APPENDIX 3.1: CORRIDOR, ROUTE AND ALIGNMENT SELECTION PROCESS

1.1 Introduction

1.1.1 This Appendix forms part of a Consultation Document which invites comments from all interested parties on the proposals by Scottish and Southern Electricity Networks (herein referred to as 'SSEN Transmission'), operating under licence held by as Scottish Hydro Electric Transmission plc (herein referred to as 'SSEN Transmission')[1]

1.1.2 This Appendix describes the Corridor, Route and Alignment Selection Process for the overhead line (OHL) grid connection element of the Coire Glas Grid Connection Project. It should be read in conjunction with Appendix 3.2, which describes the site selection process for the 400 kV Coire Glas Switching Station and the 400 kV / 132 kV Loch Lundie Substation elements of the project.

1.2 Methodology

1.2.1 The approach to Corridor, Route and Alignment selection was informed by SSEN Transmission plc's guidance[2] which provides a framework to ensure environmental, technical and economic considerations are identified and appraised at each stage of the routeing process.

1.2.2 The guidance sets out SHE Transmission plc's approach to selecting a route for an OHL and helps SHE Transmission plc to meet its obligations under Schedule 9 of the Electricity Act 1989, which requires transmission license holders:

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

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

1.2.4 The guidance splits the routeing stage of a project into four principal stages, as follows:

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

1.2.5 Each stage is an iterative process and involves an increasing level of detail and resolution, bringing cost, technical and environmental considerations together in a way which seeks the best balance at each stage. The

[1] Scottish Hydro Electric Transmission plc, owns, operates and develops the high voltage electricity transmission system in the north of Scotland and remote islands.
[2] SSEN (March 2018), Procedures for Routeing Overhead Lines of 132kV and above

stages that are carried out can vary depending on the type, nature of and size of a project and consultation is carried out at each stage of the process.

1.2.6 The steps outlined in the Holford Rules[3] and SSEN Transmission's guidance**Error! Bookmark not defined.**, have been taken into account as far as is practicable in establishing the corridor, route and alignment options:

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

1.3 Stages of the Methodology

1.3.1 The key stages summarised above, have been undertaken for this project as follows:

Pre-Routeing Activities

The starting point in all routeing projects is to establish the need for the project and to select the favoured strategic option to deliver it.

Stage 0 – Routeing Strategy Development

1.3.2 The routeing strategy development stage seeks to set out the overall approach to the routeing study, the methods which will be adopted to identify, appraise and select options at each stage, and the overall consultation strategy.

Stage 1 – Corridor Selection

1.3.3 The corridor selection stage seeks to identify a series of linear areas (corridors) capable of providing a continuous connection between the defined connection points and delivering the required transmission connection.

1.3.4 From the initial broad Search Areas identified by SSEN Transmission, a single Study Corridor was identified for this project, extending between the Coire Glas Pumped Storage Scheme and the Fort Augustus Substation

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

approximately 17.5 km to the north-east. The Study Corridor was developed to encompass a range of feasible route options between the various connection points required for the Coire Glas Grid Connection Project.

Stage 2 – Route Selection

1.3.5 The route selection stage of the project involves the identification of route options, and the environmental, technical and economic analysis of these route options to arrive at a Preferred Route.

1.3.6 Indicative route options have been identified at 1 km widths to allow for subsequent identification of alignments within the route options during Stage 3 of the Routing Process. For the purposes of the route selection process, route options for the new OHL are assessed in two separate sections, split where the new OHL would connect into the new 400 kV / 132 kV Loch Lundie Substation as follows:

1. Route Options between the 400 kV Coire Glas Switching Station Search Area and the 400 kV / 132 kV Loch Lundie Substation Search Area (CG-LL Route Options); and
2. Route Options between the 400 kV / 132 kV Loch Lundie Substation Search Area to the existing Fort Augustus Substation at Auchterawe (LL-FA Route Options).

A further comparative appraisal of the route options required to connect the Preferred Route Options identified through the route selection process into the Preferred Site of the 400 kV Coire Glas Switching Station and Preferred Site of the 400 kV / 132 kV Loch Lundie Substation identified through the site selection process, which was undertaken in parallel to the Stage 2 of the route selection process. These route options are referred to as 'Connection Route Options' and allowed an overall Preferred Route between the Preferred Site of the 400 kV Coire Glas Switching Station and the existing Fort Augustus Substation to be identified (via the Preferred Site of the 400 kV / 132 kV Loch Lundie Substation).

Stage 3 – Alignment Selection

1.3.7 SSEN Transmission carried out a detailed desk-based and site walkover survey to explore the advantages, disadvantages and constructability of OHL alignment options within the Preferred Routes identified during Stage 2. Subsequently, SSEN Transmission OHL engineers developed a Preferred OHL alignment. This OHL alignment has been identified by SSEN Transmission on the basis of it being the most technically feasible and economically viable alignment, giving due consideration to a range of technical and economic criteria over the construction and operation phases of a new OHL. This alignment is referred to in this report as the 'Core Alignment'.

1.3.8 Alternative OHL alignment options and design solutions (referred to as 'Alignment Variations') have been put forward by a collaboration of technical specialists and SSEN Transmission's environment and engineering teams. These options were also considered as part of the iterative alignment selection process to identify an overall 'Preferred Alignment' to be taken forward to stakeholder consultation. The Preferred Alignment could be a combination of the Core Alignment and Alignment Variations.

1.3.9 An indicative 200 m Limit of Deviation (LOD) (i.e.100 m either side of the centre line) has been applied to the Core Alignment and Alignment Variations considered in the Alignment Selection Process. This LOD would allow for further micrositing of the alignment taken forward to the EIA stage of the process (the 'Proposed Alignment') and the subsequent consenting process, as more detailed survey information is gathered and analysed.

1.3.10 The following survey work has also been undertaken to inform the alignment selection process:

- Ornithology surveys for the Coire Glas Grid Connection Project commenced in October 2021. The preliminary findings of these surveys have been used to inform the Stage 3: Alignment Selection phase of the project.

- Peat probing along the Core Alignment was undertaken in January 2022. Further peat probing of the Alignment Variations was undertaken in May 2022.
- A cultural heritage site visit was undertaken in February 2022 to assess the potential impacts of the Core Alignment and relevant Alignment Variations on the Torr Dhuin Scheduled Monument (SM 794), near Auchterawe, and to identify suitable cultural heritage viewpoints.
- A forestry site visit was undertaken in March 2022 to assess woodland areas to inform the Stage 3: Alignment Selection phase of the project.
- A Preliminary Noise Assessment has been undertaken in February 2022 following the principles of BS 4142:2014 as amended using the noise prediction method described in TGN-NET-OHL-XXX and supporting documents.

1.4 Areas of Search

Area of Search - Corridor Selection

1.4.1 The Area of Search for the Study Corridor identified during Stage 1: Corridor Selection of the project, was largely defined by a broad area centred on the start point of the grid connection (the consented Coire Glas Pumped Storage Scheme), and end point (connection to the National Grid at Fort Augustus Substation at Auchterawe), and the general direction the OHL connection would require to be routed between the two, over a maximum distance of approximately 17.5 km. The Corridor Study Area is illustrated in **Figure 3.1.**

1.4.2 The Study Corridor identified within the Area of Search was developed following the identification of the constraints within the wider area which would make the construction of an OHL development unfeasible:

- Loch Lochy, Loch Oich to the east, as well as the eastern banks of these lochs, which rise up sharply towards the Monadhliath Mountains beyond;
- Several peaks and steep topography surrounding the consented Coire Glas Pumped Storage Scheme, including Ben Tee and the rising topography that surrounds Coire Glas itself;
- Loch Garry to the north of the consented Coire Glas Pumped Storage Scheme;
- Steep topography and existing wind farm infrastructure to the north-west of Invergarry.

1.4.3 The location of the key elements of the proposed Coire Glas Pumped Storge Scheme were also considered when defining the extent of the south-western extent of the Study Corridor area, whereas the north-easterly extent of the Study Corridor was defined by the location of the existing Fort Augustus Substation, where the Coire Glas Grid Connection Project would connect to the National Grid.

Area of Search - Route Selection

1.4.4 The Study Corridor identified during Stage 1: Corridor Selection (as illustrated in **Figure 3.1**), formed the Area of Search for Stage 2. The Route Selection Process for the project. Within the Study Corridor, potential route options were identified and assessed for both sections of the OHL being assessed, which collectively comprise the new OHL.

Area of Search - Alignment Selection

1.4.5 The Preferred Routes identified during Stage 2: Route Selection formed the Area of Search for Stage 3: Alignment Selection Process for the project. Within the Preferred Route, the Core Alignment and the alignment

variations were identified and assessed for both sections of the OHL being assessed which collectively comprise the new OHL.

1.5 Baseline Conditions

1.5.1 A baseline desktop study has been carried out to identify a range of potential constraints and opportunities within the entire Study Corridor of the Coire Glas Grid Connection Project, and its adjacent context. The baseline conditions were then revised at each stage of the routing process to reflect the relevant Area of Search, as described in Section 1.4.

1.5.2 Resources use during the baseline desktop study to identify the baseline conditions within the Study Corridor included:

- Identification of environmental designated sites and other constraints, utilising GIS datasets available via NatureScot[4] Site Link[5]
- Identification of archaeological designations and other recorded sites, utilising GIS datasets available via Historic Environment Scotland[6,7] and Highland Historic Environment Record (HER)[8]
- SEPA interactive Flood Risk Mapping[9];
- Review of the Highland-wide Local Development Plan (2012)[10] and West Highland and Islands Local Development Plan (2019)[11] to identify further environmental constraints and opportunities, such as regional level designations or other locations important to the public;
- Review of landscape character assessments of relevance to the Corridor[12]
- Review of Native Woodland Survey of Scotland and Ancient Woodland Inventory data sets[13]
- Review of Ordnance Survey (OS) mapping (1:50,000 and 1:25,000 and online GIS data sources from OS OpenData) and aerial photography (where available) to identify other potential constraints such as settlement, properties, walking routes, cycling routes, habitats, etc;
- Extrapolation of OS GIS data to identify further environmental constraints including locations of watercourses and waterbodies, roads classifications and degree of slope;
- Review of environmental information relating to the Coire Glas Pumped Storage Scheme; and
- Review of other local information through online and published media such as tourism sites and walking routes.[14,15,16]

1.5.3 Desk-based studies were supplemented by high-level walkover surveys / site appraisals for habitat, forestry, hydrology and landscape and visual review, undertaken by specialist consultants during July and August 2021. These walkover surveys obtained further site data and observations of localised constraints, such as cultural

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

heritage features and composition of forestry. The results of these site appraisals have been used to informed site and route selection phases of this project.

1.5.4 In addition, principles of BNG and the mitigation hierarchy have been considered during the routeing selection process and will continue to design decisions as the project progresses.

1.6 Appraisal Method – Stage 2 Route Selection

Comparative Appraisal

1.6.1 The Comparative Appraisal of route options involved the systematic consideration of the route options against the environmental, technical (engineering) and economic (cost) topic areas included in **Table 1.**

Table 1: Topic Areas Considered

Topic Area	Category	Sub-Topic
Environmental	**Natural Heritage**	Designations
		Protected Species
		Habitats
		Ornithology
		Geology, Hydrology and Hydrogeology
	Cultural Heritage	Designations
		Cultural Heritage Assets
	People	Proximity to Dwellings
	Landscape and Visual	Designations
		Character
		Visual
	Land Use	Agriculture
		Forestry
		Recreation
	Planning	Policy
		Proposals
Engineering	**Infastructure Crossing**	Major Crossings
		Road Crossings
	Environmental Design	Elevation
		Atmospheric Pollution
		Contaminated Land
		Flooding
	Construction / Maintenance	Access
		Angle Towers
	Ground Conditions	Terrain
		Peat
	Proximity	Clearing Distance
		Windfarms
		Communications Masts
		Urban Environments
		Metallic Pipelines
Cost	**Capital**	Construction, Diversions, Public Road Improvements, Felling, Land Assembly, and Consents Mitigations
	Operational	Inspections and Maintenance

1.6.2 For each route option, a RAG rating has been applied to each topic area in Table 1, indicating the potential constraint this topic is likely pose to an OHL development within the route option. This rating is based on a three-point scale as follows:

Performance	Comparative Appraisal
Most Preferred  **Least Preferred**	Low potential for the development to be constrained
	Intermediate potential for the development to be constrained
	High potential for the development to be constrained

1.6.3 More detailed guidance for topic specific considerations is included in Annex 8 of SSEN's guidance[2].

Identification of a Preferred Route

1.6.4 Following review of all of the potential route options, these environmental, technical and economic topics have been considered in combination to arrive at a Preferred Route.

1.7 Appraisal Method – Stage 3: Alignment Selection

Comparative Appraisal

1.7.1 Appraisal of alignment options has involved systematic consideration against the same environmental, technical (engineering) and economic (cost) topic areas as the appraisal of route options included in **Table 1.** However, the subsequent RAG rating approach is considered too broad at Stage 3, as it could generally result in similar ratings for all options. Instead, a more descriptive appraisal is adopted, allowing for more detailed considerations of the differences in constraint to development between the Core Alignment and the Alignment Variations identified.

Identification of a Preferred Alignment

1.7.2 The overall objective throughout the appraisal of alignment options has been to take full consideration of all factors to minimise any potential adverse impacts on the environment, whilst also taking into account technical and cost considerations. Following review of the Core Alignment and the Alignment Variations identified, these environmental, technical and economic topics have been considered in combination to arrive at a Preferred Alignment, which comprises a combination of the Core Alignment and some of the Alignment Variations identified.

APPENDIX 3.2: SITE SELECTION PROCESS

1.1 Introduction

1.1.1 This Appendix forms part of a Consultation Document which invites comments from all interested parties on the proposals by Scottish and Southern Electricity Networks (herein referred to as 'SSEN Transmission'), operating under licence held by as Scottish Hydro Electric Transmission plc (herein referred to as 'SSEN Transmission')[1]

1.1.2 This Appendix describes the Site Selection Process for the 400 kV Coire Glas Switching Station and the 400 kV / 132 kV Loch Lundie Substation elements of the Coire Glas Grid Connection Project. It should be read in conjunction with Appendix 3.1, which describes the Corridor, Route and Alignment selection process for the OHL grid connection element of the project.

1.2 Methodology

1.2.1 The approach to site selection was informed by SSEN Transmission's guidance[2]. The guidance sets out SSEN Transmission's approach to identification and selection of new substation sites. This document helps SSEN Transmission to meet its obligations under Schedule 9 of the Electricity Act 1989, which requires transmission license holders:

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

1.2.2 The guidance develops a process which aims to balance these environmental considerations with technical and economic considerations throughout the site selection process.

1.2.3 The guidance splits the principal site selection into stages, as follows:

- Stage 0: Pre-Site Selection Activities – Strategic Connections Options Appraisal;
- Stage 1: Initial Site Screening;
- Stage 2: Detailed Site Selection; and
- Post Site Selection Activities – Consenting Process.

1.2.4 The stages that are carried out can vary depending on the type, nature and size of a project. This project is currently at Stage 2: Detailed Site Selection, the objective of which is to identify technically feasible, economically viable and environmentally acceptable option within a defined area.

1.2.5 The steps outlined in the Holford Rules (as modified)[3] and SSEN Transmission's guidance**Error! Bookmark not defined.**, have been taken into account as far as is practicable in establishing the site options:

- Respect areas of high amenity value and take advantage of the containment of natural features such as woodland, fitting in with the landscape character of the area;

[1] Scottish Hydro Electric Transmission plc, owns, operates and develops the high voltage electricity transmission system in the north of Scotland and remote islands.

[2] Referenced in: SSEN (2021): Substation Site Selection Guidelines for Voltages at or Above 132kV (July 2021)

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

- Take advantage of ground form with the appropriate use of site layout and levels to avoid intrusion into surrounding areas;
- Use space effectively to limit the area required for development, minimising the effects on existing land use and rights of way;
- Alternative designs of substations may also be considered, e.g. 'enclosed', rather than 'open', where additional cost can be justified**;**
- Consider the relationship of towers and substation structures with background and foreground features, to reduce the prominence of structures from main viewpoints; and
- When siting substations take account of the effects of line connections that will need to be made.

1.3 Stages of the Methodology

1.3.1 The key stages summarised above, have been undertaken for this project as follows:

Stage 0: Pre-Site Selection Activities – Strategic Connections Options Appraisal;

1.3.2 The starting point in all site selection projects is to establish the need for the project and to select the favoured strategic option to deliver it.

Stage 1: Initial Site Screening

1.3.3 The objective of the initial site screening stage is to identify possible substation site options. The aim of this stage is to initially identify several potential sites, which can be initially assessed for suitability. The identification of site options should be informed by the Holford Rules supplementary information in Annex 1 and Annex 3 of the SSEN Transmission Guidance[2].

1.3.4 Site visits are undertaken by representatives from the SSEN Transmission Project Teams. A focus should be placed on constraints identified through desk study and whether the constraints exist to the same extent "on the ground". Site visits may result in site options being discarded or amended or new options being identified.

1.3.5 For the 400 kV Coire Glas Switching Station, site options identified during Stage 1 were largely driven by the proposed location of borrow pits for the consented Coire Glas Pumped Storage Scheme, as constructing the switching station with an area that had previously been used as a borrow pit would minimise the amount of ground disturbance. The Area of Search for the 400 kV Coire Glas Switching Station is described on Section 1.4.

1.3.6 As the 400 kV / 132 kV Loch Lundie Substation is proposed as part of a wider rationalisation project in the surrounding area, site options identified for the substation during Stage 1 were largely driven by proximity to the existing 132 kV network around Loch Lundie. The Area of Search for 400 kV / 132 kV Loch Lundie Substation is described on Section 1.4.

1.3.7 High-level walkover surveys / site appraisals undertaken by SSEN Transmission and their specialist consultants were undertaken in July and August 2021 to inform Stage 1 of the site selection process.

Stage 2: Detailed Site Selection

1.3.8 The detailed site screening stage seeks to further refine the site selection process with the objective of identifying a Proposed Site to take forward to into the consenting and, if appropriate EIA, process. Empirical site survey information is likely to be required at this stage to inform the appraisal process and ensure rigour in the selection of a Preferred Site.

1.3.9 The following survey work have been undertaken to inform the detailed site selection process of the Coire Glas Grid Connection Process:

- Ornithology surveys for the Coire Glas Grid Connection Project commenced in October 2021. The preliminary findings of these surveys have been used to inform Stage 2 of the site selection process;
- Phase 1 Habitat Surveys have been undertaken at the site options considered for the Phase 1 Habitat Surveys have been undertaken at the 400 kV Coire Glas Switching Station and the 400 kV / 132 kV Loch Lundie Substation;
- Peat probing has been undertaken at the Preferred Site of the 400 kV Coire Glas Switching Station and the 400 kV / 132 kV Loch Lundie Substation in January 2022;
- A forestry site visit was undertaken in March 2022 to assess woodland areas to inform the Stage 3: Alignment Selection phase of the project.

1.4 Areas of Search

Area of Search – Coire Glas Switching Station

1.4.1 The Area of Search for the proposed Coire Glas Switching Station, within which the identification and assessment of substation site options could be completed, was identified following a desk-based assessment. As the connection point identified for the consented Coire Glas Pumped Storage Scheme is the Fort Augustus Substation, approximately 17.5 km to the north-east, the identification of the Area of Search for the switching station largely focused on the area to the east and north-east of the location of the consented Coire Glas Pumped Storage Scheme cavern power station. The proposed Coire Glas Switching Station Search Area is illustrated in **Figure 3.1.**

1.4.2 Within the Area of Search for the Coire Glas Switching Station, a more refined 'Preferred Search Area' was identified, to represent the area where a cable (within an underground tunnel) between the consented cavern power station and the new Switching Station site providing the point of connection, could feasibly 'surface. Outside of the 'Preferred Search Area', Site options were considered to be limited to the area surrounding Loch Lochy due to the mountainous terrain to the north and steep slopes to the south resulting in considerable technical challenges to construction.

Area of Search – Loch Lundie Substation

1.4.3 The Area of Search for the Loch Lundie Substation, within which the identification and assessment of substation site options could be completed, was identified following a desk-based assessment. As the Loch Lundie Substation is proposed as part of a rationalisation project of OHLs in the area, the identification of the Area of Search for the substation largely focused on the area around Loch Lundie where several existing OHLs converge and offered reasonable access for construction and maintenance

1.5 Baseline Conditions

1.5.1 A baseline desktop study has been carried out to identify a range of potential constraints and opportunities within the both the Search Areas for the 400 kV Coire Glas Switching Station and the 400 kV / 132 kV Loch Lundie

Substation (as described in Section 1.4.) of the Coire Glas Grid Connection Project, and their adjacent context. The baseline conditions were then revised at each stage of the site selection process.

1.5.2 Resources used during the baseline desktop study to identify the baseline conditions within the Areas of Search included:

- Identification of environmental designated sites and other constraints, utilising GIS datasets available via NatureScot[4] Site Link[5]
- Identification of archaeological designations and other recorded sites, utilising GIS datasets available via Historic Environment Scotland[6,7] and Highland Historic Environment Record (HER)[8]
- SEPA interactive Flood Risk Mapping[9];
- Review of the Highland-wide Local Development Plan (2012)[10] and West Highland and Islands Local Development Plan (2019)[11] to identify further environmental constraints and opportunities, such as regional level designations or other locations important to the public;
- Review of landscape character assessments of relevance to the Corridor[12]
- Review of Native Woodland Survey of Scotland and Ancient Woodland Inventory data sets[13]
- Review of Ordnance Survey (OS) mapping (1:50,000 and 1:25,000 and online GIS data sources from OS OpenData) and aerial photography (where available) to identify other potential constraints such as settlement, properties, walking routes, cycling routes, habitats, etc;
- Extrapolation of OS GIS data to identify further environmental constraints including locations of watercourses and waterbodies, roads classifications and degree of slope;
- Review of environmental information relating to the Coire Glas Pumped Storage Scheme; and
- Review of other local information through online and published media such as tourism sites and walking routes.[14,15,16]

1.5.3 At Stage 1, desk-based studies were supplemented by high-level walkover surveys / site appraisals for habitat, forestry, hydrology and landscape and visual review, undertaken by specialist consultants during July and August 2021. These walkover surveys obtained further site data and observations of localised constraints, such as

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

cultural heritage features and composition of forestry. At Stage 2 more detailed surveys were undertaken to inform the comparative appraisal, as described in Paragraph 1.3.8.

1.5.4 In addition, principles of BNG and the mitigation hierarchy have been considered during the site selection process and will continue to design decisions as the project progresses.

