is also GREEN.
	The Baseline Alignment would be likely to impact areas of croft land located around Uachdar Mhaluidh during construction and there may be limitations to crofting activity in the future.	
	As the Baseline Alignment only impacts low quality agricultural land, a rating of GREEN has been assigned.	
Land Use- Forestry	Approximately 9.8 ha of commercial forestry will be lost. As the Baseline Alignment passes through commercial forestry and has the potential to impact upon forestry operations, a rating of AMBER has been assigned.	Approximately 8.5 ha of commercial forestry will be lost, therefore GL rated as AMBER.
Land Use- Recreation	T33 runs eastwards and away from the core path leading to the Duncan MacIntyre Monument. T33 is approximately 600 m from the core path at its closest point. However the surorunding topography and forestry would provide screening, therefore the Baseline Alignment is unliley to comprimise the visual amenity and has been rated GREEN.	Deviation GL4 north eastwards away from the core path leading to the MacIntyre Monument in a north eastward's direction. At its close deviation GL4 is approximately 925 m from the core path.
Planning	Land is allocated in the Argyll and Bute Local Development Plan 2015	There is no change from the Baseline Alignment.
	The Baseline Alignment is predominantly located in an area allocated as a Countryside Zone.	
	Other relevant projects known to the planning system include the proposed Upper Sonachan Forest Wind Farm (currently under appeal), located near Portsonachan, approximately 9 km form the Study Area.	

#### Table C8: GL5 Environmental Comparative Analysis

Deviation GL5: Align	Deviation GL5: Alignment Option Analysis			
Guidance Criteria	Summary of environmental sensitivities – Baseline Alignment	Summary of environmental sensitivities – Deviation GL5	Summary of Environmental Preference	
Natural Heritage (Designations)	The Baseline Alignment is located approximately 3.5 km South East of Ben Lui SSSI, 1 km south east of Glen Etive and Glen Fyne SPA and 3.5 km south east of Ben Lui SAC. Baseline Alignment is situated between the northern and southern component areas of the Glen Etive and Glen Fyne SPA potentially acting as a barrier to connectivity between these sites, as it may affect the movement of golden eagles throughout their territory, as well as hunting and breeding behaviour. An area approximately 2.2 ha of Ancient Woodland (of semi natural origin) would be lost directly north of Uachdar Mhaluidh. Considering the impact on Ancient Woodland and the potential to impact the connectivity between the SPA sites, the Baseline Alignment has been rated as AMBER.	There is no change to the distance from designated sites, at the closest alignment point. An area approximately 1.4 ha of Ancient Woodland (of semi natural origin) would be lost directly north of Uachdar Mhaluidh. The loss of Ancient Woodland (of semi- natural origin) is 0.8 ha less than the baseline and is the lowest area of all the alignments. This shift in the alignment to the south allows the operational corridor to runs along the endge of the the commercial conifer plantation to Tower 47 and drastically reduce the scale of the Ancient Woodland felling (Scottish Woodland Report, 2021, <b>Annex E</b> ). GL5 is also rated as AMBER due to the impact on Ancient Woodland and the potential to impact the connectivity between the SPA site.	<ul> <li>GL5 results in the loss of the smallest area of Ancient Woodland overall (0.8 ha less than the Baseline Alignment). This is a drastic reduction in the loss of Ancient Woodland.</li> <li>GL5 would also result in the smallest overall loss (280 m) of blanket bog (Annex 1), providing more opportunity for restoration.</li> <li>GL5 is within 100 m of a black grouse lek. However this would be a temporary construction impact and it is likely that mitigation measures can be agreed with NatureScot to reduce any potential impact. For example avoiding</li> </ul>	
Natural Heritage (non- avian protected species)	The woodland habitat (mainly coniferous plantation (9.8 ha) with small sections (2.2 ha) of Ancient Woodland) present within the Baseline Alignment is suitable for protected species such as bats, pine marten and red squirrel. Habitat suitable for badger is also present. Watercourses, and associated riparian habitats, which intersect the Baseline Alignment are suitable to support protected species such as otter and water vole. As per the routing assessment, the Baseline Alignment has been rated as AMBER for protected species (intermediate potential for the development to be constrained.), as the loss of woodland (12 ha altogether) has the potential to impact upon red squirrel and pine martin populations (both UK BAP species).	There is no change to the number of watercourses intersected in comparison to the Baseline Alignment. Intersects a greater area (3 ha increase) of coniferous plantation woodland which will reduce the foraging and nesting habitat available for pine martin and red squirrel. Therefore GL5 has also been rated as AMBER.	certain construction activitys during the breeding/lekking season. An area approximately 1.4 ha of Ancient Woodland (of semi natural origin) would be lost directly north of Uachdar Mhaluidh. The loss of Ancient Woodland (of semi-natural origin) is 0.8 ha less than the baseline and is the lowest area of all the alignments. This shift in the	