Table 3.1: Topic Areas Considered

	Category	Sub-Topic
Environmental	**Natural Heritage**	Designations
		Protected Species
		Habitats
		Ornithology
		Geology, Hydrology and Hydrogeology
	Cultural Heritage	Designations
		Cultural Heritage Assets
	Landscape and Visual	Designations
		Character
		Visual
	Land Use	Agriculture
		Woodland/Forestry
		Recreation
	Planning	Policy
		Proposals
Engineering	**Connectivity - Existing circuits/ network**	Distance and feasibility of connecting to the existing circuits / network
		Outages for modification to existing circuits
	Connectivity - Future development possibilities	Extension of site or other circuits
	Connectivity - Interface with SSEN Distribution and SSE Generation	Consideration of Business Separation and whole system requirements
	Connectivity - DNO Connection	Proximity of LVAC supplies
	Footprint Requirements - Technology	AIS/GIS or certainty of sizing on non-standard plant and equipment
	Footprint Requirements - Adjacent Land use	Availability for ancillary infrastructure like welfare compounds, laydown areas, screening and SUDS infrastructure
	Footprint Requirements - Space Availability	Non-standard substation configurations to accommodate site specific considerations
	Hazards	Unique Hazards
		Existing Utilities
	Ground Conditions	Topography
		Geology (Superficial Deposits – Peat)
		Geology (Site testing to verify properties)
	Environmental Conditions	Elevation
		Salt Pollution
		Flooding
		Carbon Footprint
		SF6
		Contaminated Land

Table 3.1: Topic Areas Considered

		Noise (proximity to dwellings / residential properties)
	Construction Access	Substation Access Road (from public road)
		Transformer Delivery Route
	Operation and Maintenance	Access
Cost	**Capital**	Construction, Diversions, Public Road Improvements, Felling, Land Assembly, and Consents Mitigations
	Operational	Inspections and Maintenance

1.6 Appraisal Method

Comparative Appraisal

1.6.1 The Comparative Appraisal involved the systematic consideration of the site options against the environmental, technical (engineering) and economic (cost) topic areas included in **Table 1.**

1.6.2 For each site option, a RAG rating has been applied to each topic area in Table 1, indicating the potential constraint this topic is likely pose to a substation or switching station development within the site option. This rating is based on a three-point scale as follows:

Performance	**Comparative Appraisal**
Most Preferred	Low potential for the development to be constrained
	Intermediate potential for the development to be constrained
Least Preferred	High potential for the development to be constrained

1.6.3 More detailed guidance for topic specific considerations is included in Annex 8 of SSEN's guidance[2].

Identification of a Preferred Site Option

1.6.4 The overall objective throughout the appraisal of the potential site options has been to take full consideration of all environmental factors to minimise any potential adverse impacts on the environment whilst taking into account technical and economic considerations. Following review and consideration of the potential site options, a preferred site was arrived at for both the 400 kV Coire Glas Switching Station and the 400 kV / 132 kV Loch Lundie Substation.

APPENDIX 5.1 – ENVIRONMENTAL APPRAISAL OF SITE OPTIONS: 400 KV COIRE GLAS SWITCHING STATION

Environmental Appraisal

Each site option for the 400 kV Coire Glas Switching Station has been assessed against the environmental categories in SSEN Transmission plc's guidance[1]. Using the methodology summarised in Appendix 3.2, the site options were assigned RAG (Red, Amber, Green) ratings for each of the environmental categories based on the whether the anticipated impact and/or risk was High, Intermediate or Low to identify a Preferred Site Option from an environmental perspective.

Table 1: 400 kV Coire Glas Switching Station - Site Option CG1 (See Figures 5.1 – 5.5)

Description:		
Site Option CG1 (Grid Reference 226428 800418) would be located in the forestry area at White Bridge. Site Option CG1 is located at the site of a proposed borrow pit to be used for the construction of the access track, included as part of the consented SSE Renewables (SSER) Coire Glas Pumped Storage Scheme. Several small tributaries of the River Garry, including the Allt Coire Bo Chailein, would located to the south of Site Option CG1. In addition, several small tributary streams leading to Loch Garry, including the Allt Bolinn, would be located to the north of Site Option CG1. Existing forestry access tracks would be located to the south / south-east of Site Option CG1. At least one property at Glenluie is located 1 km east of Site Option CG1. A property located on the main forestry haul road is also located 1.7 km north-east of Site Option CG1. Much of the forestry surrounding Site Option CG1 is listed on the Ancient Woodland Inventory (AWI).		
Review of Environmental Constraints:		
Natural Heritage		
Topics	**Potential Constraints**	**RAG Rating**
Designations	Site Option CG1 would not be located within any designated RAMSAR, Special Site of Scientific Interest (SSSI), Special Protection Area (SPA), Special Area of Conservation (SAC), National Nature Reserve (NNR) or other regionally, nationally, or internationally designated sites. Within 1 km of Site Option CG1 lies the West Inverness-shire Lochs SSSI and SPA, approximately 900 m to the north. The West Inverness-shire Lochs SSSI and SPA comprises eight freshwater upland lochs (specifically Loch Garry with respect to Site Option CG1)	G

[1] Referenced in: SSEN (2021): Substation Site Selection Guidelines for Voltages at or Above 132kV (July 2021)

	and has been designated as they support nationally important numbers of breeding black-throated divers (*Gavia arctica)* and common scoters (*Melanitta nigra).* Site Option CG1 lies within the Allt Ruighe Bhlàir catchment, that discharges to River Garry downstream of Loch Garry, as such Site Option CG1 is not hydrologically connected to the West Inverness-shire Lochs SSSI and SPA. A **Green** RAG rating has therefore been applied to Site Option CG1.	
Protected Species	Initial walkover surveys undertaken in August 2021 did not record the presence of protected species in the vicinity of Site Option CG1. Abundant woodland, and woodland edge habitat, provides suitable habitat for badger (*Meles meles*), red squirrel (*Sciurus vulgaris*), pine marten (*Martes martes*) and bat species. Riparian zones provide suitable habitat for otter (*Lutra lutra*). Wet heath and mire habitats provide suitable habitat for water vole (*Arvicola amphibius*). Loss of small areas of habitat associated with substation infrastructure is therefore unlikely to significantly reduce habitat suitability or availability of the wider area. Potential for impacts on protected species could be further reduced or eliminated by undertaking pre-construction surveys and adopting appropriate mitigation. There is therefore considered to be low potential for Site Option CG1 to be constrained by the presence of protected species. A **Green** rating has therefore been applied to Site Option CG1.	G
Habitats	Initial walkover surveys undertaken in August 2021 indicate that the switching station is located within an area of mixed semi-natural woodland, with some Scot's pine trees likely of plantation origin. The understorey is dominated by Bracken *Pteridium aquilinum* and Purple moor-grass *Molinia caerulea.* <u>Annex 1</u> Areas of semi-natural woodland and Scot's pine plantation are identified on the AWI. Loss of woodland, including AWI woodland (see 'Land Use – Forestry' section below), is considered probable from substation infrastructure for this option. The sensitive habitats identified present modest constraints which could be further reduced or eliminated by micro-siting infrastructure and/or adopting appropriate mitigation. There is therefore considered to be moderate potential for Site Option CG1 to compromise the conservation status of, or to be constrained by, Annex 1 habitats. <u>GWDTE</u> (Groundwater Dependent Terrestrial Ecosystems) GWDTE are not considered extensive within the site option footprint, limited to surrounds of patchy marshy grassland dominated by Purple moor-grass and small hydrological pathways. Loss of GWDTE could therefore be minimised by micro-siting of infrastructure, and there is low potential for Site Option CG1 to compromise the integrity of GWDTE. <u>Biodiversity</u> Site Option CG1 contains a total of 45.54 Biodiversity Units (BU), at 15.18BU/Ha. There are no irreplaceable habitats within Site Option CG1. Site Option CG1 is dominated by semi-natural woodland, possibly of plantation origin. Other habitats of high distinctiveness within the vicinity of Site Option CG1 include wet heath and small patches of modified bog/marshy grassland. In Biodiversity Net Gain (BNG) guidance, where habitats of high distinctiveness are lost, replacement must be of equivalent value to meet No Net Loss. Removal of coniferous plantation is likely to present an opportunity to enhance biodiversity value within the route corridor, by replacement with habitats of higher distinctiveness value. It should be noted however that removal of woodland habitat creates difficulty in achieving No	A

	Net Loss due to the time taken for replacement woodland and/or scrub to achieve suitable structure and condition and for the replacement biodiversity value to be realised. Overall, an **Amber** rating has been applied to Site Option CG due to the potential loss of areas of semi-natural woodland and Scot's pine plantation.	
Ornithology	Site Option CG1 is located in commercial forestry, where ornithological constraints are considered to be minimal, although there may be several Red List species and Amber of conservation concern breeding in near proximity, including Song Thrush (*Turdus philomelos*), Spotted Flycatcher (*Muscicapa striata*), Tree Pipit (*Anthus trivialis*), Lesser Redpoll (*Acanthis cabaret*), Dunnock (*Prunella modularis*) and Willow Warbler (*Phylloscopus trochilus*). However, it is considered unlikely that Site Option CG1 would compromise the conservation status of a population of a red or amber listed species. Pre-construction surveys will need to be undertaken and appropriate mitigation measures should be implemented to minimise any disturbance to birds present. However, due to the low level of predicted constraints, a **Green** rating has been applied to this site option.	G
Hydrology / Geology	Site Option CG1 lies entirely within the River Oich catchment, specifically the nested catchment of the Allt Ruighe Bhlair (that itself lies within the larger Allt na Cailliche catchment. Published mapping suggests Site Option CG1 is underlain by Class 4 peatlands (areas unlikely to be associated with peatland habitats or include carbon-rich soils), while areas of Class 5 peatland (carbon-rich and deep peat that include areas of bare soil but with no peatland habitat recorded) are recorded approximately 100 m west of the site option in the land area between the Allt Bolinn and Allt Coire Bo Chailein (a tributary of the Allt Ruighe Bhlair) and approximately 100 m to the south of the site option, south of the Allt Coire Bo Chailein. This not considered a development constraint. Site Option CG1 is absent of any superficial cover. Within 1km of Site Option CG1, superficial cover, where present, comprises of small, localised areas of peat and areas of hummocky glacial deposits of diamicton, sand and gravel and alluvium deposits of gravel, sand, silt, and clay along the banks of the nearby watercourses, including the Allt Bolinn to the north and Allt Coire Bo Chailein. The bedrock which underlies Site Option CG1 comprises the Upper Garry Psammite Formation. SEPA floodplain mapping shows that the Medium (0.5% annual exceedance probability of flooding / 1 in 200yr) likelihood of flooding floodplain extent is associated with the Allt Ruighe Bhlair downstream of Site Option CG1 and along the banks of Loch Garry to the north, however these are generally confined to the banks of the watercourse/loch. One private water supply (PWS) is noted within 1km of Site Option CG1. The PWS is located approximately 600 m north east of Site Option CG1 and represents a spring at Glenluie Croft. The PWS is located within a different surface water catchment to Site Option CG1 and is therefore not considered to be at risk, subject to control measures and good practice. The superficial and solid geology are not important groundwater aquifers and unlikely to yield significant groundwater, and development of CG Option 1 is unlikely to alter groundwater flow paths. A **Green** rating has therefore been applied to Site Option CG1.	G
Cultural Heritage		
Topics	**Potential Constraints**	**RAG Rating**
Designations	There are no World Heritage Sites (WHS), Scheduled Monuments (SM), Inventory Gardens and Designed Landscapes (GDL), Listed buildings (LB), Conservation Areas (CA) or Inventory Battlefields (IB) within the Site Option CG1 footprint. No potential impacts on the designating features or setting of any cultural heritage designations are anticipated for this site option.	G

	A **Green** rating has therefore been applied to Site Option CG1.	
Cultural Heritage Assets	There is one non-designated heritage asset within the Site Option CG1 footprint. MHG22917 is an HER entry of Low sensitivity. However, the extent of the asset, as recorded in the HER, will enable any potential direct impacts to be avoided using micrositing A **Green** rating has therefore been applied to Site Option CG1.	G
Landscape and Visual		
Topics	**Potential Constraints**	**RAG Rating**
Designations	Option 1 is not located within an area covered by any landscape designations and is unlikely to affect any designated areas. The RAG rating is therefore **Green**.	G
Landscape Character	Option 1 falls within LCT 235 (Broad Forested Strath) which is considered to have a Medium sensitivity to this type of development. There is the potential to affect Caledonian Pine woodland within this area which is an important feature of the landscape but it is assumed that the Proposed Development would be sited entirely within an area previously used as an existing borrow pit and that no further tree loss would therefore be required. The site would offer good opportunity for mitigation to limit the effects to a very localised area. A **Green** RAG rating has therefore been applied.	G
Visual	There is the potential for a switching station in this location to be visible from some areas along the northern shore of Loch Garry and elevated areas around Faichem. However, this is unlikely to result in very notable visual effects and the site offers good opportunity for mitigation to limit visual effects. A **Green** RAG rating has therefore been applied.	G
Land Use		
Topics	**Potential Constraints**	**RAG Rating**
Agriculture	Site Option CG1 is located lies within commercial forestry plantation, on land which is only capable of supporting rough grazing (Agricultural Land Capability (ALC) 6.2). A **Green** rating has therefore been applied to Site Option CG1.	G
Woodland / Forestry	<u>Commercial Forestry</u> Site Option CG1 lies within a large commercial forestry plantation with a mix of productive conifer trees including Sitka spruce, lodgepole pine and Scots pine. The tree stocking density varies within the area from well stocked for commercial timber production to sporadic Scots pine and birch trees which are akin to a native woodland. In strict commercial forestry terms development on this site option would have only a small impact on forest operations. Tie ins and other associated infrastructure is likely to have a greater impact. <u>Woodland</u>	R

	Site Option CG1 lies within a large area of Ancient Woodland Inventory (AWI) listed as Ancient (of Semi Natural Origin 1860), the woodland is of native character. Native Woodland Survey of Scotland (NWSS) classes the site as Native pinewood of mixed maturity; this is reflected by the Scots pine and birch presently on site. CG1 also lies within the Caledonian pinewood regeneration zone and successful regeneration is being achieved AWI and NWSS are of high value but locally widespread. Following the guidance for commercial forestry the Site Option CG1 is allocated an **Amber** rating but the woodland classifications require a **Red** rating. An overall **Red** RAG rating has therefore been applied.	
Recreation	<u>Recreational Routes</u> The main haul road within the forestry at White Bridge is classified as a Scottish Hill Track (by the Scottish Rights of Way and Access Society (SCOTWAYS)). A short section of this haul road would pass through Site Option CG1. A mountain route leading to the summit of Ben Tee, diverges from this Scottish Hill Track at a location to the south of Site Option CG1. Neither the Scottish Hill Tracks or the mountain route to Ben Tee are designated footpaths and it is anticipated that direct impacts on these footpaths could be avoided through micrositing of the switching station platform or by rerouting a short section of the footpaths. The site offers good opportunity for mitigation to limit visual impacts and the surrounding forestry would provide screening. However, there may be a temporary disruption for users of this path during construction of the Switching Station, as it is anticipated that haul road will be used for access and construction traffic. There are no other recreational routes within, or in close proximity to, Site Option CG1 and no views from recreational or tourism areas or routes would be anticipated. An **Amber** rating has therefore been applied. <u>Commercial Highland Sports</u> Site Option CG1 lies within commercial forestry plantation owned by Forestry and Land Scotland (FLS) and would not be used for commercial highland sports. As there may be a temporary disruption for recreational users of the Scottish Hill Track to the south of Site Option CG1 and the mountain route leading to Ben Tee during construction of the Switching Station, an overall **Amber** rating has been applied.	A
Planning		
Topics	**Potential Constraints**	**RAG Rating**
Policy	Site Option CG1 would be brought forward in full compliance with national, regional or local planning policy. A **Green** RAG rating has been applied.	G
Proposals	Site Option CG1 may interact with the access track which forms part of the consented Coire Glas Pumped Storage Scheme. However, this development is being developed for the Pumped Storage Scheme. Site Option CG1 would also directly interact with the construction of the new grid connection between the new Coire Glas Switching Station and the new Loch Lundie Substation, if planning consent is granted for this application. However, none of these developments are third party proposals. No other proposals that are either consented or known to the planning system have been identified within Site Option CG1. A **Green** RAG rating has been applied.	G

Table 2: 400 kV Coire Glas Switching Station - Site Option CG3 (See Figures 5.1 – 5.5)

Description:		
Site Option CG3 (Grid Reference 225903 797848) would be located in an open area of moorland on the lower slopes of Ben Tee, 0.7 km south of the forestry at White Bridge. Site Option CG3 is a proposed borrow pit location for the construction of the access track to the consented SSER Coire Glas Pumped Storage Scheme and is located at a high altitude (approximately 390 m AOD). Several small tributaries of the River Garry, including the Allt na Cailliche, are located to the north and north-east of Site Option CG3. The Allt nan Seileach is also located approximately 1 km east of Site Option CG3. A small area of woodland listed on the AWI is located to the west of Site Option CG3 at Doire na h-Achlaise.		
Review of Environmental Constraints:		
Natural Heritage		
Topics	**Potential Constraints**	**RAG Rating**
Designations	There are no regionally, nationally, or internationally designated sites within 1 km Site Option CG3. A **Green** rating has therefore been applied to Site Option CG3.	G
Protected Species	Initial walkover surveys undertaken in August 2021 did not record the presence of protected species in the vicinity of Site Option CG3. Wet heath and mire habitats provide suitable habitat for water vole. Loss of small areas of habitat associated with substation infrastructure is therefore unlikely to significantly reduce habitat suitability or availability of the wider area. Potential for impacts on protected species could be further reduced or eliminated by undertaking pre-construction surveys and adopting appropriate mitigation. There is therefore considered to be low potential for Site Option CG3 to compromise the conservation status of, or for the site to be constrained by, the presence of protected species. A **Green** rating has therefore been applied to Site Option CG3.	G
Habitats	Initial walkover surveys undertaken in August 2021 indicate that the switching station is located within an area of wet heath on the lower slopes of the shoulder east of Ben Tee. <u>Annex 1</u> Wet heath habitats are identified as Annex 1 habitats. Loss of wet heath is considered probable from substation infrastructure for this option. The sensitive habitats identified present modest constraints which could be further reduced or eliminated by micro-siting infrastructure and/or adopting appropriate mitigation. There is therefore considered to be moderate potential for the Site Option CG3 to compromise the conservation status of, or for the site to be constrained by, Annex 1 habitats. <u>GWDTE</u> Wet heaths are considered to be moderately dependent on groundwater in certain circumstances. The majority of wet heaths within Site Option CG3 are considered to be principally associated with ombrotrophic mires and as such not generally dependent on groundwater. Therefore, GWDTE are not considered extensive within the route corridor, limited to surrounds of small hydrological pathways. Loss of GWDTE could therefore be minimised by micro-siting of infrastructure, and there is low potential for Site Option CG3 to compromise the integrity of GWDTE. <u>Biodiversity</u>	R

	Site Option CG3 contains a total of 43.56 BU, at 14.52BU/Ha. Site Option CG3 is dominated by wet heath habitat, identified as habitat of high distinctiveness in BNG guidance. Where habitats of high distinctiveness are lost, replacement must be of equivalent value to meet No Net Loss. No irreplaceable habitats were identified in the vicinity of the option. Removal of wet heath habitat presents difficulty in achieving No Net Loss of biodiversity within the area. Surrounding areas are also dominated by wet heath habitats and offer little opportunity for biodiversity improvement. A **Red** rating has been applied to Site Option CG3 due to the loss of Annex 1 wet heath habitat anticipated at this option.	
Ornithology	Site Option CG3 is located on open moorland. Ornithological constraints are therefore focussed on those species breeding or hunting on the open moorland. Potential protected (Schedule 1) species are Merlin (*Falco columbarius*) and Short-eared Owl (*Asio flammeus*), which have both been recorded in that area during baseline surveys. Standard bird surveys will need to be undertaken to update the baseline and inform the site selection process and appropriate mitigation measures should be implemented to minimise any disturbance / collision risk to protected species. Site Option CG3 is the least preferable site option for the Coire Glas Switching Station on ornithological grounds due to the potential presence of breeding or hunting protected species, and therefore a **Red** rating has been applied.	R
Hydrology / Geology	Site Option CG3 lies entirely within the River Oich catchment, specifically the nested catchment of the Allt na Cailliche, which is located approximately 550 m north of the site option, at its closest extent. Published mapping shows Site Option CG3 is absent of any peat soils of conservation value, however areas of Class 2 peatlands (nationally important carbon-rich soils, deep peat and priority peatland habitat that are potentially high conservation value and restoration potential) are recorded downhill of the site option to the north, east and south, in the flatter areas towards the Allt na Cailliche and Allt nan Seileach. This is not considered a development constraint subject to appropriate design and safeguarding of water flow paths. Site Option CG3 is absent of any superficial cover. Within 1 km of Site Option CG3, superficial cover, where present, comprises of areas of peat and hummocky glacial deposits of diamicton, sand and gravel, particularly in flatter areas and along the banks of nearby watercourses towards the north, east and south of the site option. The bedrock which underlies Site Option CG3 comprises the Upper Garry Psammite Formation. SEPA floodplain mapping shows that the Medium (0.5% annual exceedance probability of flooding / 1 in 200yr) likelihood of flooding floodplain extent is associated with the Allt na Cailliche downstream (north east) of Site Option CG3. The superficial and solid geology are not important groundwater aquifers and unlikely to yield significant groundwater, and development of Site Option CG3 is unlikely to alter groundwater flow paths. Subject to best practice construction and mitigation it is likely that any impacts on soils, peat, geology and the water environment can be mitigated. A **Green** rating has therefore been applied to Site Option CG3.	G
Cultural Heritage		
Topics	**Potential Constraints**	**RAG Rating**
Designations	There are no WHSs, SMs, Inventory GDLs, LBs, CAs or IBs within the Site Option CG3 footprint. No potential impacts on the designating features or setting of any cultural heritage designations are anticipated for this site option. A **Green** rating has therefore been applied to Site Option CG3.	G

Cultural Heritage Assets	Non-designated within the Site Option CG3 footprint. No potential impacts on non-designated cultural heritage assets are anticipated for this site option. A **Green** rating has therefore been applied to Site Option CG3.	G
Landscape and Visual		
Topics	**Potential Constraints**	**RAG Rating**
Designations	Site Option CG3 is located within 1 km of the boundary to the Loch Lochy and Loch Oiche SLA with the potential to form a visible feature on the hill side. However, this is not anticipated to lead to any noticeable effect on the Special Qualities of the SLA. The RAG rating is therefore **Green**.	G
Landscape Character	Site Option CG3 would be located in LCT 239 (Interlocking Sweeping Peaks) which is considered to be Medium – High sensitivity to change. Whilst it is understood that a switching station in this location would be accommodated within a borrow pit for Coire Glas Pumped Storage Scheme, this is an open and visible location where any permanent structures would be likely to appear widely visible with the potential to disrupt the simple landscape composition and affect sense of wildness. Due to the elevated and exposed location, opportunities for landscape and visual mitigation such as planting would be limited with the potential to appear incongruous in the landscape in its own right. An **Amber** rating has been applied to this site option in isolation, but it is anticipated that if assessed in combination with the OHL grid connection that would be required to connect to a switching station at Site Option CG3, then this RAG rating would be **Red.**	A[2]
Visual	Site Option CG3 would be potentially viewed by recreational users of the landscape accessing Ben Tee either from Kilfinnan Farm or from White Bridge, potentially using the Coire Glas Pumped Storage Scheme access track to the dam, and also those following Scottish Hill Track route 239. Whilst a switching station would look small in relation to other Coire Glas features it would spread the visual influence of structures to other parts of these routes and may be difficult to mitigate. This option could also be visible for some residential receptors more widely, in areas such as Faichem, though it would be small feature. An **Amber** rating has been applied has therefore been applied to this site option in isolation, but it is anticipated that if assessed in combination with the OHL grid connection that would be required to connect to a switching station at Site Option CG3, then this RAG rating would be **Red.**	A[2]

[2] The Amber RAG assessment is for a switching station at Site Option CG3 in isolation. However, it is anticipated that this RAG rating would be Red if combined with the associated OHL gird connection that would be required to connect to a switching station site at this site.

Land Use		
Topics	**Potential Constraints**	**RAG Rating**
Agriculture	Site Option CG3 is located lies of wet heath on the lower slopes of the shoulder east of Ben Tee, on land which is only capable of supporting rough grazing (ALC 6.3). A **Green** rating has therefore been applied to Site Option CG3.	G
Forestry	Commercial Forestry Site Option CG3 lies within open ground with no commercial forestry. Woodland Site Option CG3 lies within open ground with no woodlands or forestry/woodland designations. A small area of NWSS upland birchwood lies immediately to the west of the site option. A **Green** rating has therefore been applied to Site Option CG3.	G
Recreation	Recreational Routes Site Option CG3 is located lies of wet heath on the lower slopes of the shoulder east of Ben Tee. There is an unclassified mountain route leading to the summit of Ben Tee to the north of Site Option CG3, which passes through the north-eastern corner of the site option. There are further two tracks leading to the summit of Ben Tee to the south of Site Option CG3: Scottish Hill Track 239 (classified by SCOTWAYS) and another unclassified mountain route. None of these tracks are designated footpaths and it is anticipated that direct impacts on the mountain route which passes through Site Option CG3 could be avoided through micrositing of the switching station platform or by rerouted the footpath. However, this option would be potentially viewed by recreational users of the landscape accessing Ben Tee, including users of these recreational footpaths. An **Amber** rating has therefore been applied. Commercial Highland Sports Site Option CG3 lies is located within land owned by Aberchalder Estate. The estate is managed for sporting activities, including red deer stalking and trout and salmon fishing, as well as other recreational activities such as highland safaris. Site Option CG3 may interact with areas used for commercial highland sports on Aberchalder Estate and has some potential to compromise their commercial viability, particularly during construction. An **Amber** rating has therefore been applied. Based on the potential visual effects to users of the footpaths to the summit of Ben Tee and the potential impacts on the commercial viability of highland sports on Aberchalder Estate, an **Amber** rating has been applied.	A
Planning		
Topics	**Potential Constraints**	**RAG Rating**
Policy	Site Option CG3 would be brought forward in full compliance with national, regional or local planning policy. A **Green** RAG rating has been applied.	G

Proposals	Site Option CG3 may interact with the construction of the access track for the consented Coire Glas Pumped Storage Scheme. However, this development is being developed for the Pumped Storage Scheme. Site Option CG3 would also directly interact with the construction of the new grid connection between the new Coire Glas Switching Station and the new Loch Lundie Substation, being developed for the Pumped Storage Scheme. No other proposals that are wither consented or known to the planning system have been identified within Site Option CG3. A **Green** RAG rating has been applied.	G

Table 3: 400 kV Coire Glas Switching Station - Site Option CG4 (See Figures 5.1 – 5.5)

Description:		
Site Option CG4 (Grid Reference 225381 793863) is located on the western banks of Loch Lochy, within South Laggan Forest. Site Option CG4 is located in the vicinity of the proposed lower works including the tailrace and the access tunnel portal for the consented SSER Coire Glas Pumped Storage Scheme. There is very limited flat or gently sloping ground in the area, apart from the existing tracks. Several small tributaries which lead into Loch Lochy, including the Allt Glas Dhoire are located to the north-east and south-west of Site Option CG4, along the western banks of Loch Lochy. The Great Glen Way footpath and Cycle Route 78 are also located along the western banks of Loch Lochy, to the south-east of Site Option CG4. An existing forestry track runs parallel to the bank of Loch Lochy, immediately south of Site Option CG4. Much of the forestry in South Laggan Forest surrounding Site Option CG4 is listed on the AWI.		
Review of Environmental Constraints:		
Natural Heritage		
Topics	**Potential Constraints**	**RAG Rating**
Designations	There are no regionally, nationally, or internationally designated sites within 1 km Site Option CG4. A **Green** rating has therefore been applied to Site Option CG4.	G
Protected Species	Initial walkover surveys undertaken in August 2021 did not record the presence of protected species in the vicinity of Site Option CG4. Abundant woodland, and woodland edge habitat, provides suitable habitat for badger, red squirrel, pine marten and bat species. Riparian zones provide suitable habitat for otter. Loss of small areas of habitat associated with substation infrastructure is therefore unlikely to significantly reduce habitat suitability or availability of the wider area. Potential for impacts on protected species could be further reduced or eliminated by undertaking pre-construction surveys and adopting appropriate mitigation. There is therefore considered to be low potential for Site Option CG4 to compromise the conservation status of, or for the site to be constrained by, the presence of protected species. A **Green** rating has therefore been applied to Site Option CG4.	G
Habitats	Initial walkover surveys undertaken in August 2021 indicate that the switching station is located within an area of coniferous plantation woodland, dominated by Sitka spruce *Picea sitchensis.* The understorey is dominated by Bracken *Pteridium aquilinum* and Purple moor-grass *Molinia caerulea* but generally there are few open areas. <u>Annex 1</u> No significant extent of Annex 1 habitat was identified within the footprint of Site Option CG4. Loss of coniferous plantation woodland is considered probable from substation infrastructure for this option. However, none of the coniferous plantation woodland within Site Option CG4 is listed on the AWI. The sensitive habitats identified present modest constraints which could be further reduced or eliminated by micro-siting infrastructure and/or adopting appropriate mitigation. There is therefore considered to be low potential for Site Option CG4 to compromise the conservation status of, or for the site to be constrained by, Annex 1 habitats. <u>GWDTE</u>	G

	GWDTE are not considered extensive within the site option footprint, limited to surrounds of small hydrological pathways. Loss of GWDTE could therefore be minimised by micro-siting of infrastructure, and there is low potential for Site option CG4 to compromise the integrity of GWDTE. <u>Biodiversity</u> Site Option CG4 contains a total of 11.88 BU, at 3.96BU/Ha. Site Option CG4 is dominated by coniferous plantation woodland. Small areas of habitats of high distinctiveness within the vicinity of the site option include wet heath and small patches of modified bog/marshy grassland. No irreplaceable habitats were identified in the vicinity of Site Option CG4. Where habitats of high distinctiveness are lost, replacement must be of equivalent value to meet No Net Loss. Removal of coniferous plantation is likely to present an opportunity to enhance biodiversity value within Site Option CG4, by replacement with habitats of higher distinctiveness value. It should be noted however that removal of woodland habitat creates difficulty in achieving No Net Loss due to the time taken for replacement woodland and/or scrub to achieve suitable structure and condition and for the replacement biodiversity value to be realised. Overall, a **Green** RAG rating has been applied to Site Option CG4.	
Ornithology	Site Option CG4 is located in commercial forestry, where ornithological constraints are considered to be minimal, although there may be several Red and Amber List species of conservation concern breeding in near proximity, including Song Thrush (Turdus philomelos), Spotted Flycatcher (*Muscicapa striata*), Tree Pipit (*Anthus trivialis*), Lesser Redpoll (*Acanthis cabaret*), Dunnock (*Prunella modularis*) and Willow Warbler (*Phylloscopus trochilus*). However, it is considered unlikely that Site Option CG4 would compromise the conservation status of a population of a red or amber listed species. Pre-construction surveys will need to be undertaken and appropriate mitigation measures should be implemented to minimise any disturbance to birds present. However due to the low level of predicted constraints, a **Green** rating has been applied.	G
Hydrology / Geology	Site Option CG4 lies entirely within the River Lochy catchment, specifically the nested catchments of the Allt Glas Dhoire and Loch Lochy, which are located approximately 400 m south west and 300 m south east of the site option respectively. Site Option CG4 is absent of any peat soils of conservation value. No peat soils of conservation value are also recorded within 1 km of Site Option CG4. Site Option CG4 is underlain by hummocky glacial deposits of diamicton, sand and gravel associated. It is underlain by bedrock deposits of the Upper Garry Psammite Formation. SEPA floodplain mapping shows that the Medium (0.5% annual exceedance probability of flooding / 1 in 200yr) likelihood of flooding floodplain extent is associated with the Allt Glas Dhoire downstream (south west) of Site Option CG4 and is shown to be laterally extensive immediately upstream of the confluence with Loch Lochy. The superficial and solid geology are not important groundwater aquifers and unlikely to yield significant groundwater, and development of Site Option CG4 is unlikely to alter groundwater flow paths. Subject to best practice construction and mitigation it is likely that any impacts on soils, peat, geology and the water environment can be mitigated. Given the proximity of Site Option CG4 to Loch Lochy and the associated potential flood risk, an **Amber** rating has been applied to Site Option CG4.	A
Cultural Heritage		
Topics	**Potential Constraints**	**RAG Rating**

Designations	There are no WHSs, SMs, Inventory GDLs, LBs, CAs or IBs within the Site Option CG4 footprint. No potential impacts on the designating features or setting of any cultural heritage designations are anticipated for this site option. A **Green** rating has therefore been applied to Site Option CG4.	G
Cultural Heritage Assets	Non-designated within the Site Option CG4 footprint. No potential impacts on non-designated cultural heritage assets are anticipated for this site option. A **Green** rating has therefore been applied to Site Option CG4.	G
Landscape and Visual		
Topics	**Potential Constraints**	**RAG Rating**
Designations	Site Option CG4 would be sited within the Loch Oich and Loch Lochy SLA, within an area of commercial forest plantation. This would be seen in the context of the lower reservoir features of the Coire Glas Pumped Storage Scheme but would be on the higher glenside above these features. This is a steeply sloping area and the creation of a flat area to accommodate the Proposed Development as well as the establishment of permanent structures, may lead to a disruption of the consistently steep, regular slope which is cited within the SLA Special Quality: The Great Glen. An **Amber** RAG rating has therefore been allocated.	A
Landscape Character	Site Option CG4 would be located within LCT 239 (Interlocking Sweeping Peaks) which is considered to have Medium – High sensitivity to development of the type proposed. However, this location is more closely associated with the Great Glen than the adjacent mountains, comprising the steep, forested lower slopes which sweep down to Loch Lochy. The Proposed Development would be seen in combination with other features of the Coire Glas Pumped Storge Scheme on the shore of Loch Lochy, but the creation of a flat area, likely to require rock cuttings, to accommodate the Proposed Development and establishment of permanent structures on this higher position of the slope would potentially appear inconsistent with the existing patterns of development in this area which is typically at the base of the slope and on the floor of the glen. It also has the potential to lead to cumulative effects with the lower reservoir features of the pumped storage scheme leading to a greater apparent area of development. The forested setting may provide some opportunity for mitigation, but this may be difficult given the steeply sloping ground.	A[3]

[3] The Amber RAG assessment is for a switching station at Site Option CG4 in isolation. However, it is anticipated that this RAG rating would be Red if combined with the associated OHL gird connection that would be required to connect to a switching station site at this site.

	On the basis of these potential effects, an **Amber** rating has been applied. However, it is anticipated that if this site option was assessed in combination with the OHL grid connection that would be required to connect to a switching station at Site Option CG4, then this RAG rating would be **Red.**	
Visual	Site Option CG4 for the Proposed Development would be likely to be viewed by visual receptors on the A82 on the eastern side of Loch Lochy, including from a number of layby and stopping locations where open water views across the loch are obtained. It would also be potentially visible to boat users on the loch although these individuals would have a very low vantage point. There would also be potential views from residential and tourist properties on the eastern side of Loch Lochy at Letterfinlay, Corriegour and potentially also at Laggan Locks. From these areas, the Proposed Development would be seen in combination with the lower reservoir features of the Coire Glas Pumped Storage Scheme. Whilst this would create a precedent for views of development in this area, the Proposed Development would extent the visible area occupied by permanent structures to higher slopes, away from the loch-side setting. The situation of Option CG4 on the high steep side-slope of the glen may also result in potential mitigation for visual effects being difficult to achieve. Passing views of this site option would also be likely to be obtained by users of the Great Glen Way, which would be realigned as part of the Coire Glas Pumped Storage Scheme and by those ascending walking routes up Sròn a' Choire Ghairbh and Meall na Teanga via the Càm Bhealach. Due to the numbers and likely sensitivity of visual receptors who may obtain views of a switching station in this location, an **Amber** RAG rating has been applied to the Site Option in isolation. However, it is anticipated that if this site option was assessed in combination with the OHL grid connection that would be required to connect to a switching station at Site Option CG4, then this RAG rating would be **Red.**	A[3]
Land Use		
Topics	**Potential Constraints**	**RAG Rating**
Agriculture	Site Option CG4 is located lies in an area of productive commercial forestry, on land which is only capable of supporting rough grazing (ALC 6.2). A **Green** rating has therefore been applied to Site Option CG4.	G
Forestry	<u>Commercial Forestry</u> Site Option CG4 lies in an area of productive commercial forestry and would have some implication to the commercial returns of the forestry operations. <u>Woodland</u> There are no woodland designations As Site Option CG4 would have some implication to the commercial returns this route is allocated an **Amber** rating.	A
Recreation	<u>Recreational Routes</u> Site Option CG4 lies in an area of productive commercial forestry owned by FLS. The Great Glen Way and Cycle Route 78 are located along the banks of loch Lochy, to the south of Site Option CG4. The Great Glen Way, which would be realigned as part of the Coire Glas Pumped Storage Scheme, is classified one of 'Scotland's Great Trails'. It is not anticipated that the Great Glen Way or Cycle Route 78 would not be directly impacted by Site Option CG4; however, passing views of the site would likely be obtained by recreational users of these routes.	A

	There is also an unclassified mountain route which is routed through the forestry to the south of Site Option CG4, before changing direction to the west of Site Option CG4 to follow the Càm Bhealach valley and Allt Glas-Dhoire burn. This footpath is used by walkers climbing Sròn a' Choire Ghairbh and Meall na Teanga. A short section of the footpath would pass through Site Option CG4; however, this mountain route is not designated, and it is likely that the footpath could be rerouted or avoided through mircositing. However, passing views of Site Option CG4 would likely to be obtained by recreational users of the footpath, particularly those ascending walking routes up Sròn a' Choire Ghairbh and Meall na Teanga via the Càm Bhealach from the footpath. Site Option CG4 is also located on the western banks of Loch Lochy. The loch itself is used by many recreational users for watersports, including sailing and canoeing. Loch Lochy also forms part of the Caledonian Canal, a 60-mile canal route through the Great Glen, and 'The Great Glen Canoe Trail', a route for canoeists and kayakers following the Caledonian Canal (which is classified as one of 'Scotland's Great Trails'). It is not anticipated that users of Loch Lochy would not be directly impacted by Site Option CG4; however, passing views of the site would likely be obtained by recreational users of the Loch Lochy. The situation of Option CG4 on the high steep side-slope of the glen may result in potential mitigation for visual effects from recreational receptors being difficult to achieve. An **Amber** RAG rating has been applied. <u>Commercial Highland Sports</u> Site Option CG4 lies within commercial forestry plantation owned by FLS and would not be used for commercial highland sports. A **Green** rating has therefore been applied. Due to the numbers and likely sensitivity of recreational visual receptors, including users of the Great Glen Way, Cycle Route 78 and users of Loch Lochy, who may obtain views of a switching station in this location, an overall **Amber** RAG rating has been applied.	
Planning		
Topics	**Potential Constraints**	**RAG Rating**
Policy	Site Option CG4 would be brought forward in full compliance with national, regional or local planning policy. A **Green** RAG rating has been applied.	G
Proposals	Site Option CG4 may interact with the construction of consented Coire Glas Pumped Storage Scheme. However, this development is being developed for the Pumped Storage Scheme. Site Option CG4 would also directly interact with the construction of the new grid connection between the new Coire Glas Switching Station and the new Loch Lundie Substation, being developed for the Pumped Storage Scheme. No other proposals that are either consented or known to the planning system have been identified within Site Option CG4. A **Green** RAG rating has been applied.	G

APPENDIX 5.2 – TECHNICAL APPRAISAL OF SITE OPTIONS: 400 kV COIRE GLAS SWITCHING STATION

Technical Assessment

Each site option for the 400 kV Coire Glas Switching Station has been assessed against the technical criteria in SSEN Transmission plc's guidance[1], as summarised in Table 1.

Table 1: Topic Areas Considered

	Category	Sub-Topic
Engineering	**Connectivity - Existing circuits/ network**	Distance and feasibility of connecting to the existing circuits / network
		Outages for modification to existing circuits
	Connectivity - Future development possibilities	Extension of site or other circuits
	Connectivity - Interface with SSEN Distribution and SSE Generation	Consideration of Business Separation and whole system requirements
	Connectivity - DNO Connection	Proximity of LVAC supplies
	Footprint Requirements - Technology	AIS/GIS or certainty of sizing on non-standard plant and equipment
	Footprint Requirements - Adjacent Land use	Availability for ancillary infrastructure like welfare compounds, laydown areas, screening and SUDS infrastructure
	Footprint Requirements - Space Availability	Non-standard substation configurations to accommodate site specific considerations
	Hazards	Unique Hazards
		Existing Utilities
	Ground Conditions	Topography
		Geology (Superficial Deposits – Peat)
		Geology (Site testing to verify properties)
	Environmental Conditions	Elevation
		Salt Pollution
		Flooding
		Carbon Footprint
		SF6
		Contaminated Land
		Noise (proximity to dwellings / residential properties)
	Construction Access	Substation Access Road (from public road)
		Transformer Delivery Route
	Operation and Maintenance	Access

[1] Referenced in: SSEN (2021): Substation Site Selection Guidelines for Voltages at or Above 132kV (July 2021)

As part of a comparative appraisal using the methodology in the SSEN Transmission plc's guidance[1], as summarised in Appendix 3.2, the Site Options were assigned RAG (Red, Amber, Green) ratings for each of the technical categories based on the whether the anticipated impact and/or risk was High, Intermediate or Low to identify a Preferred Site Option from a technical perspective. Table 2 defines the convention for the RAG ratings.

Table 2: RAG Rating Key

Performance	Comparative Appraisal
Most Preferred	The option has a low impact/risk and would require no special measures or mitigations
	The option has an intermediate impact/risk and would require special measures or mitigations. However, the measure/mitigations to be adopted are standard solutions known to suitably control the impact/risk.
Least Preferred	The option has a high impact/risk and would require non-standard/unproven special measures or mitigations. The ability of the measures/mitigations to control the impact/risk is uncertain.

Comparative Analysis

Construction Access

Table 3: RAG Appraisal – Construction Access

	Comparative Appraisal	RAG Rating
Site Option CG1	Closest site to the public road, reasonable existing forestry tracks in area.	
Site Option CG3	Further from public road and at a higher elevation than Site Option CG1	
Site Option CG4	Further from public road than Site Option CG1	

Operation and Maintenance

Table 4: RAG Appraisal – Operation and Maintenance

	Comparative Appraisal	RAG Rating
Site Option CG1	Closest site to the public road and at lower elevation so easier to access than the other site options	
Site Option CG3	Site is located at a higher elevation than Site Option CG1 and would require a longer access road from the public road. Risks in accessing during winter and/or in adverse weather.	
Site Option CG4	Site is located at than Site Option CG1 and would require a longer access road from the public road. Risks in accessing during winter and/or in adverse weather.	

Existing Circuits and Networks

Table 5: RAG Appraisal – Existing Circuits and Networks

	Comparative Appraisal	RAG Rating
Site Option CG1	Site is shortest distance to connect to network with new circuits within the Loch Lundie Substation Search Area.	
Site Option CG3	Long route at a higher altitude required to connect to network with new circuits within the Loch Lundie Substation Search Area	
Site Option CG4	Long route potentially at a higher altitude required to connect to network with new circuits within the Loch Lundie Substation Search Area	

Future Development Possibilities

Table 6: RAG Appraisal – Future Development Possibilities

	Comparative Appraisal	RAG Rating
Site Option CG1	DRD does not require provision for future expansion. Site is shortest distance to the existing network.	
Site Option CG3	DRD does not require provision for future expansion.	
Site Option CG4	DRD does not require provision for future expansion.	

Interface with SSE Distribution and Generation

Table 7: RAG Appraisal – Interface with SSE Distribution and Generation

	Comparative Appraisal	RAG Rating
Site Option CG1	No constraints from Distribution or Generation	
Site Option CG3	No constraints from Distribution or Generation	
Site Option CG4	No constraints from Distribution or Generation	

Interface with SSE Distribution and Generation

Table 8: RAG Appraisal – DNO Connection

	Comparative Appraisal	RAG Rating
Site Option CG1	Site approximately 1 km from existing DNO circuit	
Site Option CG3	Site several kilometers away from existing DNO network	
Site Option CG4	Site several kilometers away from existing DNO network	

Technology

Table 9: RAG Appraisal – Technology

	Comparative Appraisal	RAG Rating
Site Option CG1	AIS equipment proposed for switching station – mature, known technology	
Site Option CG3	AIS equipment proposed for switching station – mature, known technology	
Site Option CG4	AIS equipment proposed for switching station – mature, known technology	

Adjacent Land Use

Table 10: RAG Appraisal – Adjacent Land Use

	Comparative Appraisal	RAG Rating
Site Option CG1	Land adjacent to site challenging but not insurmountable.	
Site Option CG3	Land adjacent to site challenging but not insurmountable.	
Site Option CG4	Land adjacent to site challenging but not insurmountable.	

Space Availability

Table 11: RAG Appraisal – Space Availability

	Comparative Appraisal	RAG Rating
Site Option CG1	Standard AIS proposed. Space is available although not a level site.	
Site Option CG3	Standard AIS proposed. Space is available although not a level site.	
Site Option CG4	Standard AIS proposed. Space is available although not a level site.	

Unique Hazards

Table 12: RAG Appraisal – Unique Hazards

	Comparative Appraisal	RAG Rating
Site Option CG1	No unique hazards identified.	
Site Option CG3	Assuming some hazards at site due to hillside location.	
Site Option CG4	Assuming some hazards at site due to hillside location.	

Existing Utilities and Installations

Table 13: RAG Appraisal – Existing Utilities and Installations

	Comparative Appraisal	RAG Rating
Site Option CG1	None identified	
Site Option CG3	None identified	
Site Option CG4	None identified	

Topography

Table 14: RAG Appraisal – Topography

	Comparative Appraisal	RAG Rating
Site Option CG1	Site located in a less rugged area than the other site options but is not level.	
Site Option CG3	Site located on an exposed hillside. It would be challenging to construct a level platform at this location.	
Site Option CG4	Site located on an exposed hillside. It would be challenging to construct a level platform at this location. Gradient is steep across site.	