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Deviation GL5: Alignment Option Analysis			
Natural Heritage – Habitats (Annex 1, GWDTE's, Biodiversity) Natural Heritage	The Baseline Alignment traverses areas of felled, mixed and coniferous plantation woodland to the east and west, along with areas of semi improved and marshy grassland to the south of Dalmally. The central portion of the alignment goes through wet modified bog and clips approximately 328 m of Blanket bog (Annex 1 Habitat) between T38-T39. The areas of blanket bog were assessed as being poor condition and not considered to be irreplaceable habitat, however this habitat is still protected and has the potential to be restored. The Phase 1 habitats within the Study Area are shown on <b>Figure 3.9, Annex A.</b> Considering the potential loss of Annex 1 habitat, the Baseline Alignment has been rated as AMBER.	An area approximately 280 m of blanket bog (Annex 1 Habitat) is present within deviation GL5. The area impacted is slightly less than the baseline and has the lowest impact (marginal) of all the alignments. However as Annex 1 habitat is still impacted, GL5 has been rated as AMBER.	alignment to the south allows the operational corridor to run along the edge of the the commercial conifer plantation to Tower 47 and drastically reduce the scale of Ancient Woodland felling (Scottish Woodland Report, 2021, Annex E). Setting the OHL alignment further from the properties would be preferable (i.e selection of GL5) in order to increase the distance between the receptor and the
(Ornithology)	<ul> <li>merlin (all Schedule 1 protected) close to, or within, the Baseline Alignment.</li> <li>More recent and ongoing VP surveys conducted by Ramboll (October 2019- October 2020). These surveys recorded low levels of flight data from target species. Flights of white-tailed eagle, black grouse, merlin, and hen harrier were recorded. Notably, no golden eagle flights were recorded during the year of surveys.</li> <li>A black grouse Lek was also located approximately 100 m south-east of the Baseline Alignment (T36) (Figure 3.8, Annex A).</li> <li>As per the routing assessment the Baseline Alignment has been rated as AMBER for ornithology (intermediate potential for the development to be constrained). This alignment is also within close proximity to a black grouse Leksite, with the potential to disturb breeding activity.</li> </ul>	to disturb breeding activity. Therefore GL5 has also been given an AMBER rating. However, this would be a temporary construction impact and it is likely that mitigation measures can be agreed with NatureScot to reduce any potential impact. For example, avoiding certain construction activitys during the breeding/lekking season.	alignment. However, the wirelines indicate that there would be little notable difference between the Baseline alignment and GL5 in views from these properties. Therefore, on balance GL5 would greatly reduce the loss of Ancient Woodland in comparison to the Baseline Alignment as well as providing a slight improvement to visual receptors and loss of blanket bog. Mitigation could
Natural Heritage (Hydrology/geology)	The Baseline Alignment crosses five tributaries of the River Orchy including three named tributaries: Allt an Daimh, Allt Mhaluidh and Allt Fhunaran. As per the routing assessment the Baseline Alignment has been rated as GREEN, as it doesnt cross any main watercourses, only a small number of tributaries and it-is unlikey to comprimise the quality of quantaty of surface or groundwater.	Deviation GL5 crosses the same five tributaries of the River Orchy including three named tributaries: Allt an Daimh, Allt Mhaluidh and Allt Fhunaran that the Baseline Alignment crossed. Deviation GL5 crosses Allt Fhunaran andtwo unnamed tributaries approximately 25 m further upstream than the Baseline Alignment. GL5 is also rated as GREEN.	be put in place to reduce disturbance to the black grouse lek during construction. Considering this, GL5 is deemed to be preferable.
Cultural Heritage- Designated Assets	<ul> <li>There are no World Heritage Sites or Listed Buildings within the Study Area and no part of the OHL lies within 2 km of any Inventory status Garden and Designed Landscape, Inventory status Historic Battlefield, or Conservation Area.</li> <li>The following SAM are within 300 m (T29) from the Baseline Alignment: <ul> <li>Tom a'Chaisteal, Dun (SAM4209) - approximatley 231 m.</li> <li>Dychlie Deserted Crofts (SAM5419) – approximatley 164 m.</li> <li>Auchtermally or Uachdar Mhaluidh Deserted Township (SAM4019) is approximately 260 m of the Baseline Aignment (T40).</li> </ul> </li> <li>Category B Listed Buildings (Duncan Ban McIntyre Monument (LB12167) is approximately 600 m north wesdt of the Baseline alignment.</li> <li>Between 2 and 2.5 km of the Baseline Alignment there are: <ul> <li>two Scheduled Monuments (Glen Orchy Parish Church (SAM3810), Barr a'Chaistealain Dun (SAM3858);and</li> <li>one Category A Listed Building (Glen Orchy Kirk (LB12192)), two Category B Listed Buildings Dalmally Bridge (LB12193), and Glen Orchy Manse (LB13808)), and one Category C Listed Building (Dalmally Railway Station (LB13352).</li> </ul> </li> <li>Tom A'Chaisteal Dun (SM4209) occupies the summit of a rocky knoll on the left bank of the Teatle Water. The dun currently stands in a forestry clearing and is surrounded by commercial forestry plantation. Wide-ranging views are afforded from the dun all in all directions, particularly looking southwest towards Loch Awe and north across the Teatle Burn. An entrance to the dun is visible on the east south-east side. Key aspects of the monuments setting are its topographical position, its relationship with the Teatle Burn and its wide views to the surrounding landscape.</li> </ul>	There is no change from the Baseline Alignment, therefore GL5 has also been rated as AMBER.	
Cultural Heritage- Non- designated Assets	There are two non-designated heritage assets approximately 100 m of the Baseline Alignment: A corn-drying kiln at Allt Mhaluidh (19134); and A possible whisky still at Brackley (19135).	No significant change from the Baseline, therefore a GREEN rating applies.	