Geology

Table 15: RAG Appraisal – Geology

	Comparative Appraisal	RAG Rating
Site Option CG1	No detailed SI carried out at this stage. However, all sites have been assessed as amber on the basis of desktop and site visual inspections. It is assumed that there will some geological issues found at all site options so there is nothing to distinguish between them at this stage. It is also assumed that all site options will have some peat present.	
Site Option CG3		
Site Option CG4		

Elevation

Table 16: RAG Appraisal – Elevation

	Comparative Appraisal	RAG Rating
Site Option CG1	Site located approximately 200m AOD	
Site Option CG3	Site located >300m AOD	
Site Option CG4	Site located approximately 200m AOD	

Salt Pollution

Table 17: RAG Appraisal – Salt Pollution

	Comparative Appraisal	RAG Rating
Site Option CG1	No issues with salt pollution identified	
Site Option CG3	No issues with salt pollution identified	
Site Option CG4	No issues with salt pollution identified	

Flooding

Table 18: RAG Appraisal – Flooding

	Comparative Appraisal	RAG Rating
Site Option CG1	No issues with flooding identified	
Site Option CG3	No issues with flooding identified	
Site Option CG4	No issues with flooding identified	

SF6

Table 19: RAG Appraisal – SF6

	Comparative Appraisal	RAG Rating
Site Option CG1	SF_6 switchgear proposed as Site.	
Site Option CG3	SF_6 switchgear proposed as Site.	
Site Option CG4	SF_6 switchgear proposed as Site.	

Contaminated Land

Table 20: RAG Appraisal – Contaminated Land

	Comparative Appraisal	RAG Rating
Site Option CG1	No contamination identified to date and probability considered small.	
Site Option CG3	No contamination identified to date and probability considered small.	
Site Option CG4	No contamination identified to date and probability considered small.	

Noise (Proximity to Dwellings)

Table 21: RAG Appraisal – Noise (Proximity to Dwellings)

	Comparative Appraisal	RAG Rating
Site Option CG1	No transformers proposed at Switching Station. No properties in immediate vicinity to Site.	
Site Option CG3	No transformers proposed at Switching Station. No properties in immediate vicinity to Site.	
Site Option CG4	No transformers proposed at Switching Station. No properties in immediate vicinity to Site.	

Conclusion

Overall, Site Option CG1 is the Preferred Site from a technical perspective. All three site options were assessed based on identical layouts, and against a large number of assessment criteria there was little to differentiate between the three options. The key considerations that lead to Site Option CG1 being the Preferred Site were:

- Site CG1 is closest to existing infrastructure and the Loch Lundie site search area;
- the topology is Site CG1 better for site construction; and
- Site CG1 is closest site to existing public road network for construction and operational access.

There is little to choose between the other two site options, and so a next-preferred / least preferred option has not been identified.

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APPENDIX 5.3: 400 KV COIRE GLAS SWITCHING STATION SITE SELECTION - RAG SUMMARY TABLE

Appendix 5.3: Appraisal of 400 kV Coire Glas Switching Station Options			Site Options		
Topic	**Guidance Criteria - Environmental**	**Potential Constraint**	**CG1**	**CG3**	**CG4**
Environment/ Consenting	Natural Heritage - Designations	International, European or National Designations (e.g. SAC, SPA, RAMSAR, National Parks, SSSI, Ancient Woodland Inventory (AWI)) –	Green	Green	Green
		Regional designations (e.g. Local Nature Reserves, Wildlife Sites, RIGS)			
	Natural Heritage - Protected Species	European Protected Species (EPS)	Green	Green	Green
		UK Biodiversity Action Plan (BAP) species (Red/Amber List)			
	Natural Heritage - Habitats	Annex 1 Habitats	Amber	Red	Green
		Groundwater Dependent Terrestrial Ecosystems (GWDTE)			
		Biodiversity			
	Natural Heritage - Ornithology	Schedule 1 Birds	Green	Red	Green
		Birds of Conservation Concern (BoCC)			
	Natural Heritage - Hydrology/geology	SG Drinking Water Protected Areas. (over 10m3 per day or supplies for over 50 people)	Green	Green	Amber
		Aquifer providing regional resources e.g. Abstractions for small public or private water supply Hydrological supply to GWDTE			
		Surface waters or aquifer providing water for agricultural or industrial use			
	Cultural Heritage - Designations	World Heritage Sites (WHS), Scheduled Monuments (SM), Inventory Gardens and Designed Landscapes (GDL), Inventory Battlefields. Sites and Monument Record Entries	Green	Green	Green

	Cultural Heritage - Assets	Listed buildings (A, B and C), Non-Inventory GDL, Conservation Areas	Green	Green	Green
	Landscape and Visual - Designations	National or Regional Designations: National Parks, National Scenic Areas, Inventory Gardens and Designed Landscape (GDL), Wild Land Area. Local Designations including: Regional Scenic Areas, and Special Landscape Areas	Green	Green	Amber
	Landscape and Visual - Landscape Character	Landscape character as defined in published character assessments (e.g. SNH national assessments)	Green	Amber	Amber
	Landscape and Visual - Visual	Settlements and residential properties, key transportation and recreational routes utilised by tourists and visitors to an area, vantage points and tourist destinations from where views and landscape appreciation is important.	Green	Amber	Amber
	Land Use - Agriculture	Agricultural Land Classification (ALC)	Green	Green	Green
	Land Use - Woodland/Forestry	Commercial Forestry	Amber	Green	Amber
		Woodland	Red	Green	Green
	Land Use - Recreation	Public Footpaths, National Cycle Routes etc	Amber	Amber	Amber
		Commercial Highland Sports - fishing, stalking, shooting etc.	Green	Amber	Green
	Planning - Policy	National/Regional/Local Planning Policy	Green	Green	Green
	Planning - Proposals	Other relevant projects already known to the planning system	Green	Green	Green
Engineering	Connectivity - Existing circuits/ network	Distance and feasibility of connecting to the existing circuits / network	Amber	Red	Red
		Outages for modification to existing circuits	Green	Green	Green
	Connectivity - Future development possibilities	Extension of site or other circuits	Amber	Amber	Amber

	Connectivity - Interface with SSE Distribution and Generation	Consideration of Business Seperation and whole system requirements	Green	Green	Green
	Connectivity - DNO Connection	Proximity of LVAC supplies	Amber	Red	Red
	Footprint Requirements - Technology	i.e. AIS/GIS or certainty of sizing on non-standard plant and equipment	Green	Green	Green
	Footprint Requirements - Adjacent Land use	Availability for ancillary infrastructure like welfare compounds, laydown areas, screening and SUDS infrastructure.	Amber	Amber	Amber
	Footprint Requirements - Space Availability	Non standard substation configurations to accommodate site specific considerations	Amber	Amber	Amber
	Hazards	Unique Hazards	Green	Amber	Amber
		Existing Utilities	Green	Green	Green
	Ground Conditions	Topography	Amber	Red	Red
		Geology (Superficial Deposits – Peat)	Amber	Amber	Amber
		Geology (Site testing to verify properties)	Amber	Amber	Amber
	Environmental Conditions	Elevation	Amber	Red	Amber
		Salt Pollution	Green	Green	Green
		Flooding	Green	Green	Green
		Carbon Footprint	No Preference	No Preference	No Preference
		SF6	Red	Red	Red
		Contaminated Land	Green	Green	Green
		Noise (proximity to dwellings / residential properties)	Green	Green	Green
	Construction Access	Substation Access Road (from public road)	Green	Amber	Amber
		Transformer Delivery Route	No Preference	No Preference	No Preference
	Operation and Maintenance	Access	Amber	Red	Red

Cost	Capital	Construction	No Preference	No Preference	No Preference
		Diversions	No Preference	No Preference	No Preference
		Public Road Improvements	No Preference	No Preference	No Preference
		Felling	No Preference	No Preference	No Preference
		Land Assembly	No Preference	No Preference	No Preference
		Consent Mitigations	No Preference	No Preference	No Preference
	Operational	Inspections	No Preference	No Preference	No Preference
		Maintenance	No Preference	No Preference	No Preference

APPENDIX 6.1 –ENVIRONMENTAL APPRAISAL OF SITE OPTIONS: 400 KV / 132 KV LOCH LUNDIE SUBSTATION

Environmental Appraisal

Each site option for the 400 kV / 132 kV Loch Lundie Substation has been assessed against the environmental categories in SSEN Transmission plc's guidance[1]. Using the methodology summarised in Appendix 3.2, the site options were assigned RAG (Red, Amber, Green) ratings for each of the environmental categories based on the whether the anticipated impact and/or risk was High, Intermediate or Low to identify a Preferred Site Option from an environmental perspective.

Table 1: 400 kV / 132 kV Loch Lundie Substation - Site Option LL1 (See Figures 6.1 - 6.5)

Description:		
Site Option LL1 (Grid Reference 230305 804557) would be located in an elevated area of open moorland to the north-east of Loch Lundie. Loch Lundie forms the most westerly extent of the West Inverness-shire Lochs Special Protected Area (SPA) and Site of Special Scientific Interest (SSSI). Small areas of woodland which are listed on the Ancient Woodland Inventory (AWI), are located to the east / north-east and north-west of Site Option LL1. There are some small tributary streams of Loch Lundie to the west of Site Option LL1. An existing estate access track runs to the south and east of Site Option LL1, crossing through the southeast corner of the site. Site Option LL1 is located to the west of both the existing Fort Augustus to Fort William overhead line (OHL) and the Fort Augustus to Skye T OHL routes. It is anticipated that the Fort Augustus to Skye T OHL will eventually be replaced by the proposed Skye Reinforcement Project and dismantled. However, this assessment has been undertaken using the existing baseline. Existing and Planned grid infrastructure are illustrated in Figure 6.3.		
Review of Environmental Constraints:		
Natural Heritage		
Topics	**Potential Constraints**	**RAG Rating**

[1] Referenced in: SSEN (2021): Substation Site Selection Guidelines for Voltages at or Above 132kV (July 2021)

Designations	Site Option LL1 would not be located within any designated RAMSAR, SSSI, SPA, Special Area of Conservation (SAC), National Nature Reserve (NNR) or other regionally, nationally, or internationally designated sites. Within 1 km of Site Option LL1 lies the West Inverness-shire Lochs SSSI and SPA, approximately 500 m to the southwest. The West Inverness-shire Lochs SSSI and SPA comprises eight freshwater upland lochs (specifically Loch Lundie with respect to Site Option LL1) and has been designated as they support nationally important numbers of breeding black-throated divers (*Gavia arctica*) and common scoters (*Melanitta nigra*). Site Option LL1 lies within the Aldernaig Burn which includes upgradient tributaries of Loch Lundie, therefore there is the potential for hydrological connectivity between Site Option LL1 and the West Inverness-shire Lochs SPA / SSSI at Loch Lundie. Subject to control measures and good practice it is unlikely that works associated with construction would compromise the qualifying interests of the West Inverness-shire Lochs SSSI and SPA. A **Green** RAG rating has therefore been applied.	G
Protected Species	Initial walkover surveys undertaken in August 2021 did not record the presence of protected species in the vicinity of Site Option LL1. Wet heath and mire habitats provide suitable habitat for water vole (*Arvicola amphibius*). Loss of small areas of habitat associated with substation infrastructure is therefore unlikely to significantly reduce habitat suitability or availability of the wider area. Potential for impacts on protected species could be further reduced or eliminated by undertaking pre-construction surveys and adopting appropriate mitigation. There is therefore considered to be low potential for Site Option LL1 to compromise the conservation status of a protected species or for the site to be constrained by the presence of protected species. A **Green** RAG rating has therefore been applied.	G
Habitats	Initial walkover surveys undertaken in August 2021 indicate that Site Option LL1 is located within an area of wet heath and blanket mire north of Loch Lundie. The extent of Site Option LL1 also extends across a small area of semi-natural broadleaved woodland. <u>Annex 1</u> Blanket mire and wet heath habitats are identified as Annex 1 habitats. Loss of blanket mire and wet heath is considered probable from substation infrastructure for Site Option LL1. However, these habitats are widespread in the surrounding area and are generally not in good condition as a result of and management impacts. Potential impacts on these sensitive habitats identified present modest constraints which could be further reduced or eliminated by micro-siting infrastructure and/or adopting appropriate mitigation. There is therefore considered to be moderate potential for Site Option LL1 to compromise the conservation status of, or for the site to be constrained by, Annex 1 habitats. <u>GWDTE (Groundwater Dependent Terrestrial Ecosystems)</u> Wet heaths are considered to be moderately dependent on groundwater in certain circumstances. The majority of wet heaths within Site Option LL1 are considered to be principally associated with ombrotrophic mires and as such not generally dependent on groundwater. Therefore, GWDTE are not considered extensive within the route corridor, limited to surrounds of small hydrological pathways. Loss of GWDTE could therefore be minimised by micro-siting of infrastructure, and there is low potential for Site Option LL1 to compromise the integrity of GWDTE. <u>Biodiversity</u>	A

	Site Option LL1 contains a total of 168.32 Biodiversity Units (BU), at 14.01BU/Ha. In Biodiversity Net Gain (BNG) guidance, blanket mires are considered to be irreplaceable habitat. Site Option LL1 is dominated by wet heath habitat, identified as habitat of high distinctiveness in BNG guidance, with patches of blanket mires also present. Where habitats of high distinctiveness are lost, replacement must be of equivalent value to meet No Net Loss. Removal of blanket mire and wet heath habitat presents difficulty in achieving No Net Loss of biodiversity within the area. Surrounding areas are also dominated by wet heath and blanket mire habitats, with patchy semi-natural woodland, and offer little opportunity for biodiversity improvement. An overall **Amber** rating has therefore been applied to Site Option LL1 due to the potential loss of Annex 1 habitats associated with this site, as well as habitats that are considered to be irreplaceable under BNG guidance.	
Ornithology	Site Option LL1 is located in open land. Ornithological constraints are considered to be minimal, although there may be several Red and Amber List species of conservation concern breeding in near proximity to Site Option LL1, including Lapwing (*Vanellus vanellus*), Curlew (*Numenius arquata*), Skylark (*Alauda arvensis*), Song Thrush (*Turdus philomelos*), Spotted Flycatcher (*Muscicapa striata*), Tree Pipit (*Anthus trivialis*), Lesser Redpoll (*Acanthis cabaret*), Meadow Pipit (*Anthus pratensis*) and Willow Warbler (*Phylloscopus trochilus*). However, it is considered unlikely that Site Option LL1 would compromise the conservation status of a population of a red or amber listed species. Pre-construction surveys will need to be undertaken and appropriate mitigation measures should be implemented to minimise any disturbance to birds present. Due to the low level of predicted constraints, a **Green** rating has been applied.	G
Hydrology / Geology	Site Option LL1 lies entirely within the Aldernaig Burn catchment, specifically the nested catchment of the upstream tributaries of Loch Lundie, the nearest watercourse of which is located approximately 100 m northwest of Site Option LL1, at its closest extent. Site Option LL1 is absent of any peat soils of conservation value, however, areas of Class 2 peatlands (nationally important carbon-rich soils, deep peat and priority peatland habitat that are potentially high conservation value and restoration potential) are recorded downhill of the site option on all sides. With appropriate design and mitigation, it is likely that peatland can be safeguarded and does not pose a development constraint. Superficial mapping indicates that Site Option LL1 is absent of any superficial cover, however thin peaty soil was noted across this area during the site visit. Within 1 km of Site Option LL1, superficial cover comprises areas of hummocky glacial deposits of diamicton, sand and gravel along the banks of the nearby watercourses and areas of peat along to the east of Site Option LL1 and immediately north of Loch Lundie. The bedrock which underlies Site Option LL1 comprises the Tarvie Psammite Formation. Site Option LL1 is located within the Aldernaig catchment which has been designated a Drinking Water Protection Area (DWPA), Scottish Water abstract from Aldernaig Burn to supply their Invergarry Water treatment Works (WTW). The location of Scottish Water infrastructure would need to be confirmed to ensure the DWPA or Scottish Water infrastructures is not impaired. As the development	A

	footprint is very small in area compared to the extent of the DWPA it is considered unlikely that the presence of the DWPA will pose a significant development constraint. SEPA floodplain mapping shows that the Medium (0.5% annual exceedance probability of flooding / 1 in 200yr) likelihood of flooding floodplain extent is associated with the Loch Lundie downstream (southwest) of Site Option LL1, however these are generally confined to the banks of the loch. The superficial and solid geology are not important groundwater aquifers and unlikely to yield significant groundwater, and development of Site Option LL1 is unlikely to alter groundwater flow paths. Subject to best practice construction and mitigation it is likely that any impacts on soils, peat, geology and the water environment can be mitigated. Given the presence of priority peatland and the DWPA an **Amber** rating has been applied to this Site.	
Cultural Heritage		
Topics	**Potential Constraints**	**RAG Rating**
Designations	There are no World Heritage Sites (WHS), Scheduled Monuments (SM), Inventory Gardens and Designed Landscapes (GDL), Listed buildings (LB), Conservation Areas (CA) or Inventory Battlefields (IB) within the Site Option LL1 footprint. No potential impacts on the designating features or setting of any cultural heritage designations are anticipated for this site option. A **Green** rating has therefore been applied to Site Option LL1.	G
Cultural Heritage Assets	No potential impacts on non-designated cultural heritage assets are anticipated for Site Option LL1. A **Green** rating has therefore been applied to Site Option LL1.	G
Landscape and Visual		
Topics	**Potential Constraints**	**RAG Rating**
Designations	This Option is not located within or likely to lead to any effects on any areas covered by landscape designations. The RAG rating is therefore **Green**.	G
Landscape Character	This substation option falls within LCT 237 (Rocky Moorland – Lochaber) which is considered to have a Medium sensitivity to this type of development, and Low in some areas where existing OHL infrastructure is prominent. Locally, this option would be located in an open area of moorland approximately 350 m to the west of existing OHLs. These existing OHLs therefore already have some influence on the character of this area. However, this option would be likely to spread the appearance of infrastructure to a new part of the landscape, and increase the surrounding influence of this type of development in the landscape around Loch Lundie, particularly when taking into account the additional OHL connections which would be required to reach this location. The presence of some existing scrub woodland within the wider area suggests some opportunities may be available to establish planting to help mitigate the landscape effects. However, it is likely that a substation in this location would continue to form a visible feature of the landscape and a noticeable degree of landscape change. A **Red** RAG rating has therefore been applied to this option.	R

Visual	This option would be visible from a Core Path and Scottish Hill Track route which passes to the east of Loch Lundie between Invergarry and Fort Augustus. Users of this route are already habituated to the presence of OHL infrastructure in this area. However, a substation in this location would potentially from a new visual focus from some parts of this route with likely additional effects from OHLs which would need to cross this route to connect into the new substation. The location of this option towards the north of the search area would also lead to potentially greater numbers of OHL alignments alongside the Core Path from the south. The presence of existing scrub woodland gives some opportunity to mitigate the visual effects of the substation but it would be unlikely to be possible to mitigate all visual effects. No views from residential or tourism areas or road routes would be anticipated. Based on the potential visual effects to users of the Core Path from both the substation and associated OHL connections, an **Amber** RAG rating has been applied.	A
Land Use		
Topics	**Potential Constraints**	**RAG Rating**
Agriculture	Site Option LL1 is located within an area of wet heath and blanket mire north of Loch Lundie, on land that on land which is only capable of supporting rough grazing (Agricultural Land Capability (ALC) 6.3). A **Green** rating has therefore been applied to Site Option LL1.	G
Woodland / Forestry	<u>Commercial Forestry</u> Site Option LL1 option avoids interaction with areas of commercial forestry. <u>Woodland</u> Site Option LL1 mostly lies within open ground however the extent of the platform extends to a small area of NWSS upland birchwood. This is <110% of least 'woodland impacted on' Option and could likely be avoided through micrositing if the substation platform. This site option is therefore allocated a **Green** rating.	G
Recreation	<u>Recreational Routes</u> Site Option LL1 is located within an area of wet heath and blanket mire north of Loch Lundie. The existing access track which runs to the south and east of Site Option LL1 and passes to the east of Loch Lundie is classified as a Core Path (by The Highland Council (THC)) and a Scottish Hill Track (by Scottish Rights of Way and Access Society (SCOTWAYS)). A short section of this access track would pass through Site Option LL1; however it is anticipated that the footpath could be rerouted or avoided through mircositing. However, a substation at this location would be visible from form the Core Path / Scottish Hill Track. As noted in the 'Landscape and Visual – Visual' section above, although users of this footpath would already be habituated to the presence of OHL infrastructure in this area, a substation in this location would potentially form a new visual focus from some parts of this recreational route, with likely additional effects from OHLs which would need to cross this route to connect into the new substation. The location of this option towards the north of the search area would also lead to potentially greater numbers of OHL alignments alongside the Core Path from the south. The presence of existing scrub woodland gives some opportunity to mitigate the visual effects of the substation but it would be unlikely to be possible to mitigate all visual effects. There are no other recreational routes within, or in close proximity to, Site Option LL1 and no views from recreational or tourism areas or routes are anticipated. An **Amber** rating has therefore been applied.	A

	Commercial Highland Sports Site Option LL1 lies is located within land owned by Aberchalder Estate. The estate is managed for sporting activities, including red deer stalking and trout and salmon fishing, as well as other recreational activities such as highland safaris. Loch Lundie is used for brown trout fishing. Stag and hind stalking activities take place in September and October on the estate. Site Option LL1 may interact with areas used for commercial highland sports on Aberchalder Estate and has some potential to compromise their commercial viability, particularly during the construction phase. An **Amber** rating has therefore been applied. Based on the potential visual effects to users of the Core Path and Scottish Hill Track from both the substation and associated OHL connections, and the potential impacts on the commercial viability of highland sports on Aberchalder Estate, an **Amber** RAG rating has been applied.	
Planning		
Topics	**Potential Constraints**	**RAG Rating**
Policy	Site Option LL1 would be brought forward in full compliance with national, regional or local planning policy. A **Green** RAG rating has been applied.	G
Proposals	Site Option LL1 may interact with the construction or dismantling of SSEN Transmission OHL proposals. No other proposals that are either consented or known to the planning system have been identified within Site Option LL1. A **Green** RAG rating has been applied.	G

Table 2: 400 kV / 132 kV Loch Lundie Substation - Site Option LL2 (See Figures 6.1 - 6.5)

Description:		
Site Option LL2 (Grid Reference 230984 804307) would be located in an area of open moorland to the north-east of Loch Lundie and immediately north of the forestry to the north of Invergarry. Loch Lundie forms the most westerly extent of the West Inverness-shire SPA / SSSI. Small areas of woodland which are listed on the AWI are located to the north-east and north-west of Site Option LL2. There are also some small tributary streams of the Invergarry Burn to the east and north-east of Site Option LL2. Site Option LL2 is located to the east of both the existing Fort Augustus to Fort William OHL and the Fort Augustus to Skye T OHL routes. Fort Augustus to Skye T OHL will eventually be replaced by the proposed Skye Reinforcement Project and dismantled. However, this assessment has been undertaken using the existing baseline. Existing and Planned grid infrastructure are illustrated in Figure 6.3. An existing estate access track also runs to the west of Site Option LL2.		
Review of Environmental Constraints:		
Natural Heritage		
Topics	**Potential Constraints**	**RAG Rating**
Designations	Site Option LL2 would not be located within any designated RAMSAR, SSSI, SPA, SAC, NNR or other regionally, nationally, or internationally designated sites. Within 1 km of Site Option LL2 lies the West Inverness-shire Lochs SSSI and SPA, approximately 840 m to the south west. The West Inverness-shire Lochs SSSI and SPA comprises eight freshwater upland lochs (specifically Loch Lundie with respect to Site Option LL2) and has been designated as they support nationally important numbers of breeding black-throated divers (*Gavia arctica*) and common scoters (*Melanitta nigra*). The catchment of the Aldernaig Burn lies approximately 200 m west of Site Option LL2, which includes upgradient tributaries of Loch Lundie. Therefore, there is the potential for hydrological connectivity between Site Option LL1 and the West Inverness-shire Lochs SPA / SSSI at Loch Lundie. Subject to control measures and good practice it is unlikely that works associated with construction would compromise the qualifying interests of the West Inverness-shire Lochs SSSI and SPA. A **Green** RAG rating has therefore been applied.	G
Protected Species	Initial walkover surveys undertaken in August 2021 did not record the presence of protected species in the vicinity of Site Option LL2. Wet heath and mire habitats provide suitable habitat for water vole (*Arvicola amphibius*). Loss of small areas of habitat associated with substation infrastructure is therefore unlikely to significantly reduce habitat suitability or availability of the wider area. Potential for impacts on protected species could be further reduced or eliminated by undertaking pre-construction surveys and adopting appropriate mitigation. There is therefore considered to be low potential for Site Option LL2 to compromise the conservation status of a protected species or for the site to be constrained by the presence of protected species and a **Green** RAG rating has been applied.	G
Habitats	Initial walkover surveys undertaken in August 2021 indicate that Site Option LL2 is located within an area of wet heath and blanket mire north-east of Loch Lundie.	A

	Annex 1 Blanket mire and wet heath habitats are identified as Annex 1 habitats. Loss of blanket mire and wet heath is considered probable from Site Option LL2. However, these habitats are widespread in the surrounding area and are generally not in good condition as a result of and management impacts. Potential impacts on these sensitive habitats identified present modest constraints which could be further reduced or eliminated by micrositing infrastructure and/or adopting appropriate mitigation. There is therefore considered to be moderate potential for Site Option LL2 to compromise the conservation status of, or for the site to be constrained by, Annex 1 habitats. GWDTE Wet heaths are considered to be moderately dependent on groundwater in certain circumstances. The majority of wet heaths within Site Option LL2 are considered to be principally associated with ombrotrophic mires and as such not generally dependent on groundwater. Therefore, GWDTE are not considered extensive within the route corridor, limited to surrounds of small hydrological pathways. Loss of GWDTE could therefore be minimised by micrositing of infrastructure, and there is low potential for Site Option LL2 to compromise the integrity of GWDTE. Biodiversity Site Option LL2 contains a total of 174.39 BU, at 14.52BU/Ha. In BNG guidance, blanket mires are considered to be irreplaceable habitat. Site Option LL2 is dominated by wet heath habitat, identified as habitat of high distinctiveness BNG, with patches of blanket mires also present. Where habitats of high distinctiveness are lost, replacement must be of equivalent value to meet No Net Loss. Removal of blanket mire and wet heath habitat presents difficulty in achieving No Net Loss of biodiversity within the area. Surrounding areas are also dominated by wet heath and blanket mire habitats, with patchy semi-natural woodland, and offer little opportunity for biodiversity improvement. An overall **Amber** rating has therefore been applied to Site Option LL2 due to the potential loss of Annex 1 habitats associated with this site, as well as habitats that are considered to be irreplaceable under BNG guidance.	
Ornithology	Site Option LL2 is located in open land. Ornithological constraints are considered to be minimal, although there may be several Red and Amber List species of conservation concern breeding in near proximity, including Lapwing (*Vanellus vanellus*), Curlew (*Numenius arquata*), Skylark (*Alauda arvensis*), Song Thrush (*Turdus philomelos*), Spotted Flycatcher (*Muscicapa striata*), Tree Pipit (*Anthus trivialis*), Lesser Redpoll (*Acanthis cabaret*), Meadow Pipit (*Anthus pratensis*) and Willow Warbler (*Phylloscopus trochilus*). However, it is considered unlikely that Site Option LL2 would compromise the conservation status of a population of a red or amber listed species. Pre-construction surveys will need to be undertaken and appropriate mitigation measures should be implemented to minimise any disturbance to birds present. Due to the low level of predicted constraints, a **Green** rating has been applied.	G

Hydrology / Geology	Site Option LL2 lies entirely within the Invervigar Burn catchment, the nearest tributary of which is located approximately 370 m east of the site option, at its closest extent. The catchment of the Aldernaig Burn lies approximately 200 m west of Site Option LL2 which includes upgradient tributaries of Loch Lundie. Site Option LL2 is located within an area of Class 2 peatlands (nationally important carbon-rich soils, deep peat and priority peatland habitat that are potentially high conservation value and restoration potential). The depth and quality of the peat would need to be confirmed if Site Option LL2 was to be considered further, and this data could be used to assess and impacts and what safeguards might be required as part of the site design. Superficial cover underlying Site Option LL2 comprises peat. Other discrete areas of peat are noted within 1 km of Site Option LL2 on the slopes of the local hilltops in the area. The bedrock which underlies Site Option LL2 comprises the Tarvie Psammite Formation. The West Highland Granite Gneiss Intrusion is noted approximately 60 m east and south east of the site option. Within 1 km of Site Option LL2, the western extent is located within the Aldernaig catchment which has been designated a DWPA, Scottish Water abstract from Aldernaig Burn to supply their Invergarry WTW. The location of Scottish Water infrastructure would be confirmed prior to construction. This is not considered a development constraint. SEPA floodplain mapping shows that the Medium (0.5% annual exceedance probability of flooding / 1 in 200yr) likelihood of flooding floodplain extent is associated with the Loch Lundie downstream (southwest) of Site Option LL2, however these are generally confined to the banks of the loch. The superficial and solid geology are not important groundwater aquifers and unlikely to yield significant groundwater, and development of Site Option LL2 is unlikely to alter groundwater flow paths. Subject to best practice construction and mitigation it is likely that any impacts on soils, peat, geology and the water environment can be mitigated. Given the presence of priority peatland an **Amber** rating has been applied to this Site.	A
Cultural Heritage		
Topics	**Potential Constraints**	**RAG Rating**
Designations	There are no WHSs, SMs, Inventory GDLs, LBs, CAs or IBs within the Site Option LL2 footprint. No potential impacts on the designating features or setting of any cultural heritage designations are anticipated for this site option. A **Green** rating has therefore been applied to Site Option LL2.	G
Cultural Heritage Assets	No potential impacts on non-designated cultural heritage assets are anticipated for Site Option LL2. A **Green** rating has therefore been applied to Site Option LL2.	G
Landscape and Visual		
Topics	**Potential Constraints**	**RAG Rating**
Designations	Site Option LL2 is not located within or likely to lead to any effects on any areas covered by landscape designations. The RAG rating is therefore **Green**.	G

Landscape Character	Site Option LL2 falls within LCT 237 (Rocky Moorland – Lochaber) which is considered to have a Medium sensitivity to this type of development, and Low in some areas where existing OHL infrastructure is prominent. Locally, this option would be located in an open area of moorland to the east of the existing OHLs and therefore in an area where sensitivity is slightly lower. Nevertheless, it would lead to a greater concentration of OHL infrastructure in this area which may more widely influence the character of some areas around Loch Lundie. The position of this option towards the north of the search area would also be likely to lead to a greater number of OHLs extending across the landscape to the south of this which would increase the potential for a greater landscape effect on the Loch Lundie area. Surrounding landform, forestry and woodland would be likely to assist in confining effects of a substation in this location to a relatively localised area, whilst the presence of nearby forest and woodland areas would give reasonable opportunity to further mitigate the extent of the landscape effect. On the basis of a likely greater associated OHL impact on the Loch Lundie area, an **Amber** RAG rating has been applied.	A
Visual	Site Option LL2 would be visible from a short section of a Core Path and Scottish Hill Track route which passes to the east of Loch Lundie between Invergarry and Fort Augustus. Users of this route are already habituated to the presence of OHL infrastructure in this area. A potential substation in this location would increase the adverse effect of OHL infrastructure on the visual amenity of this route, although open views across Loch Lundie to the west would be likely remain unaffected. However, the position of this option towards the north of the search area would be likely to lead to additional OHLs leading to the location from the south which would increase the visual effect on the Core Path. No views from residential or tourism areas or road routes would be anticipated. The presence of existing forestry and woodland in nearby areas gives some opportunity to mitigate the visual effect of the substation. An **Amber** RAG rating has been applied to this option due to the potential increased visual effects on the Loch Lundie Core Path from the substation and likely associated OHLs.	A
Land Use		
Topics	**Potential Constraints**	**RAG Rating**
Agriculture	Site Option LL2 is located within an area of wet heath and blanket mire to the north-east of Loch Lundie, on land that on land which is only capable of supporting rough grazing (ALC 6.3). A **Green** rating has therefore been applied to Site Option LL2.	G
Woodland / Forestry	<u>Commercial Forestry</u> Site Option LL2 option avoids interaction with areas of commercial forestry. <u>Woodland</u> Site Option LL2 lies within open ground with no woodlands or forestry/woodland designations. This site option is therefore allocated a **Green** rating.	G
Recreation	<u>Recreational Routes</u> Site Option LL2 is located within an area of wet heath and blanket mire to the north east of Loch Lundie. The existing access track which runs to the west of Site Option LL2 and passes to the east of Loch Lundie is classified as a Core Path (by THC) and a Scottish Hill Track (by	A

	SCOTWAYS). It is not anticipated that Site Option LL2 would have any direct impacts on the existing access track. However, a substation at this location would be visible from a short section of the Core Path / Scottish Hill Track. As noted in the 'Landscape and Visual – Visual' section above, although users of this footpath would already be habituated to the presence of OHL infrastructure in this area, a substation in this location would increase the adverse effect of OHL infrastructure on the visual amenity of this route, although open views across Loch Lundie to the west would be likely remain unaffected. However, the position of this option towards the north of the search area would be likely to lead to additional OHLs leading to the location from the south which would increase the visual effect on the Core Path / Scottish Hill Track. The presence of existing forestry and woodland in nearby areas would give some opportunity to mitigate the visual effect of a substation at this location. There are no other recreational routes within, or in close proximity to, Site Option LL2 and no views from recreational or tourism areas or routes are anticipated. An **Amber** rating has therefore been applied. <u>Commercial Highland Sports</u> Site Option LL2 lies is located within land owned by Aberchalder Estate. The estate is managed for sporting activities, including red deer stalking and trout and salmon fishing, as well as other recreational activities such as highland safaris. Loch Lundie is used for brown trout fishing. Stag and hind stalking activities take place in September and October on the estate. Site Option LL2 may interact with areas used for commercial highland sports on Aberchalder Estate and has some potential to compromise their commercial viability, particularly during the construction phase. An **Amber** rating has therefore been applied. Based on the potential visual effects to users of the Core Path and Scottish Hill Track from both the substation and associated OHL connections, and the potential impacts on the commercial viability of highland sports on Aberchalder Estate, an **Amber** RAG rating has been applied.	
Planning		
Topics	**Potential Constraints**	**RAG Rating**
Policy	Site Option LL2 would be brought forward in full compliance with national, regional or local planning policy. A **Green** RAG rating has been applied.	G
Proposals	Site Option LL2 may interact with the construction of or dismantling of SSEN Transmission OHL proposals. No other proposals that are wither consented or known to the planning system have been identified within Site Option LL2. A **Green** RAG rating has been applied.	G

Table 3: 400 kV / 132 kV Loch Lundie Substation - Site Option LL3 (See Figures 6.1 - 6.5)

Description:		
Site Option LL3 (Grid Reference 230678 803878) would be located in the north western corner of the forestry to the north of Invergarry. To the east and south east, Site Option LL3 is surrounded by the forestry to the north of Invergarry. There is a clearing in the forestry to the south east of Site Option LL3 which contains Lochan Doire Cadha. Several small tributaries enter this lochan from the western section of the forestry to the south of where Site Option LL3 would be located. Water from the lochan then enters the River Oich via the Allt Leth-bheinne. There are also existing forestry tracks in the forestry to the north of Invergarry, which can be accessed via a junction on the A82 at Port MacDonnell. Areas of the woodland within the forestry at Invergarry are listed on the AWI. Loch Lundie is located to the west of the Site Option LL3. Loch Lundie forms the most westerly extent of the West Inverness-shire SPA / SSSI. An existing estate access track and both the existing Fort Augustus to Fort William OHL and the Fort Augustus to Skye T OHL are routed along the eastern shore of Loch Lundie to the west of the Site Option LL3. It is anticipated that the Fort Augustus to Skye T OHL will eventually be replaced by the proposed Skye Reinforcement Project and dismantled. However, this assessment has been undertaken using the existing baseline. Existing and Planned grid infrastructure are illustrated in Figure 6.3. To the north of Site Option LL3 there is an area of open moorland. There are some small tributary streams of the Invergarry Burn to the north-east of Site Option LL3.		
Review of Environmental Constraints:		
Natural Heritage		
Topics	**Potential Constraints**	**RAG Rating**
Designations	Site Option LL3 would not be located within any designated RAMSAR, SSSI, SPA, SAC, NNR or other regionally, nationally, or internationally designated sites. There is no woodland listed within the AWI within Site Option LL3. Within 1 km of Site Option LL3lies the West Inverness-shire Lochs SSSI and SPA, approximately 480 m to the west. The West Inverness-shire Lochs SSSI and SPA comprises eight freshwater upland lochs (specifically Loch Lundie with respect to Site Option LL3) and has been designated as they support nationally important numbers of breeding black-throated divers (*Gavia arctica*) and common scoters (*Melanitta nigra*). Site Option LL3is located on the edge of the Aldernaig Burn catchment which includes the upgradient catchments of Loch Lundie. Therefore, there is the potential for hydrological connectivity between Site Option LL3 and the West Inverness-shire Lochs SPA / SSSI at Loch Lundie. Subject to control measures and good practice it is unlikely that works associated with construction would compromise the qualifying interests of the West Inverness-shire Lochs SSSI and SPA. A **Green** rating has therefore been applied.	G
Protected Species	Initial walkover surveys undertaken in August 2021 did not record the presence of protected species in the vicinity of Site Option LL3. Abundant woodland, and woodland edge habitat, provides suitable habitat for badger (*Meles meles*), red squirrel (*Sciurus vulgaris*), pine marten (*Martes mates*) and bat species. Riparian zones provide suitable habitat for otter (*Lutra lutra*). Loss of small areas of habitat associated with substation infrastructure is therefore unlikely to significantly reduce habitat suitability or availability of the wider area. Potential for impacts on protected species could be further reduced or eliminated by undertaking pre-construction surveys and adopting	G

	appropriate mitigation. There is therefore considered to be low potential for Site Option LL3 to compromise the conservation status of, or for the site to be constrained by, the presence of protected species. A **Green** rating has therefore been applied.	
Habitats	Initial walkover surveys undertaken in August 2021 indicate that Site Option LL3 is located within an area of coniferous plantation woodland, dominated by Sitka spruce *Picea sitchensis.* The understorey is dominated by Bracken *Pteridium aquilinum* and Purple moor-grass *Molinia caerulea,* but generally there are few open areas. <u>Annex 1</u> No significant extent of Annex 1 habitat was identified in the vicinity of Site Option LL3. Loss of coniferous plantation woodland is considered probable from substation infrastructure for Site Option LL3. However, none of the coniferous plantation woodland within Site Option LL3 is listed on the AWI. The sensitive habitats identified present modest constraints which could be further reduced or eliminated by micrositing infrastructure and/or adopting appropriate mitigation. There is therefore considered to be low potential for Site Option LL3 to compromise the conservation status of, or for the site to be constrained by, Annex 1 habitats. <u>GWDTE</u> GWDTE are not considered extensive within the site option footprint, limited to surrounds of marshy grassland areas and small hydrological pathways. Loss of GWDTE could therefore be minimised by micrositing of infrastructure, and there is low potential for Site Option LL3 to compromise the integrity of GWDTE. <u>Biodiversity</u> Site Option LL3 contains a total of 53.43 BU, at 4.45BU/Ha. Site Option LL3 is dominated by coniferous plantation woodland. Small areas of habitats of high distinctiveness within the vicinity of the site option include wet heath and small patches of modified bog/marshy grassland. No irreplaceable habitats were identified in the vicinity of the option. Where habitats of high distinctiveness are lost, replacement must be of equivalent value to meet No Net Loss. Removal of coniferous plantation is likely to present an opportunity to enhance biodiversity value within the route corridor, by replacement with habitats of higher distinctiveness value. It should be noted however that removal of woodland habitat creates difficulty in achieving No Net Loss due to the time taken for replacement woodland and/or scrub to achieve suitable structure and condition and for the replacement biodiversity value to be realised. A **Green** rating has therefore been applied.	G
Ornithology	Site Option LL3 is located in woodland. Ornithological constraints are considered to be minimal, although there may be several Red and Amber List species of conservation concern breeding in near proximity, including Song Thrush (*Turdus philomelos*), Spotted Flycatcher (*Muscicapa striata*), Tree Pipit (*Anthus trivialis*), Lesser Redpoll (*Acanthis cabaret*), Meadow Pipit (*Anthus pratensis*) and Willow Warbler (*Phylloscopus trochilus*). However, it is considered unlikely that Site Option LL3 would compromise the conservation status of a population of a red or amber listed species. Pre-construction surveys will need to be undertaken and appropriate mitigation measures should be implemented to minimise any disturbance to birds present. Due to the low level of predicted constraints, a **Green** rating has been applied.	G

Hydrology / Geology	Site Option LL3 lies entirely within the River Oich catchment, specifically located at a catchment divide between the following nested catchments: Aldernaig Burn to the west, Invervigar Burn to the northeast and Allt Leth-bheinne and Loch Oich to the southwest. Site Option LL3 is located within an area of Class 5 peatland (carbon-rich and deep peat that include areas of bare soil but with no peatland habitat recorded). Within 1 km areas of Class 1 (Nationally important carbon-rich soils, deep peat and priority peatland habitat that are likely to be of high conservation value) and Class 2 peatlands (nationally important carbon-rich soils, deep peat and priority peatland habitat that are potentially high conservation value and restoration potential) are noted to north and west of the site option towards Loch Lundie and area surrounding Site Option LL3. With appropriate safeguards and industry standard best practice no impact on peatland is anticipated. Site Option LL3 is absent of any superficial cover. Within 1 km of Site Option LL3, superficial cover comprises areas of hummocky glacial deposits of diamicton, sand and gravel and discrete areas of peat. The bedrock which underlies Site Option LL3comprises the Tarvie Psammite Formation. The West Highland Granite Gneiss Intrusion is noted approximately 200 m east and south east of the site option. Within 1 km of Site Option LL3, the western extent is located within the Aldernaig catchment which has been designated a DWPA, Scottish Water abstract from Aldernaig Burn to supply their Invergarry WTW. This is not considered a development constraint. SEPA floodplain mapping shows that the Medium (0.5% annual exceedance probability of flooding / 1 in 200yr) likelihood of flooding floodplain extent is associated with the Loch Lundie and Lochan Doire Cadha downstream (south west and south east respectively) of Site Option LL3, however these are generally confined to the banks of the lochs. The superficial and solid geology are not important groundwater aquifers and unlikely to yield significant groundwater, and development of Site Option LL3 is unlikely to alter groundwater flow paths. Subject to best practice construction and mitigation it is likely that any impacts on soils, peat, geology and the water environment can be mitigated. A **Green** rating has therefore been applied to this Site.	G
Cultural Heritage		
Topics	**Potential Constraints**	**RAG Rating**
Designations	There are no WHSs, SMs, Inventory GDLs, LBs, CAs or IBs within the Site Option LL3 footprint. No potential impacts on the designating features or setting of any cultural heritage designations are anticipated for this site option. A **Green** rating has therefore been applied to Site Option LL3.	G
Cultural Heritage Assets	No potential impacts on non-designated cultural heritage assets are anticipated for Site Option LL3. A **Green** rating has therefore been applied to Site Option LL3.	G
Landscape and Visual		
Topics	**Potential Constraints**	**RAG Rating**
Designations	Site Option LL3 is not located within or likely to lead to any effects on any areas covered by landscape designations. The RAG rating is therefore **Green**.	G

Landscape Character	Site Option LL3 falls within LCT 237 (Rocky Moorland – Lochaber) which is considered to have a Medium sensitivity to this type of development, and Low in some areas where existing OHL infrastructure is prominent. Locally, this option would be located within the edge of an area of commercial forestry and adjacent to an existing OHL and therefore in an area where sensitivity is slightly lower. This option would lead to the removal of an area of forest edge. Whilst adjacent to the existing OHL, this is an elevated position and a substation in this location would be potentially prominent across the surrounding area to west and north. The presence of the existing forestry provides good opportunity for additional planting to mitigate the landscape effect across some parts of the wider area. However, the proximity to the existing OHL may limit this opportunity on the westerly side where the more sensitive landscapes are located. The position of this option towards the north of the search area would also be likely to lead to a greater number of OHLs extending across the landscape to the south of this and therefore there would be higher potential for a greater landscape effect on the Loch Lundie area. An **Amber** RAG rating has therefore been applied to this Site.	A
Visual	Site Option LL3 would be visible from a short section of a Core Path and Scottish Hill Track route which passes to the east of Loch Lundie between Invergarry and Fort Augustus. Users of this route are already habituated to the presence of OHL infrastructure in this area but a potential substation in this option location would increase the adverse effect of OHL infrastructure on the visual amenity of this route. The more elevated position of this option may lead to infrastructure appearing slightly more prominent. However, the situation to the east of the route would allow the existing open views across Loch Lundie to the west to remain unaffected. The presence of the existing forestry gives some opportunity to mitigate views but the proximity to the existing OHL may limit this opportunity on the westerly side where the Core Path is located. The position of this option towards the north of the search area would also be likely to lead to a greater number of OHLs to the east of this path route from the south, increasing the potential for adverse visual effects. Overall, an **Amber** RAG rating has been applied.	A
Land Use		
Topics	**Potential Constraints**	**RAG Rating**
Agriculture	Site Option LL3 is located within an area of coniferous plantation woodland, on land that on land which is only capable of supporting rough grazing (ALC 6.3). A **Green** rating has therefore been applied to Site Option LL3.	G
Woodland / Forestry	<u>Commercial Forestry</u> Site Option LL3 lies within an upland mid rotation commercial conifer forestry. The selection of this site option would have some impact on the commercial returns with this forest block and is therefore allocated an **Amber** rating. <u>Woodland</u> The plantation forestry within Site Option LL3 is not listed on the AWI and there are no forestry/woodland designations within Site Option LL3. As Site Option LL3 would have some impact on the commercial returns it is allocated an **Amber** rating overall.	A
Recreation	<u>Recreational Routes</u> Site Option LL3 is located within an area of coniferous plantation woodland to the north east of Loch Lundie. The existing access track which runs to the west of Site Option LL3 and passes to the east of Loch Lundie is classified as a Core Path (by THC) and a Scottish Hill Track (by	A