Deviation GL5: Alignment Option Analysis		
	There are also areas of rig and furrow throughout the alignment, especially in the eastern section between towers 40 and 47. Therefore a GREEN rating applies.	
People	Blarchaorain is approximately 600 m south east of T31 and Brackley Farm is located approximately 200 m north of T44. As Brackley Farmproperty is within 2-4 times the height of the tower structure, the Baseline Alignment has been rated AMBER.	Deviation GL5 is located approximately 50 m further south from Brack than the Baseline Alignment, and is also rated as AMBER.
Landscape and visual - Designations	<ul> <li>The Baseline Alignment is located within the Argyll and Bute APQ.</li> <li>The following national designations are within 10 km of the Baseline Alignment: <ul> <li>Loch Lomond and Trossachs National Park – approximately 5.3 km east of the Baseline Alignment</li> <li>Ben Lui WLA is located approximately 2.7 km south of the Baseline Alignment.</li> <li>The Loch Etive Mountains WLA is located 3.8 km north of the Baseline Alignment.</li> <li>Ardanaiseig House GDL is located approximately 5.8 km east of the Baseline Alignment.</li> </ul> </li> <li>The Baseline Alignment is unlikely to comprismise the special qualities of the Iandscape and has been rated as GREEN.</li> </ul>	There is no significant change from the Baseline Alignment, therefore GL been rated as GREEN.
Landscape and visual – Landscape Character	The Baseline Alignment is located within the Craggy Uplands LCT. The Baseline Alignment runs across the lower slopes of Beinn Bhalgairean (providing back-clothing) and is intersected by two small watercourses (Alt Mhaluiodh and Alt an Daimh), which outflow into the Strath of Orchy. To the eastern and western extent of the Baseline Alignment, large areas of coniferous forestry are present, with some felling scars present within the landscape, forming part of the rotational felling cycle. The central extent of the Baseline Alignment would be predominately comprised of rough grass moorland, with riparian woodland situated throughout the landscape along watercourses. Considering the above factors, it is unlikely that the Baseline Alignment would comprimise the characteristics of the surrounding landscape. Therefore is has been assigned a GREEN rating.	There will be no significant change from the Baseline Alignment. the ele similar to the Baseline Alignment elevation and the intervening coniferou would greatly reduce intervisibility across the Strath of Orchy. As per the Alignment, GL5 would be back-clothed by the upper slopes of Beinn Bh and Beinn Bhoidheach reducing the potential effect of the OHL on landscape. GL5 has also been assigned a GREEN rating.
Landscape and visual - Visual receptors (residential and recreational)	<ul> <li>The Baseline Alignment would be theoretically visible to the following visual receptors: <ul> <li>A85</li> <li>West Highland Railway</li> <li>Dalmally Golf Course</li> <li>Kilchurn Castle</li> <li>Ardanaiseig House Graden Designed Landscape (GDL)</li> <li>Brackley Farm</li> <li>Blarchorain propoerty</li> </ul> </li> <li>Tower 30 forms a prominent element in the view from Blarchaorain. The tower would break the skyline. It is located at a point on the horizon where the slope of Ben Cruachan draws the eye. Existing woodland vegetation provides screening/ filtering of views of other towers. Conductors would form a notable linear feature across the view.</li> <li>From properties at Brackley and North Brackley, the Baseline Alignment would position towers on the lower slopes of Bienn Bhoidheach, which forms the skyline to the view from this property. The towers and conductors would be largely skylined and would sit across a 180-degree view to the south, south west and south east. Vegetation surrounding the properties, and the presence of large-scale farm buildings would provide some screening and filtering of views.</li> <li>The baseline alignment option would not be considered overbearing in relation to a Residential Visual Amenity Assessment (RVAA), however there is potential for cumulative visual issues, such as encirclement.</li> <li>The Baseline Alignment is unlikely to comprimise the view or visual amenity from these receptors and has therefore been assigned a GREEN rating.</li> </ul>	Effects resulting from the GL5 Alignment would be in line with those aris the Baseline Alignment, described above. While the GL5 Alignment is slightly further uphill, overall the effect on the view would be similar. An existing transmission line passes to the north east of the Brackley. A proposed baseline alignment wouldn't be considered to be overbearing from Brackley as a standalone development, there is the potential for cu- visual issues, such as encirclement. Setting the OHL alignment further from the properties would be prefe- selection of GL5) to increase the distance between the receptor alignment. However, the wirelines indicate that there would be little difference between the Baseline alignment and GL5 in views fro properties. ALthough the reduced scale of felling when compared to the Alignment would allow for greater woodland sreening from Brac Glenview.Considering this, GL5 has been rated as GREEN.
Land Use- Agriculture	Scottish Government Soil Maps indicate that most of the Baseline Alignment runs through an area with an agricultural land classification of Grade 6.3. The OHL crosses a small area to the east with an agricultural land classification of Grade 5.3. As the Baseline Alignment only impacts low quality agricultural land, a rating of GREEN has been assigned.	There is no change from the Baseline Alignment and the GREEN rating sti
Land Use- Forestry	Approximately 9.8 ha of commercial forestry will be lost. As the Baseline Alignment passes through commercial forestry and has the potential to impact upon forestry operations, a rating of AMBER has been assigned.	Approximately 12.8 ha of commercial forestry will be lost, again with the to impact upon forestry operations. Therefore an AMBER rating has a applied.