	SCOTWAYS). It is not anticipated that Site Option LL3 would have any direct impacts on the existing access track. However, a substation at this location would be visible from a short section of the Core Path / Scottish Hill Track. As noted in the 'Landscape and Visual – Visual' section above, although users of this footpath would already be habituated to the presence of OHL infrastructure in this area, a substation in this location would increase the adverse effect of OHL infrastructure on the visual amenity of this route. The more elevated position of this option may lead to infrastructure appearing slightly more prominent. However, the situation to the east of the route would allow the existing open views across Loch Lundie to the west to remain unaffected. The presence of the existing forestry gives some opportunity to mitigate views but the proximity to the existing OHL may limit this opportunity on the westerly side where the footpath is located. There are no other recreational routes within, or in close proximity to, Site Option LL3 and no views from recreational or tourism areas or routes are anticipated. An **Amber** rating has therefore been applied. <u>Commercial Highland Sports</u> Site Option LL3 is largely located within an area of coniferous plantation woodland by Forestry and Land Scotland (FLS) and would not be used for commercial highland sport. A **Green** rating has therefore been applied. Based on the potential visual effects to users of the Core Path and Scottish Hill Track from both the substation and associated OHL connections, an overall **Amber** RAG rating has been applied.	
Planning		
Topics	**Potential Constraints**	**RAG Rating**
Policy	Site Option LL3 would be brought forward in full compliance with national, regional or local planning policy. A **Green** RAG rating has been applied.	G
Proposals	Site Option LL3 may interact with the construction of or dismantling of SSEN Transmission OHL proposals. No other proposals that are wither consented or known to the planning system have been identified within Site Option LL3. A **Green** RAG rating has been applied.	G

Table 4: 400 kV / 132 kV Loch Lundie Substation - Site Option LL5 (See Figures 6.1 - 6.5)

Description:		
Site Option LL5 (Grid Reference 230313 802708) would be located in area of forestry to the North of Invergarry and south east of Loch Lundie. Loch Lundie forms the most westerly extent of the West Inverness-shire Lochs SPA and Site of SSSI. The area to the west of Site Option LL5 is largely open moorland. The location where the existing Fort Augustus to Skye OHL and the Fort Augustus to Fort William OHL cross each other is located on the elevated area of moorland immediately west of Site Option LL5. The Fort Augustus to Fort William OHL runs in a north-south direction from Auchterawe Substation towards Fort William via the eastern bank of Loch Lundie and the eastern bank of Loch Lochy. The Fort Augustus to Skye T is also located in this area and is routed from the location where the two existing lines cross, in a northerly direction along the eastern bank of Loch Lundie towards Fort Augustus. The wayleave for the Fort Augustus to Skye OHL is located immediately south of Site Option LL5. It is anticipated that the Fort Augustus to Skye T OHL and the Fort Augustus to Skye OHL will eventually be replace by the proposed Skye Reinforcement Project and dismantled. However, this assessment has been undertaken using the existing baseline. Existing and Planned grid infrastructure are illustrated in Figure 6.3. To the east of Site Option LL5 there is a clearing in the forestry which contains Lochan Doire Cadha. Several small tributaries enter this lochan from the western section of the forestry, close to where Site Option LL5 would be located. Water from the lochan then enters the River Oich from via the Allt Leth-bheinne. There are also existing forestry tracks in the forestry to the north of Invergarry, which can be accessed via a junction on the A82 at Port MacDonnell. Areas of the woodland within the forestry at Invergarry are listed on the AWI.		
Review of Environmental Constraints:		
Natural Heritage		
Topics	**Potential Constraints**	**RAG Rating**
Designations	Site Option LL5 would not be located within any designated RAMSAR, SSSI, SPA, SAC, NNR or other regionally, nationally, or internationally designated sites. There is no woodland listed within the AWI within Site Option LL5. Within 1 km of Site Option LL5 lies the West Inverness-shire Lochs Special SSSI SPA, approximately 750 m to the north-west. The West Inverness-shire Lochs SSSI and SPA comprises eight freshwater upland lochs (specifically Loch Lundie with respect to Site Option LL5) and has been designated as they support nationally important numbers of breeding black-throated divers (*Gavia arctica*) and common scoters (*Melanitta nigra*). Site Option LL5 is located approximately 100 m east of the Aldernaig Burn catchment which lies downstream of Loch Lundie, as such the West Inverness-shire SSSI and SPA is not in hydrological connection to the site option and is not considered further. A **Green** RAG rating has therefore been applied.	G
Protected Species	Initial walkover surveys undertaken in August 2021 did not record the presence of protected species in the vicinity of Site Option LL5. Abundant woodland, and woodland edge habitat, provides suitable habitat for badger, red squirrel, pine marten and bat species. Riparian zones provide suitable habitat for otter. Loss of small areas of habitat associated with substation infrastructure is therefore unlikely to significantly reduce habitat suitability or availability of the wider area. Potential for impacts on protected species could be further reduced or eliminated by undertaking pre-construction surveys and adopting appropriate mitigation. There is therefore	G

	considered to be low potential for Site Option LL5 to compromise the conservation status of, or for the site to be constrained by, the presence of protected species. A **Green** RAG rating has therefore been applied.	
Habitats	Initial walkover surveys undertaken in August 2021 indicate that the switching station is located within an area of coniferous plantation woodland, dominated by Sitka spruce *Picea sitchensis.* The understorey is dominated by Bracken *Pteridium aquilinum* and Purple moor-grass *Molinia caerulea* but generally there are few open areas. <u>Annex 1</u> No significant extent of Annex 1 habitat was identified in the vicinity of Site option LL5. Loss of coniferous plantation woodland is considered probable from substation infrastructure for Site Option LL5. However, none of the coniferous plantation woodland within Site Option LL5 is listed on the AWI. The sensitive habitats identified present modest constraints which could be further reduced or eliminated by micrositing infrastructure and/or adopting appropriate mitigation. There is therefore considered to be low potential for Site Option LL5 to compromise the conservation status of, or for the site to be constrained by, habitats. <u>GWDTE</u> GWDTE are not considered extensive within the site option footprint, limited to surrounds of marshy grassland areas and small hydrological pathways. Loss of GWDTE could therefore be minimised by micrositing of infrastructure, and there is low potential for Site Option LL5 to compromise the integrity of GWDTE. <u>Biodiversity</u> Site Option LL5 contains a total of 66.32 BU, at 5.52BU/Ha. Site Option LL5 is dominated by coniferous plantation woodland. Small areas of habitats of high distinctiveness within the vicinity of the switching station option include small patches of modified bog/marshy grassland. No irreplaceable habitats were identified in the vicinity of the option. Where habitats of high distinctiveness are lost, replacement must be of equivalent value to meet No Net Loss. Removal of coniferous plantation is likely to present an opportunity to enhance biodiversity value within the site, by replacement with habitats of higher distinctiveness value. It should be noted however that removal of woodland habitat creates difficulty in achieving No Net Loss due to the time taken for replacement woodland and/or scrub to achieve suitable structure and condition and for the replacement biodiversity value to be realised. A **Green** rating has therefore been applied.	G
Ornithology	Site Option LL5 is located in woodland. Ornithological constraints are considered to be minimal, although there may be several Red and Amber List species of conservation concern breeding in near proximity, including Song Thrush (*Turdus philomelos*), Spotted Flycatcher (*Muscicapa striata*), Tree Pipit (*Anthus trivialis*), Lesser Redpoll (*Acanthis cabaret*), Meadow Pipit (*Anthus pratensis*) and Willow Warbler (*Phylloscopus trochilus*). However, it is considered unlikely that Site Option LL5 would compromise the conservation status of a population of a red or amber listed species. Pre-construction surveys will need to be undertaken and appropriate mitigation measures should be implemented to minimise any disturbance to birds present. Due to the low level of predicted constraints, a **Green** rating has been applied.	G

Hydrology / Geology	Site Option LL5 lies entirely within the River Oich catchment, specifically within the Allt Leth-bheinne and Loch Oich nested catchments, the nearest tributary of which is located approximately 300 m north east of the site option, at its closest extent. The catchment of the Aldernaig Burn lies approximately 100 m west of Site Option LL5. The burn itself is located approximately 700 m west of the site option. Site Option LL5 is located within an area of Class 5 peatland (carbon-rich and deep peat that include areas of bare soil but with no peatland habitat recorded). Within 1 km areas of Class 1 (Nationally important carbon-rich soils, deep peat and priority peatland habitat that are likely to be of high conservation value) and Class 2 peatlands (nationally important carbon-rich soils, deep peat and priority peatland habitat that are potentially high conservation value and restoration potential) are noted to north west of the site option towards Loch Lundie, to the east of Site Option LL5 in the area immediately around Lochan Doire Cadha and a small area to the south of the site option near the summit of the Monadh Seann-talaimh. With appropriate safeguards and industry standard best practice no impact on peatland is anticipated. Site Option LL5 is absent of any superficial cover. Within 1 km of Site Option LL5, superficial cover comprises areas of hummocky glacial deposits of diamicton, sand and gravel along the banks of Aldernaig Burn and discrete areas of peat to the south of the site option and near the Allt Leth-bheinne. The bedrock which underlies Site Option LL5 comprises the West Highland Granite Gneiss Intrusion. The Tarvie Psammite Formation is noted approximately 280 m east of the site option. Within 1 km of Site Option LL5, the western extent is located within the Aldernaig catchment which has been designated a DWPA, Scottish Water abstract from Aldernaig Burn to supply their WTW. This is not considered a development constraint SEPA floodplain mapping shows that the Medium (0.5% annual exceedance probability of flooding / 1 in 200yr) likelihood of flooding floodplain extent is associated with the Lochan Doire Cadha downstream (east) of Site Option LL5, however these are generally confined to the banks of the loch. The superficial and solid geology are not important groundwater aquifers and unlikely to yield significant groundwater, and development of Site Option LL5 is unlikely to alter groundwater flow paths. Subject to best practice construction and mitigation it is likely that any impacts on soils, peat, geology and the water environment can be mitigated. A **Green** rating has therefore been applied to this site option.	G
Cultural Heritage		
Topics	**Potential Constraints**	**RAG Rating**
Designations	There are no WHSs, SMs, Inventory GDLs, LBs, CAs or IBs within the Site Option LL5 footprint. No potential impacts on the designating features or setting of any cultural heritage designations are anticipated for this site option. A **Green** rating has therefore been applied to Site Option LL5.	G
Cultural Heritage Assets	No potential impacts on non-designated cultural heritage assets are anticipated for Site Option LL5. A **Green** rating has therefore been applied to Site Option LL5.	G
Landscape and Visual		
Topics	**Potential Constraints**	**RAG Rating**

Designations	Site Option LL5 is not located within or likely to lead to any effects on any areas covered by landscape designations. The RAG rating is therefore **Green**.	G
Landscape Character	Site Option LL5 falls within LCT 237 (Rocky Moorland – Lochaber) which is considered to have a Medium sensitivity to this type of development, and Low in some areas where existing OHL infrastructure is prominent. Locally, this option would be located within an area of commercial forestry and therefore in an area where sensitivity is slightly lower. The position in the forest provides a good opportunity to limit the visual extent of this option across the wider landscape. There would be a requirement for the removal of small areas of forest to accommodate the substation and OHL wayleaves but this is not anticipated to lead to any noticeable landscape change. The forested character of the local area also gives good opportunity to provide mitigation and to reduce the longer term effects on the more sensitive landscapes around Loch Lundie. A **Green** RAG rating has therefore been applied to this Site.	G
Visual	Site Option LL5 may be visible from a short section of a Core Path and Scottish Hill Track route which passes to the east of Loch Lundie depending on the forest felling which would be required to accommodate it and associated OHL wayleaves. However, it is envisaged that these views would be limited and glimpsed. The forested location also enables good opportunity to provide additional mitigation. There would be no views from residential or tourism areas or roads. A **Green** RAG rating has therefore been applied.	G
Land Use		
Topics	**Potential Constraints**	**RAG Rating**
Agriculture	Site Option LL5 is located within an area of coniferous plantation woodland, on land that on land which is only capable of supporting rough grazing (ALC 6.3). A **Green** rating has therefore been applied to Site Option LL5.	G
Woodland / Forestry	<u>Commercial Forestry</u> Site Option LL5 lies within a mid-rotation commercial forestry, mainly Sitka spruce and lodgepole pine with some larch. Selection of this site option will have some effect on the commercial return from this forest and is therefore allocated an **Amber** rating. <u>Woodland</u> The plantation forestry within Site Option LL5 is not listed on the AWI and there are no forestry/woodland designations within Site Option LL5. As Site Option LL5 would have some impact on the commercial returns it is allocated an **Amber** rating overall.	A
Recreation	<u>Recreational Routes</u> Site Option LL5 is located within an area of coniferous plantation woodland to the south east of Loch Lundie. The existing access track which runs to the west of Site Option LL5 and passes to the east of Loch Lundie is classified as a Core Path (by THC) and a Scottish Hill Track (by SCOTWAYS). It is not anticipated that Site Option LL5 would have any direct impacts on the existing access track. However, a	G

	substation at this location may be visible from a short section of the Core Path / Scottish Hill Track, depending on the forest felling which would be required to accommodate it and associated OHL wayleaves. As noted in the 'Landscape and Visual – Visual' section above, it is envisaged that these views would be limited and glimpsed. The forested location also provides a good opportunity to provide additional mitigation. There are no other recreational routes within, or in close proximity to, Site Option LL5 and no views from recreational or tourism areas or routes would be anticipated. A **Green** rating has therefore been applied. <u>Commercial Highland Sports</u> Site Option LL5 is located within an area of coniferous plantation woodland by Forestry and Land Scotland (FLS) and would not be used for commercial highland sport. A **Green** rating has therefore been applied. As the potential visual effects to users of the Core Path and Scottish Hill Track from both the substation and associated OHL connections are anticipated to be limited and there would be no potential impacts on the commercial viability of highland sports, an overall **Green** rating has been applied.	
Planning		
Topics	**Potential Constraints**	**RAG Rating**
Policy	Site Option LL5 would be brought forward in full compliance with national, regional or local planning policy. A **Green** RAG rating has been applied.	G
Proposals	Site Option LL5 may interact with the construction of or dismantling of SSEN Transmission OHL proposals. No other proposals that are wither consented or known to the planning system have been identified within Site Option LL5. A **Green** RAG rating has been applied.	G

Table 5: 400 kV / 132 kV Loch Lundie Substation - Site Option LL6 (See Figures 6.1 - 6.5)

Description:

Site Option LL6 (Grid Reference 229888 802600) would be located in an elevated area of open moorland, immediately west of the area of forestry to the north of Invergarry and south east of Loch Lundie. Loch Lundie forms the most westerly extent of the West Inverness-shire Lochs Special Protected Area (SPA) and Site of Special Scientific Interest (SSSI).

Site Option LL6 is located where the existing Fort Augustus to Skye overhead line (OHL) and the Fort Augustus to Fort William OHL cross each other. The Fort Augustus to Skye T is also located in this area and is routed from the location where the two existing lines cross, in a northerly direction along the eastern bank of Loch Lundie towards Fort Augustus. The existing Quoich to Aberchalder OHL is located to the west of Site Option LL6 in at east-west direction. It is anticipated that the Fort Augustus to Skye T OHL, the Fort Augustus to Skye OHL and the Quoich to Aberchalder OHL will both eventually be replaced by the proposed Skye Reinforcement Project and dismantled. However, this assessment has been undertaken using the existing baseline. Existing and Planned grid infrastructure are illustrated in Figure 6.3. A large area of the forestry to the north of Invergarry is located to the east of Site Option LL6. The wayleave for the Fort Augustus to Skye OHL runs through this forestry and is located immediately east of Site Option LL6.

The area to the west of Site Option LL6 is largely open moorland. The Aldernaig Burn, a tributary of Loch Lundie, would be located to the west and south-west of Site Option LL6. There is a small dam located on Aldernaig Burn, approximately 0.5 km south west of Site Option LL6. An existing estate access track is routed along the eastern bank of the Loch Lundie, A short spur road from this track leads directly to the point where the Fort Augustus to Skye OHL and the Fort Augustus to Fort William OHL currently cross each other. There are areas of woodland on the south eastern bank of Loch Lundie and to the west / south west of Aldernaig Burn at Faichem. Areas of the woodland at Faichem and the forestry at Invergarry are listed on the AWI. A campsite and caravan park, as well as a few scattered properties, are located at Faichem, approximately 1 km south west of Site Option LL6.

Review of Environmental Constraints:

Natural Heritage

Topics	Potential Constraints	RAG Rating
Designations	Site Option LL6 would not be located within any designated RAMSAR, SSSI, SPA, SAC, NNR or other regionally, nationally, or internationally designated sites. There is no woodland listed within the AWI within Site Option LL6. Within 1 km of Site Option LL6 lies the West Inverness-shire Lochs Special SSSI and SPA, approximately 500 m to the north west. The West Inverness-shire Lochs SSSI and SPA comprises eight freshwater upland lochs (specifically Loch Lundie with respect to Site Option LL6) and has been designated as they support nationally important numbers of breeding black-throated divers (*Gavia arctica*) and common scoters (*Melanitta nigra*). Site Option LL6 is located within the Aldernaig Burn catchment which lies downstream of Loch Lundie, as such the West Inverness-shire SSSI and SPA is not in hydrological connection to the site option and is not considered further. A **Green** RAG rating has therefore been applied.	G
Protected Species	Initial walkover surveys undertaken in August 2021 did not record the presence of protected species in the vicinity of Site Option LL6. Wet heath and mire habitats provide suitable habitat for water vole. Loss of small areas of habitat associated with substation infrastructure is therefore unlikely to significantly reduce habitat suitability or availability of the wider area. Potential for impacts on protected species could be further reduced or eliminated by undertaking pre-construction surveys and adopting appropriate mitigation. There is therefore considered to be low potential for Site Option LL6 to compromise the conservation status of, or for the site to be constrained by, the presence of protected species.	G

	A **Green** RAG rating has therefore been applied.	
Habitats	Initial walkover surveys undertaken in August 2021 indicate that Site Option LL6 is located within an area of wet heath and blanket mire north east of Loch Lundie. <u>Annex 1</u> Blanket mire and wet heath habitats are identified as Annex 1 habitats. Loss of blanket mire and wet heath is considered probable from substation infrastructure for Site Option LL6. However, these habitats are widespread in the surrounding area and are generally not in good condition as a result of and management impacts. Potential impacts on these sensitive habitats identified present modest constraints which could be further reduced or eliminated by micrositing infrastructure and/or adopting appropriate mitigation. There is therefore considered to be moderate potential for Site Option LL6 to compromise the conservation status of, or for the site to be constrained by, Annex 1 habitats. <u>GWDTE</u> Wet heaths are considered to be moderately dependent on groundwater in certain circumstances. The majority of wet heaths within Site Option LL6 are considered to be principally associated with ombrotrophic mires and as such not generally dependent on groundwater. Therefore, GWDTE are not considered extensive within the route corridor, limited to surrounds of small hydrological pathways. Loss of GWDTE could therefore be minimised by micro-siting of infrastructure, and there is low potential for Site Option LL6 to compromise the integrity of GWDTE. <u>Biodiversity</u> Site Option LL6 contains a total of 158.82 BU at 13.22BU/Ha. In BNG guidance, blanket mires are considered to be irreplaceable habitat. The switching station option is dominated by wet heath habitat, identified as habitat of high distinctiveness in BNG, with patches of blanket mires also present. Where habitats of high distinctiveness are lost, replacement must be of equivalent value to meet No Net Loss. Removal of blanket mire and wet heath habitat presents difficulty in achieving No Net Loss of biodiversity within the area. Surrounding areas are also dominated by wet heath and blanket mire habitats, with patchy semi-natural woodland, and offer little opportunity for biodiversity improvement. An **Amber** rating has therefore been applied due to the potential loss of Annex 1 habitats associated with this site, as well as habitats that are considered to be irreplaceable under BNG guidance.	A
Ornithology	Site Option LL6 is located in woodland. Ornithological constraints are considered to be minimal, although there may be several Red and Amber List species of conservation concern breeding in near proximity, including Song Thrush (*Turdus philomelos*), Spotted Flycatcher (*Muscicapa striata*), Tree Pipit (*Anthus trivialis*), Lesser Redpoll (*Acanthis cabaret*), Meadow Pipit (*Anthus pratensis*) and Willow Warbler (*Phylloscopus trochilus*). However, it is considered unlikely that Site Option LL6 would compromise the conservation status of a population of a red or amber listed species. Pre-construction surveys will need to be undertaken and appropriate mitigation measures should be implemented to minimise any disturbance to birds present. Due to the low level of predicted constraints, a **Green** rating has been applied.	G

Hydrology / Geology	Site Option LL6 lies entirely within the Aldernaig Burn catchment which lies approximately 300 m west of Site Option LL6, at its closest extent. Site Option LL6 is absent of any peat soils of conservation value. Within 1 km areas of Class 1 (Nationally important carbon-rich soils, deep peat and priority peatland habitat that are likely to be of high conservation value) and Class 2 peatlands (nationally important carbon-rich soils, deep peat and priority peatland habitat that are potentially high conservation value and restoration potential) are recorded to the south east of the site option and approximately 100 m north of the site option towards Loch Lundie. With appropriate safeguards and industry standard best practice no impact on peatland is anticipated Superficial mapping indicates that Site Option LL6 is absent of any superficial cover, however peat was noted this area during the site visit. Within 1 km of Site Option LL6, superficial cover comprises areas of hummocky glacial deposits of diamicton, sand and gravel along the banks of Aldernaig Burn and discrete areas of peat to the south of the site option, near the Monadh Seann-talaimh. The bedrock which underlies Site Option LL6 comprises the Tarvie Psammite Formation. The West Highland Granite Gneiss Intrusion is noted approximately 50 m east of the site option. Site Option LL6 is located within the Aldernaig catchment which has been designated a DWPA, Scottish Water abstract from Aldernaig Burn to supply their Invergarry WTW. The location of Scottish Water infrastructure would need to be confirmed to ensure the DWPA or Scottish Water infrastructures is not impaired. As the development footprint is very small in area compared to the extent of the DWPA it is considered unlikely that the presence of the DWPA will pose a significant development constraint. SEPA floodplain mapping shows that the Medium (0.5% annual exceedance probability of flooding / 1 in 200yr) likelihood of flooding floodplain extent is associated with the Aldernaig Burn downstream (west) of Site Option LL6, however these are generally confined to the banks of the burn. The superficial and solid geology are not important groundwater aquifers and unlikely to yield significant groundwater, and development of Site Option LL6 is unlikely to alter groundwater flow paths. Subject to best practice construction and mitigation it is likely that any impacts on soils, peat, geology and the water environment can be mitigated. Given the presence of priority peatland and the DWPA an **Amber** rating has been applied to this Site.	A
Cultural Heritage		
Topics	**Potential Constraints**	**RAG Rating**
Designations	There are no WHSs, SMs, Inventory GDLs, LBs, CAs or IBs within the Site Option LL6 footprint. No potential impacts on the designating features or setting of any cultural heritage designations are anticipated for this site option. A **Green** rating has therefore been applied to Site Option LL6.	G
Cultural Heritage Assets	No potential impacts on non-designated cultural heritage assets are anticipated for Site Option LL6. A **Green** rating has therefore been applied to Site Option LL6.	G
Landscape and Visual		
Topics	**Potential Constraints**	**RAG Rating**

Designations	Site Option LL6 is not located within or likely to lead to any effects on any areas covered by landscape designations. The RAG rating is therefore **Green**.	G
Landscape Character	Site Option LL6 falls within LCT 237 (Rocky Moorland – Lochaber) which is considered to have a Medium sensitivity to this type of development, and Low in some areas where existing OHL infrastructure is prominent. It would also be situated close to the transition with LCT 235 (Broad Forested Strath) which also has a Medium sensitivity. Locally, this option would be located on an area of open moorland, but where existing OHLs are already present, therefore leading to a slightly reduced sensitivity. However, the open situation would be widely visible across the Loch Lundie area, leading to a greater focus of OHL infrastructure characterising this part of the landscape. The position on the southern edge of the plateau also has potential to appear as a feature on the summit of the enclosing hills of Glen Garry from some areas. Whilst existing steel lattice towers are already seen in this context. A greater concentration of features in this area has the potential to appear more incongruous and inconsistent with the existing patterns of development within the Broad Forested Strath LCT. The open position, with larger numbers of OHLs arriving from different directions may lead to effective mitigation being difficult to achieve. An **Amber** RAG rating has therefore been applied to this option.	A
Visual	Site Option LL6 is situated close to, and would be visible from, a short section of a Core Path and Scottish Hill Track route which passes to the east of Loch Lundie. It may also be visible from some properties on the shore of Glen Garry around Wester Mandally, seen on the summit of the enclosing glen slopes, and has the potential to form a focal point in this area. The presence of some neighbouring scrub and native woodland in the landscape gives some opportunity to mitigate these visual effects by additional planting. However, the numbers of OHLs arriving to this point from different directions may lead to effective mitigation being difficult to achieve. An **Amber** RAG rating has therefore been applied to this route.	A
Land Use		
Topics	**Potential Constraints**	**RAG Rating**
Agriculture	Site Option LL6 is largely located within an area of wet heath and blanket mire south-east of Loch Lundie, on land that on land which is only capable of supporting rough grazing (ALC 6.3). A **Green** rating has therefore been applied to Site Option LL6.	G
Woodland / Forestry	<u>Commercial Forestry</u> The indicative platform for Site Option LL6 interacts with two separate commercial conifer plantations and will require the felling small areas of both. It may be possible to avoid impacts on these areas of commercial conifer plantation through micrositing of the substation platform. If micrositing is not possible, Site Option LL6 would have a minor impact on the commercial function of these large forest blocks and in this case is allocated a **Green** RAG rating. <u>Woodland</u> Site Option LL6 lies within open ground, other than the minor contact with the commercial plantations, with no woodlands or forestry/woodland designations. There is NWSS upland birchwood close to the western end of the platform and there is a new native	G

	woodland creation site near Site Option LL6, to the south east of Loch Lundie. However, it is not anticipated that Site Option LL6would compromise these native woodland sites This site option is therefore allocated a **Green** rating.	
Recreation	Recreational Routes Site Option LL6 is largely located within an area of wet heath and blanket mire south east of Loch Lundie. The existing access track which runs to the west of Site Option LL6and passes to the east of Loch Lundie is classified as a Core Path (by THC) and a Scottish Hill Track (by SCOTWAYS). It is not anticipated that Site Option LL6 would have any direct impacts on the existing access track. However, a substation at this location would be visible from a short section of the Core Path / Scottish Hill Track. As noted in the 'Landscape and Visual – Visual' section above, the presence of some neighbouring scrub and native woodland in the landscape gives some opportunity to mitigate these visual effects by additional planting. However, the numbers of OHLs arriving to this point from different directions may lead to effective mitigation being difficult to achieve. There are no other recreational routes within, or in close proximity to, Site Option LL6 and no views from recreational or tourism areas or routes are anticipated. An **Amber** rating has therefore been applied. Commercial Highland Sports Site Option LL6 largely lies within land owned by Aberchalder Estate. The estate is managed for sporting activities, including red deer stalking and trout and salmon fishing, as well as other recreational activities such as highland safaris. Loch Lundie is used for brown trout fishing. Stag and hind stalking activities take place in September and October on the estate. Site Option LL6 may interact with areas used for commercial highland sports on Aberchalder Estate and has some potential to compromise their commercial viability, particularly during the construction phase. An **Amber** rating has therefore been applied. Based on the potential visual effects to users of the Core Path and Scottish Hill Track from both the substation and associated OHL connections, and the potential impacts on the commercial viability of highland sports on Aberchalder Estate, an **Amber** RAG rating has been applied.	A
Planning		
Topics	**Potential Constraints**	**RAG Rating**
Policy	Site Option LL6 would be brought forward in full compliance with national, regional or local planning policy. A **Green** RAG rating has been applied.	G
Proposals	Site Option LL6 may interact with the construction of or dismantling of SSEN Transmission OHL proposals. No other proposals that are wither consented or known to the planning system have been identified within Site Option LL6. A **Green** RAG rating has been applied.	G

Table 6: 400 kV / 132 kV Loch Lundie Substation - Site Option LL7 (See Figures 6.1 - 6.5)

Description:		
Site Option LL7 (Grid Reference 228463 802398) is located in an elevated area of open moorland to the south west of Loch Lundie and to the north east of the forestry at Munerigie Wood. Loch Lundie forms the most westerly extent of the West Inverness-shire SPA / SSSI. Site Option LL7 is located to the south of the Allt a Bhainne, a tributary of Loch Lundie. The existing Fort Augustus to Skye OHL is routed through Site Option LL7 in at east-west direction. The existing Quoich to Aberchalder OHL is located to the north of Site Option LL7, also in at east-west direction. It is anticipated that both of these OHLs will eventually be replaced by the proposed Skye Reinforcement Project and dismantled. However, this assessment has been undertaken using the existing baseline. Existing and Planned grid infrastructure are illustrated in Figure 6.3. An existing forestry access track, which runs parallel to the eastern extent of the forestry at Munerigie Wood, is located to the west / south west of Site Option LL7. In addition to the forestry at Munerigie Wood, there is also an area of woodland to the south east of Site Option LL7, near Faichem. Some areas of the woodland at Munerigie Wood and Faichem are listed on the AWI. A campsite and caravan park, as well as a few scattered properties, are located at Faichem, approximately 0.5 km south-east of Site Option LL7. The A87 road and the River Garry are located approximately 0.5 km south west of Site Option LL7, to the south-west of the forestry at Munerigie Wood. There are also a few scattered properties at Munerigie, approximately 1 km north west of Site Option LL7.		
Review of Environmental Constraints:		
Natural Heritage		
Topics	**Potential Constraints**	**RAG Rating**
Designations	Site Option LL7 would not be located within any designated RAMSAR, SSSI, SPA, SAC, NNR or other regionally, nationally, or internationally designated sites. Within 1 km of Site Option LL7 lies the West Inverness-shire Lochs SSSI and SPA, approximately 800 m to the west. The West Inverness-shire Lochs SSSI and SPA comprises eight freshwater upland lochs (specifically Loch Garry with respect to Site Option LL7) and has been designated as they support nationally important numbers of breeding black-throated divers (*Gavia arctica*) and common scoters (*Melanitta nigra*). Site Option LL7 is located within the River Garry catchment which lies downstream of Loch Garry, as such the West Inverness-shire SSSI and SPA is not in hydrological connection to the site option and is not considered further. A **Green** RAG rating has therefore been applied.	G
Protected Species	Initial walkover surveys undertaken in August 2021 did not record the presence of protected species in the vicinity of Site Option LL7 option. Wet heath and mire habitats provide suitable habitat for water vole. Loss of small areas of habitat associated with substation infrastructure is therefore unlikely to significantly reduce habitat suitability or availability of the wider area. Potential for impacts on protected species could be further reduced or eliminated by undertaking pre-construction surveys and adopting appropriate mitigation. There is therefore considered to be low potential for Site Option LL7 to compromise the conservation status of, or for the site to be constrained by, the presence of protected species.	G

Habitats	Initial walkover surveys undertaken in August 2021 indicate that Site Option LL7 is located within an area of wet heath and blanket mire north-east of Loch Lundie. Annex 1 Blanket mire and wet heath habitats are identified as Annex 1 habitats. Loss of blanket mire and wet heath is considered probable from substation infrastructure for this option. However, these habitats are widespread in the surrounding area and are generally not in good condition as a result of and management impacts. Potential impacts on these sensitive habitats identified present modest constraints which could be further reduced or eliminated by micrositing infrastructure and/or adopting appropriate mitigation. There is therefore considered to be moderate potential for Site Option LL7 to compromise the conservation status of, or for the site to be constrained by, Annex 1 habitats. GWDTE Wet heaths are considered to be moderately dependent on groundwater in certain circumstances. The majority of wet heaths within Site Option LL7 are considered to be principally associated with ombrotrophic mires and as such not generally dependent on groundwater. Therefore, GWDTE are not considered extensive within the route corridor, limited to surrounds of small hydrological pathways. Loss of GWDTE could therefore be minimised by micrositing of infrastructure, and there is low potential for Site Option LL7 to compromise the integrity of GWDTE. Biodiversity Site Option LL7 contains a total of 154.28 BU, at 12.85BU/Ha. In BNG guidance, blanket mires are considered to be irreplaceable habitat. The switching station option is dominated by wet heath habitat, identified as habitat of high distinctiveness in Biodiversity Net Gain guidance, with patches of blanket mires also present. Where habitats of high distinctiveness are lost, replacement must be of equivalent value to meet No Net Loss. Removal of blanket mire and wet heath habitat presents difficulty in achieving No Net Loss of biodiversity within the area. Surrounding areas are also dominated by wet heath and blanket mire habitats, with patchy semi-natural woodland, and offer little opportunity for biodiversity improvement. An **Amber** rating has therefore been applied due to the potential loss of Annex 1 habitats associated with this site, as well as habitats that are considered to be irreplaceable under BNG guidance.	A
Ornithology	Site Option LL7 is located in open land. Ornithological constraints are considered to be minimal, although there may be several Red and Amber List species of conservation concern breeding in near proximity, including Lapwing (*Vanellus vanellus*), Curlew (*Numenius arquata*), Skylark (*Alauda arvensis*), Song Thrush (*Turdus philomelos*), Spotted Flycatcher (*Muscicapa striata*), Tree Pipit (*Anthus trivialis*), Lesser Redpoll *(Acanthis cabaret*), Meadow Pipit (*Anthus pratensis*) and Willow Warbler (*Phylloscopus trochilus*). However, it is considered unlikely that Site Option LL7 would compromise the conservation status of a population of a red or amber listed species. Pre-construction surveys will need to be undertaken and appropriate mitigation measures should be implemented to minimise any disturbance to birds present. Due to the low level of predicted constraints, a **Green** rating has been applied.	G

Hydrology / Geology	Site Option LL7 lies entirely within the River Oich catchment, specifically within the River Garry nested catchment which is located approximately 700 m south west of the site option, at its closest extent. The Allt a'Bhainne (which is part of the larger Aldernaig Burn catchment) lies approximately 100 m north of Site Option LL7. Site Option LL7 is absent of any peat soils of conservation value. No peat soils of conservation value are noted within 1 km of the site option. Superficial mapping indicates that Site Option LL7 is located within an area of peat deposits. Within 1 km of Site Option LL7, superficial cover comprises areas of hummocky glacial deposits of diamicton, sand and gravel along the banks of the River Garry, alluvium deposits along the banks of the Allt a'Bhainne, and areas of peat along the hill tops. The bedrock which underlies Site Option LL7 comprises the Tarvie Psammite Formation. The West Highland Granite Gneiss Intrusion and the Scottish Highland Siluro-Devonian Calc-alkaline Minor Intrusion Suite (other than dykes) are noted to the south and east of the site option respectively. Within 1 km of Site Option LL7, the north-eastern extent is located within the Aldernaig catchment which has been designated a DWPA, Scottish Water abstract from Aldernaig Burn to supply their Invergarry WTW. This is not considered a development constraint. SEPA floodplain mapping shows that the Medium (0.5% annual exceedance probability of flooding / 1 in 200yr) likelihood of flooding floodplain extent is associated with the River Garry and Allt a'Bhainne downstream (south west and north east respectively) of Site Option LL7, however these are generally confined to the banks of the burns. The superficial and solid geology are not important groundwater aquifers and unlikely to yield significant groundwater, and development of Site Option LL7 is unlikely to alter groundwater flow paths. Subject to best practice construction and mitigation it is likely that any impacts on soils, peat, geology and the water environment can be mitigated. A **Green** rating has therefore been applied to this Route.	G
Cultural Heritage		
Topics	**Potential Constraints**	**RAG Rating**
Designations	There are no WHSs, SMs, Inventory GDLs, LBs, CAs or IBs within the Site Option LL7 footprint. No potential impacts on the designating features or setting of any cultural heritage designations are anticipated for this site option. A **Green** rating has therefore been applied to Site Option LL7.	G
Cultural Heritage Assets	No potential impacts on non-designated cultural heritage assets are anticipated for Site Option LL7. A **Green** rating has therefore been applied to Site Option LL7.	G
Landscape and Visual		
Topics	**Potential Constraints**	**RAG Rating**
Designations	Site Option LL7 is not located within or likely to lead to any effects on any areas covered by landscape designations. The RAG rating is therefore **Green**.	G

Landscape Character	Site Option LL7 falls within LCT 235 (Broad Forested Strath) which is considered to have a Medium sensitivity to this type of development. It would also be situated close to the transition with LCT 237 (Rocky Moorland – Lochaber) which also has a Medium sensitivity. However, sensitivity may be locally reduced where existing OHLs are prominent. Locally, this option would be situated on an area of moorland plateau, set on the edge of an area of forest and native woodland. An existing wood pole OHL which passes through this area and adjacent forestry may locally reduce the sensitivity to new development although the upland plateau stretching to the north is considered to be more sensitive. This option may lead to limited loss of forest edge or native woodland but the situation on the edge of the forest would give good opportunities to provide additional mitigation planting to limit the effects on the northerly landscapes around Loch Lundie which could also compensate for this loss. However, the position of this option towards the west of the search area would lead to a requirement for additional OHL connections leading across the landscape to the south of Loch Lundie which would lead to associated additional effects over a wider area. For this reason, an **Amber** RAG rating has been applied.	A
Visual	The presence of forestry and woodland surrounding the southern side of Site Option LL7 would reduce potential for visibility of the Proposed Development in views from residential areas or roads. However, there is some potential that filtered or glimpsed views could be obtained from a few properties and a caravan / camping site at Faichem. This potential could be increased if there was a requirement to fell additional forestry or woodland, but any visibility would be to the rear of properties, away from the main southerly focus of the view. It is anticipated that these views could be mitigated by new planting. Site Option LL7 may also be visible from a Core Path and Scottish Hill Track which passes to the east of Loch Lundie but would be relatively small and distant, at about 1 km away. However, associated OHL connections may be more visible and distracting from this route to the south of Loch Lundie and likely to need to cross the route. An **Amber** RAG rating has therefore been applied to this route.	A
Land Use		
Topics	**Potential Constraints**	**RAG Rating**
Agriculture	Site Option LL7 is located within an area of wet heath and blanket mire south-west of Loch Lundie, on land that on land which is only capable of supporting rough grazing (ALC 6.3). A **Green** rating has therefore been applied to Site Option LL7.	G
Woodland / Forestry	<u>Commercial Forestry</u> Whereas Site Option LL7 generally avoids interaction with commercial forestry the indicative platform suggests that a small area of plantation will be impacted. <u>Woodland</u> Site Option LL7 generally lies within open ground however, the indicative dimensions of the platform suggest there may be small interface with broadleaf woodland which are classified as AWI ASN01860 and NWSS upland birchwood. It may be possible to avoid these areas of protected woodland through micrositing of the substation platform. Although the area of woodland potentially impacted is small the woodland designations require allocation of a **Red** RAG rating. However, on the assumption that the woodland designations can be avoided through micrositing of the substation platform, the RAG rating would be **Amber**.	A

Recreation	Recreational Routes Site Option LL7 is largely located within an area of wet heath and blanket mire south-west of Loch Lundie. The existing access track which runs to the east of Site Option LL7 is classified as a Core Path (by THC) and a Scottish Hill Track (by SCOTWAYS). It is not anticipated that Site Option LL7 would have any direct impacts on the existing access track. A substation at this location may be visible from a short section of the Core Path / Scottish Hill Track. As noted in the 'Landscape and Visual – Visual' section above. This option may also be visible from a Core Path and Scottish Hill Track which passes to the east of Loch Lundie but would be relatively small and distant, at about 1 km away. However, associated OHL connections may be more visible and distracting from this route to the south of Loch Lundie and likely to need to cross the route. Some filtered or glimpsed views of Route a substation at this location could be obtained from the caravan / camping site at Faichem to the south east of Site Option LL7. An **Amber** rating has therefore been applied. Commercial Highland Sports Site Option LL7 largely lies within land owned by Aberchalder Estate. The estate is managed for sporting activities, including red deer stalking and trout and salmon fishing, as well as other recreational activities such as highland safaris. Loch Lundie is used for brown trout fishing. Stag and hind stalking activities take place in September and October on the estate. Site Option LL7 may interact with areas used for commercial highland sports on Aberchalder Estate and has some potential to compromise their commercial viability, particularly during the construction phase. An **Amber** rating has therefore been applied. Based on the potential visual effects to users of the Core Path and Scottish Hill Track from both the substation and associated OHL connections, and the potential impacts on the commercial viability of highland sports on Aberchalder Estate, an **Amber** RAG rating has been applied.	A
Planning		
Topics	**Potential Constraints**	**RAG Rating**
Policy	Site Option LL7 would be brought forward in full compliance with national, regional or local planning policy. A **Green** RAG rating has been applied.	G
Proposals	Site Option LL7 may interact with the construction of or dismantling of SSEN Transmission OHL proposals. No other proposals that are wither consented or known to the planning system have been identified within Site Option LL7. A **Green** RAG rating has been applied.	G

Scottish & Southern Electricity Networks
TRANSMISSION

APPENDIX 6.2 – TECHNICAL APPRAISAL OF SITE OPTIONS: 400 KV / 132 KV LOCH LUNDIE SUBSTATION

Technical Assessment

Each site option for the 400 kV / 132 kV Loch Lundie Substation has been assessed against the technical criteria in SSEN Transmission plc's guidance[1], as summarised in Table 1.

Table 1: Topic Areas Considered

	Category	Sub-Topic
Engineering	**Connectivity - Existing circuits/ network**	Distance and feasibility of connecting to the existing circuits / network
		Outages for modification to existing circuits
	Connectivity - Future development possibilities	Extension of site or other circuits
	Connectivity - Interface with SSEN Distribution and SSE Generation	Consideration of Business Separation and whole system requirements
	Connectivity - DNO Connection	Proximity of LVAC supplies
	Footprint Requirements - Technology	AIS/GIS or certainty of sizing on non-standard plant and equipment
	Footprint Requirements - Adjacent Land use	Availability for ancillary infrastructure like welfare compounds, laydown areas, screening and SUDS infrastructure
	Footprint Requirements - Space Availability	Non-standard substation configurations to accommodate site specific considerations
	Hazards	Unique Hazards
		Existing Utilities
	Ground Conditions	Topography
		Geology (Superficial Deposits – Peat)
		Geology (Site testing to verify properties)
	Environmental Conditions	Elevation
		Salt Pollution
		Flooding
		Carbon Footprint
		SF6
		Contaminated Land
		Noise (proximity to dwellings / residential properties)
	Construction Access	Substation Access Road (from public road)
		Transformer Delivery Route
	Operation and Maintenance	Access

As part of a comparative appraisal using the methodology in the SSEN Transmission plc's guidance[1], as summarised in Appendix 3.2, the Site Options were assigned RAG (Red, Amber, Green) ratings for each of the

technical categories based on the whether the anticipated impact and/or risk was High, Intermediate or Low to identify a Preferred Site Option from a technical perspective. Table 2 defines the convention for the RAG ratings.

Table 2: RAG Rating Key

Performance	Comparative Appraisal
Most Preferred	The option has a low impact/risk and would require no special measures or mitigations
	The option has an intermediate impact/risk and would require special measures or mitigations. However, the measure/mitigations to be adopted are standard solutions known to suitably control the impact/risk.
Least Preferred	The option has a high impact/risk and would require non-standard/unproven special measures or mitigations. The ability of the measures/mitigations to control the impact/risk is uncertain.

[1] Referenced in: SSEN (2021): Substation Site Selection Guidelines for Voltages at or Above 132kV (July 2021)

Comparative Analysis

Construction Access

Table 3: RAG Appriasal – Construction Access

	Comparative Appraisal	RAG Rating
Site Option LL1	Long access road from public road, using estate track, would be required. It would be expensive and technically challenging to upgrade for construction and transformer delivery. Estate may not agree to upgrades.	
Site Option LL2	Long access road from public road, using estate track, would be required. It would be expensive and technically challenging to upgrade for construction and transformer delivery. Estate may not agree to upgrades.	
Site Option LL3	Long access road from public road, using estate track, would be required. It would be expensive and technically challenging to upgrade for construction and transformer delivery. Estate may not agree to upgrades.	
Site Option LL5	Existing forestry track from A82 could be utilised up until about half-way to site (from A82). Good existing junction with A82.	
Site Option LL6	Existing forestry track from A82 could be utilised up until about half-way to site (from A82). Good existing junction with A82.	
Site Option LL7	Shortest route from A87 along existing foresty track..	

Table 4: RAG Apprisal – Transformer Delivery Route

	Comparative Appraisal	RAG Rating
Site Option LL1	Transformer deliver may be expensive and technically challenging.	
Site Option LL2	Transformer deliver may be expensive and technically challenging.	
Site Option LL3	Transformer deliver may be expensive and technically challenging.	
Site Option LL5	Transformer deliver may be expensive and technically challenging.	
Site Option LL6	Transformer deliver may be expensive and technically challenging.	
Site Option LL7	Transformer deliver may be expensive and technically challenging. Shortest route from A87 along existing foresty track.	

Operation and Maintenance

Table 5: RAG Appraisal – Operation and Maintenance

	Comparative Appraisal	RAG Rating
Site Option LL1	Long access road from public road, using estate track.	
Site Option LL2	Long access road from public road, using estate track.	
Site Option LL3	Long access road from public road, using estate track.	
Site Option LL5	Road up hillside using some forestry tracks. Good existing junction with A82.	
Site Option LL6	Road up hillside using some forestry tracks. Good existing junction with A82.	
Site Option LL7	Shortest route from A87 along existing forestry track..	

Existing Circuits and Networks

Table 6: RAG Appraisal – Existing Circuits and Networks

	Comparative Appraisal	RAG Rating
Site Option LL1	All locations require several kilometres of new 400 kV OHL circuits to connect to the Fort Augustus Substation, none site offered any noticeable advantages over any of the others in relation to connection to the 400 kV network at the Fort Augustus Substation. However Site Options LL5 and LL6 offer the best options to turn the existing 132 kV Fort August to Fort William and Invergarry Tee circuits into them. In contrast Site Option LL7 would require several spans of new OHL to divert the existing 132 kV Fort August to Fort William and Invergarry Tee circuits.	
Site Option LL2		
Site Option LL3		
Site Option LL5		
Site Option LL6		
Site Option LL7		

Future Development Possibilities

Table 7: RAG Appraisal – Future Development Possibilities

	Comparative Appraisal	RAG Rating
Site Option LL1	Location of site has provision for additional circuits within layout.	
Site Option LL2	Location of site has provision for additional circuits within layout.	
Site Option LL3	Location of site has provision for additional circuits within layout.	
Site Option LL5	Layout Location of site has provision for additional circuits within layout.	
Site Option LL6	Location of site has provision for additional circuits within layout. However, future circuit entries may present a challenge.	
Site Option LL7	Location of site has provision for additional circuits within layout. However, future circuit entries may present a challenge.	