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Deviation GL5: Align	Deviation GL5: Alignment Option Analysis		
Land Use- Recreation	T33 runs eastwards and away from the core path leading to the Duncan MacIntyre Monument. T33 is approximately 600 m from the core path at its closest point. However the surorunding topography and forestry would provide screening, therefore the Baseline Alignment is unliley to comprimise the visual amenity and has been rated GREEN.	There is no change from the Baseline Alignment.	
Planning	Land is allocated in the Argyll and Bute Local Development Plan 2015 The Baseline Alignment is predominantly located in an area allocated as a Countryside Zone. Other relevant projects known to the planning system include the proposed Upper Sonachan Forest Wind Farm (currently under appeal), located near Portsonachan, approximately 9 km form the Study Area.	There is no change from the Baseline Alignment.	

**ANNEX G: SURVEY WORK** 

#### Table 6.1:Survey work undertaken

Surveys		Details
Vantage point and Breeding raptor surveys		Undertaken between September 2021 to October 2021.
Habitat condition assessment		Towers 1 – 30: Completed Habitat Condition Assessment (HCA) on this area in September 2020.
		Glen Lochy Route Option: A field survey HCA was undertaken on the preferred route option in August and December 2020.
		Switching Station Options: Completed a HCA at each of these locations.
Extended phase 1 h	nabitat survey	Surveyed the OHL route (towers 1-30) and updated the Phase 1 habitat survey results from WSP in September 2020.
		Proposed Glen Lochy route section - Surveyed in August and December 2020.
		Switching Station Options: complete
National Vegetation Classification (NVC)	n )	Surveyed the route (towers 1-30) and updated the NVC survey results from WSP in September 2020.
		Proposed Glen Lochy route section - Surveyed in August and December 2020.
		Switching Station Options: complete
European Protecte	d Species	Surveyed the route (towers 1-30) in September 2020.
(EPS) & badger		Proposed Glen Lochy route section - Surveyed August and December 2020.
		Switching Station Options: complete
Hydrology Site Wal	kover Survey	All main watercourses along the OHL(T1-T47) were surveyed in April 2021.
	Stage 1	Peat probing completed for T33-47, Glen Lochy Switching station and Creag Dhubh Substation
Peat Survey	Stage 2	Peat probing for T1-33 is still to be completed.
Archaeology Site Walkover Survey		Completed in April 2021.
Site Visual Walkover Survey/RVAA		To be completed in August 2021
Photography for montages		This will be based on updated viewpoints agreed with NatureScot and ABC – To be complete in Autumn 2021.

Note – Further survey work may be required for certain topics based on consultation feedback, further design, and construction information.