Interface with SSE Distribution and Generation

Table 8: RAG Appraisal – Interface with SSE Distribution and Generation

	Comparative Appraisal	RAG Rating
Site Option LL1	No constraints from Distribution or Generation	
Site Option LL2	No constraints from Distribution or Generation	
Site Option LL3	No constraints from Distribution or Generation	
Site Option LL5	No constraints from Distribution or Generation	
Site Option LL6	No constraints from Distribution or Generation	
Site Option LL7	No constraints from Distribution or Generation	

DNO Connection

Table 9: RAG Appraisal –DNO Connection

	Comparative Appraisal	RAG Rating
Site Option LL1	Site approximately 1 km from existing DNO circuit	
Site Option LL2	Site approximately 1 km from existing DNO circuit	
Site Option LL3	Site approximately 1 km from existing DNO circuit	
Site Option LL5	Site approximately 1 km from existing DNO circuit	
Site Option LL6	Site approximately 1 km from existing DNO circuit	
Site Option LL7	Site close to existing DNO circuits.	

Technology

Table 10: RAG Appraisal – Technology

	Comparative Appraisal	RAG Rating
Site Option LL1	AIS equipment proposed for switching station – mature, known technology	
Site Option LL2	AIS equipment proposed for switching station – mature, known technology	
Site Option LL3	AIS equipment proposed for switching station – mature, known technology	
Site Option LL5	AIS equipment proposed for switching station – mature, known technology	
Site Option LL6	AIS equipment proposed for switching station – mature, known technology	
Site Option LL7	AIS equipment proposed for switching station – mature, known technology	

Adjacent Land Use

Table 11: RAG Appraisal – Adjacent Land Use

	Comparative Appraisal	RAG Rating
Site Option LL1	No immediate issues identified.	
Site Option LL2	No immediate issues identified.	
Site Option LL3	No immediate issues identified.	
Site Option LL5	No immediate issues identified.	
Site Option LL6	Topography may offer challenges for areas outside of substation at this site.	
Site Option LL7	Topography may offer challenges for areas outside of substation at this site.	

Space Availability

Table 12: RAG Appraisal – Adjacent Land Use

	Comparative Appraisal	RAG Rating
Site Option LL1	Standard AIS proposed. Space is available although not a level site.	
Site Option LL2	Standard AIS proposed. Space is available although not a level site.	
Site Option LL3	Standard AIS proposed. Space is available although not a level site.	
Site Option LL5	Standard AIS proposed. Space is available although not a level site.	
Site Option LL6	Standard AIS proposed. Space is available although not a level site.	
Site Option LL7	Standard AIS proposed. Space is available although not a level site.	

Unique Hazards

Table 13: RAG Appraisal – Unique Hazards

	Comparative Appraisal	RAG Rating
Site Option LL1	Little information on each site is available at present, An assumption of some potential hazards at each site has therefore been made through an Amber RAG rating. No distinguishers between sites identified to date.	
Site Option LL2		
Site Option LL3		
Site Option LL5		
Site Option LL6		
Site Option LL7		

Existing Utilities and Installations

Table 14: RAG Appraisal – Existing Utilities and Installations

	Comparative Appraisal	RAG Rating
Site Option LL1	Requires diversion of existing 132 kV circuits into site.	
Site Option LL2	Requires diversion of existing 132 kV circuits into site.	
Site Option LL3	Requires diversion of existing 132 kV circuits into site.	
Site Option LL5	Requires diversion of existing 132 kV circuits into site.	
Site Option LL6	Requires diversion of existing 132 kV circuits into site.	
Site Option LL7	Requires diversion of existing 132 kV circuits into site.	

Topography

Table 15: RAG Appraisal – Topography

	Comparative Appraisal	RAG Rating
Site Option LL1	Hillside site, undulating with medium gradient across it.	
Site Option LL2	Fairly level site by comparison with others site options.	
Site Option LL3	Hillside site, undulating with medium gradient across it.	
Site Option LL5	Hillside site, undulating with medium gradient across it.	
Site Option LL6	Site drops off very rapidly to the west. Extensive fill would be required for a substation platform to be constructed at this site.	
Site Option LL7	Fairly level site by comparison with others site options.	

Geology

Table 16: RAG Appraisal – Geology

	Comparative Appraisal	RAG Rating
Site Option LL1	No detailed SI carried out at this stage. However, all sites have been assessed as amber on the basis of desktop and site visual inspections. It is assumed that there will some geological issues found at all site options so there is nothing to distinguish between them at this stage. It is also assumed that all site options will have some peat present.	
Site Option LL2		
Site Option LL3		
Site Option LL5		
Site Option LL6		
Site Option LL7		

Elevation

Table 17: RAG Appraisal – Elevation

	Comparative Appraisal	RAG Rating
Site Option LL1	No issues related to elevation are anticipated at this site. The elevations of all possible sites are comparable and all are below 200m AOD.	
Site Option LL2	No issues related to elevation are anticipated at this site. The elevations of all possible sites are comparable and all are below 200m AOD.	
Site Option LL3	No issues related to elevation are anticipated at this site. The elevations of all possible sites are comparable and all are below 200m AOD.	
Site Option LL5	No issues related to elevation are anticipated at this site. The elevations of all possible sites are comparable and all are below 200m AOD.	
Site Option LL6	No issues related to elevation are anticipated at this site. The elevations of all possible sites are comparable and all are below 200m AOD.	
Site Option LL7	No issues related to elevation are anticipated at this site. The elevations of all possible sites are comparable and all are below 200m AOD.	

Salt Pollution

Table 18: RAG Appraisal – Salt Pollution

	Comparative Appraisal	RAG Rating
Site Option LL1	No issues with salt pollution identified	
Site Option LL2	No issues with salt pollution identified	
Site Option LL3	No issues with salt pollution identified	
Site Option LL5	No issues with salt pollution identified	
Site Option LL6	No issues with salt pollution identified	
Site Option LL7	No issues with salt pollution identified	

Flooding

Table 19: RAG Appraisal – Flooding

	Comparative Appraisal	RAG Rating
Site Option LL1	No issues with flooding identified	
Site Option LL2	No issues with flooding identified	
Site Option LL3	No issues with flooding identified	
Site Option LL5	No issues with flooding identified	
Site Option LL6	No issues with flooding identified	
Site Option LL7	No issues with flooding identified	

SF6

Table 20: RAG Appraisal – SF6

	Comparative Appraisal	RAG Rating
Site Option LL1	SF_6 switchgear proposed as Site.	
Site Option LL2	SF_6 switchgear proposed as Site.	
Site Option LL3	SF_6 switchgear proposed as Site.	
Site Option LL5	SF_6 switchgear proposed as Site.	
Site Option LL6	SF_6 switchgear proposed as Site.	
Site Option LL7	SF_6 switchgear proposed as Site.	

Contaminated Land

Table 21: RAG Appraisal – Contaminated Land

	Comparative Appraisal	RAG Rating
Site Option LL1	No contamination identified to date and probability considered small.	
Site Option LL2	No contamination identified to date and probability considered small.	
Site Option LL3	No contamination identified to date and probability considered small.	
Site Option LL5	No contamination identified to date and probability considered small.	
Site Option LL6	No contamination identified to date and probability considered small.	
Site Option LL7	No contamination identified to date and probability considered small.	

Noise (Proximity to Dwellings)

Table 22: RAG Appraisal – Noise (Proximity to Dwellings)

	Comparative Appraisal	RAG Rating
Site Option LL1	No properties in immediate vicinity to Site.	
Site Option LL2	No properties in immediate vicinity to Site.	
Site Option LL3	No properties in immediate vicinity to Site.	
Site Option LL5	No properties in immediate vicinity to Site.	
Site Option LL6	No properties in immediate vicinity to Site.	
Site Option LL7	Caravan site and residential properties at Faichem located approximately one kilometrefrom the site.	

Conclusion

Overall, Site Option LL5 is the Preferred Site from a technical perspective, although there were many criteria assessed as the same across all or many of the six site options. The key considerations which lead to Site Option LL5 being the preferred site were:

- proximity to existing network as it is very close to the existing 132 kV circuits [Fort Augustus to Fort William and Invergarry Tee] and the planned Skye Reinforcement Project circuits;
- the topology at Site Option LL5 is better than most of the other options; and
- access road is an upgrade and extension of existing tracks from a wide junction from the A82 with good visibility, and so this site would have benefits for both construction and operational access.

Site Option LL7 would be the next preferred site and in the areas of topography, access and DNO connection scores better than the Site Option LL5. However, the key factors against are network connections and proximity

to dwellings/residences. This site would require a diversion of at least 1 km of the existing 132 kV Fort Augustus to Fort William circuits, as well as the 132 kV Invergarry circuit, which in itself would offer challenges. Site Option LL7 is also the closest site to residential properties of the options considered, so the potential impact from the noise from the transformers to be installed at this substation would be greater at Site Option LL7 than for all other site options. This proximity to properties may also have adverse noise impacts on residents during construction activities.

From a technical perspective, Site Option LL6 is close to Site Option LL7 as the next preferred site. Site Option LL6 It is located close to Site Option LL5, but on the other side of the existing 132 kV Fort Augustus to Fort William OHL corridor. This site does have a large disadvantage from topography, as the land falls away quickly to the north-eastern side, and so likely require a large amount of earthworks to construct a suitable platform. Access has been assumed to be from the same route as LL5. Closer proximity to existing OHLs at Ste Option LL6 may also offer hazards during construction.

The other site options they all score very similarly and so have little to no differentiators so distinction has been made between them in terms of preference and no least preferred site option has been identified from a technical perspective.

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APPENDIX 6.3: 400 KV / 132KV LOCH LUNDIE SUBSTATION SITE SELECTION - RAG SUMMARY TABLE

Appendix 6.3: Appraisal of 400 kV / 132 kV Loch Lundie Substation Options			Site Options					
Topic	**Guidance Criteria - Environmental**	**Potential Constraint**	**LL1**	**LL2**	**LL3**	**LL5**	**LL6**	**LL7**
Environment/ Consenting	Natural Heritage - Designations	International, European or National Designations (e.g. SAC, SPA, RAMSAR, National Parks, SSSI, Ancient Woodland Inventory (AWI)) –	Green	Green	Green	Green	Green	Green
		Regional designations (e.g. Local Nature Reserves, Wildlife Sites, RIGS)						
	Natural Heritage - Protected Species	European Protected Species (EPS)	Green	Green	Green	Green	Green	Green
		UK Biodiversity Action Plan (BAP) species (Red/Amber List)						
	Natural Heritage - Habitats	Annex 1 Habitats	Amber	Amber	Green	Green	Amber	Amber
		Groundwater Dependent Terrestrial Ecosystems (GWDTE)						
		Biodiversity						
	Natural Heritage - Ornithology	Schedule 1 Birds	Green	Green	Green	Green	Green	Green
		Birds of Conservation Concern (BoCC)						
	Natural Heritage - Hydrology/geology	SG Drinking Water Protected Areas. (over 10m3 per day or supplies for over 50 people)	Amber	Amber	Green	Green	Amber	Green
		Aquifer providing regional resources e.g. Abstractions for small public or private water supply Hydrological supply to GWDTE						

		Surface waters or aquifer providing water for agricultural or industrial use						
	Cultural Heritage - Designations	World Heritage Sites (WHS), Scheduled Monuments (SM), Inventory Gardens and Designed Landscapes (GDL), Inventory Battlefields. Sites and Monument Record Entries	Green	Green	Green	Green	Green	Green
	Cultural Heritage - Assets	Listed buildings (A, B and C), Non-Inventory GDL, Conservation Areas	Green	Green	Green	Green	Green	Green
	Landscape and Visual - Designations	National or Regional Designations: National Parks, National Scenic Areas, Inventory Gardens and Designed Landscape (GDL), Wild Land Area. Local Designations including: Regional Scenic Areas, and Special Landscape Areas	Green	Green	Green	Green	Green	Green
	Landscape and Visual - Landscape Character	Landscape character as defined in published character assessments (e.g. SNH national assessments)	Red	Amber	Amber	Green	Amber	Amber
	Landscape and Visual - Visual	Settlements and residential properties, key transportation and recreational routes utilised by tourists and visitors to an area, vantage points and tourist destinations from where views and landscape appreciation is important.	Amber	Amber	Amber	Green	Amber	Amber
	Land Use - Agriculture	Agricultural Land Classification (ALC)	Green	Green	Green	Green	Green	Green

	Land Use - Woodland/Forestry	Commercial Forestry	Green	Green	Amber	Amber	Green	Amber
		Woodland	Green	Green	Green	Green	Green	Amber
	Land Use - Recreation	Public Footpaths, National Cycle Routes etc	Amber	Amber	Amber	Green	Amber	Amber
		Commercial Highland Sports - fishing, stalking, shooting etc.	Amber	Amber	Green	Green	Amber	Amber
	Planning - Policy	National/Regional/Local Planning Policy	Green	Green	Green	Green	Green	Green
	Planning - Proposals	Other relevant projects already known to the planning system	Green	Green	Green	Green	Green	Green
Engineering	Connectivity - Existing circuits/ network	Distance and feasibility of connecting to the existing circuits / network	Red	Red	Red	Red	Red	Red
		Outages for modification to existing circuits	Green	Green	Green	Green	Green	Green
	Connectivity - Future development possibilities	Extension of site or other circuits	Green	Green	Green	Green	Amber	Amber
	Connectivity - Interface with SSE Distribution and Generation	Consideration of Business Seperation and whole system requirements	Green	Green	Green	Green	Green	Green
	Connectivity - DNO Connection	Proximity of LVAC supplies	Amber	Amber	Amber	Amber	Amber	Green
	Footprint Requirements - Technology	i.e. AIS/GIS or certainty of sizing on non-standard plant and equipment	Green	Green	Green	Green	Green	Green
	Footprint Requirements - Adjacent Land use	Availability for ancillary infrastructure like welfare compounds, laydown areas, screening and SUDS infrastructure.	Green	Green	Green	Green	Amber	Amber

	Footprint Requirements - Space Availability	Non standard substation configurations to accommodate site specific considerations	Amber	Amber	Amber	Amber	Amber	Amber
	Hazards	Unique Hazards	Amber	Amber	Amber	Amber	Amber	Amber
		Existing Utilities	Amber	Amber	Amber	Amber	Amber	Amber
	Ground Conditions	Topography	Amber	Green	Amber	Amber	Red	Green
		Geology (Superficial Deposits – Peat)	Amber	Amber	Amber	Amber	Amber	Amber
		Geology (Site testing to verify properties)	Green	Green	Green	Green	Green	Green
	Environmental Conditions	Elevation	Amber	Amber	Amber	Amber	Amber	Amber
		Salt Pollution	Green	Green	Green	Green	Green	Green
		Flooding	Green	Green	Green	Green	Green	Green
		Carbon Footprint	No Preference	No Preference	No Preference	No Preference	No Preference	No Preference
		SF6	Red	Red	Red	Red	Red	Red
		Contaminated Land	Green	Green	Green	Green	Green	Green
		Noise (proximity to dwellings / residential properties)	Green	Green	Green	Green	Green	Amber
	Construction Access	Substation Access Road (from public road)	Red	Red	Red	Amber	Amber	Green
		Transformer Delivery Route	Amber	Amber	Amber	Amber	Amber	Amber
	Operation and Maintenance	Access	Red	Red	Red	Amber	Amber	Green
Cost	Capital	Construction	No Preference	No Preference	No Preference	No Preference	No Preference	No Preference
		Diversions	No Preference	No Preference	No Preference	No Preference	No Preference	No Preference

		Public Road Improvements	No Preference	No Preference	No Preference	No Preference	No Preference	No Preference
		Felling	No Preference	No Preference	No Preference	No Preference	No Preference	No Preference
		Land Assembly	No Preference	No Preference	No Preference	No Preference	No Preference	No Preference
		Consent Mitigations	No Preference	No Preference	No Preference	No Preference	No Preference	No Preference
	Operational	Inspections	No Preference	No Preference	No Preference	No Preference	No Preference	No Preference
		Maintenance	No Preference	No Preference	No Preference	No Preference	No Preference	No Preference

APPENDIX 8.1 – ENVIRONMENTAL APPRAISAL OF ROUTE OPTIONS: 400 KV COIRE GLAS SWITCHING STATION SEARCH AREA – 400 KV / 132 KV LOCH LUNDIE SUBSTATION SEARCH AREA

Environmental Appraisal

Each route option between the 400 kV Coire Glas Switching Station Search Area and the 400 kV / 132 kV Loch Lundie Substation Search Area has been assessed against the environmental categories in SSEN Transmission plc's guidance[1]. Using the methodology summarised in Appendix 3.1, the route options were assigned RAG (Red, Amber, Green) ratings for each of the environmental categories based on the whether the anticipated impact and/or risk was High, Intermediate or Low to identify a Preferred Route Option from an environmental perspective.

Table 1: Coire Glas 400 kV Switching Station – Loch Lundie 400 kV / 132 kV Substation - Route Option CG-LL1 (See Figures 7.1–7.9)

Description:
Route Option CG-LL1 represent the most westerly route between the new 400 kV Coire Glas Switching Station and the new 400 kV / 132 kV Loch Lundie Substation. Route Option CG-LL1 leaves the north/north eastern side of the new 400 kV Coire Glas Switching Station Search Area and travels in a north-easterly direction for approximately 2.7 km, to enter the southern area of the 400 kV / 132 kV Loch Lundie Substation Search Area. From the new 400 kV Coire Glas Switching Station Search Area, Route Option CG-LL1 would travel directly through the forestry at White Bridge for approximately 1.6 km, crossing several forestry tracks. The route also contains the properties at Glenluie, which are located in a clearing within the forestry. The route would then cross the River Garry and the A87. The Quoich Dam between Loch Garry and the River Garry is also located to the west of Route Option CG-LL1. After crossing the A87, Route Option CG-LL1 would travel through another area of forestry at Munerigie Wood for approximately 0.6 km, before crossing the minor road between Faichem and Munerigie, to reach an area of open moorland to the south of the 400 kV / 132 kV Loch Lundie Substation Search Area. The existing Fort Augustus to Skye OHL and the Quoich to Aberchalder OHL are located within the north-western extent of Route Option CG-LL1. Although it is anticipated that both OHLs will eventually be replaced by the proposed Skye Reinforcement Project and dismantled, this assessment has been undertaken using the existing baseline. Figure 7.6 illustrates both existing and planned infrastructure. Faichemard Farm Caravan and Camping Site is located within an area of woodland within the north-eastern extent of Route Option CG-LL1.
Review of Environmental Constraints:
Natural Heritage

[1] Referenced in: SSEN (March 2018), Procedures for Routeing Overhead Lines of 132kV and above

Topics	Potential Constraints	RAG Rating
Designations	Two statutory designated sites lie within Route Option CG-LL1: West Inverness-shire Lochs Special Site of Scientific Interest (SSSI) and Special protection Area (SPA), and Garry Falls SSSI, both of which are associated with the River Garry (including Loch Garry) that the route option crosses. Within 1 km of Route Option CG-LL1 it is noted that Loch Lundie has also been designated within the West Inverness-shire Lochs SSSI and SPA. The West Inverness-shire Lochs SSSI and SPA comprises eight freshwater upland lochs and has been designated as they support nationally important numbers of breeding black-throated divers (*Gavia arctica*) and common scoters (*Melanitta nigra*). Garry Falls SSSI lies where the river Garry emerges from Loch Garry. The site encompasses upland mixed ash woodland and supports a rich assemblage of bryophyte interest. Woodland qualifying features are associated with cliffs and block scree slopes and comprise native broadleaved species with a rich understorey of bryophytes associated with deadwood. The bryophyte assemblage is also considered of significance including two nationally scarce species, *Ulota calvescens* and *Cephalozia catenulate.* Route Option CG-LL1 covers the lower part of the West Inverness-shire Lochs SSSI and SPA (that include Loch Garry) prior to its discharge to River Garry and the entire of the Garry Falls SSSI (located on the southern banks of River Garry). Due to the documented relationship between the woodlands, and bryophyte interests they support, it is recommended that the Garry Falls SSSI is entirely avoided with Route Option CG-LL1 and that the OHL and any necessary felling is undertaken to the south of the SSSI site. The West Inverness-shire Lochs SSSI / SPA associated with Loch Lundie, lies upgradient of Route Option CG-LL1 within the Aldernaig Burn catchment, as such it is not in hydrological connection to the Proposed Development and not considered further. With careful avoidance of the Garry Falls SSSI and subject to control measures and good practice it is unlikely that works associated with construction would compromise the qualifying interests of the adjacent SSSI and SPA. An **Amber** rating has therefore been applied to Route Option CG-LL1.	A
Protected Species	Initial walkover surveys undertaken in August 2021 highlighted the presence of pine marten (*Martes martes*) in areas of forestry south of the River Garry. Abundant woodland, and woodland edge habitat, provides suitable habitat for badger (*Meles meles*), red squirrel (*Sciurus vulgaris*), pine marten (*Martes martes*) and bat species. Riparian zones provide suitable habitat for otter (*Lutra lutra*). Loss of small areas of habitat associated with overhead line infrastructure is therefore unlikely to significantly reduce habitat suitability or availability of the wider area. Potential for impacts on protected species could be further reduced or eliminated by undertaking pre-construction surveys and adopting appropriate mitigation. Therefore, there is considered to be low potential for Route Option CG-LL1 to compromise the conservation status of, or for the route to be constrained by, the presence of protected species. A **Green** rating has therefore been applied to this route.	G
Habitats	Initial walkover surveys undertaken in August 2021 indicate that Route Option CG-LL1 passes through large areas of coniferous plantation. Many coupes within the plantation are stocked with mature Scot's pine (*Pinus sylvestris*). Along track sides and riparian corridors, including the river Garry, semi-natural mixed and broadleaved woodland is also present. These are commonly represented by *Birch Betula spp*. woodlands. More open areas in the woodlands are dominated by Bracken (*Pteridium aquilinum*) and modified heath communities, with patchy areas of regenerating woodland. <u>Annex 1</u> Areas of semi-natural woodland and Scot's pine plantation are identified on the Ancient Woodland Inventory (AWI). Loss of woodland, including AWI woodland (also see 'Land use – Forestry' section below), is considered probable from routeing infrastructure through Route Option CG-LL1. No Annex 1 habitats or notable plant species were recorded during the course of initial walkover surveys Route Option CG-LL1. The sensitive habitats identified present modest constraints which could be further reduced or eliminated by micrositing infrastructure	A

	and/or adopting appropriate mitigation. Therefore, there is considered to be moderate potential for Route Option CG-LL1 to compromise the conservation status of, or for the route to be constrained by, Annex 1 habitats. <u>GWDTE (Groundwater Dependent Terrestrial Ecosystems)</u> GWDTE are not considered extensive within the route corridor, limited to surrounds of small hydrological pathways. Loss of GWDTE could therefore be minimised by micrositing of infrastructure, and there is low potential for Route Option CG-LL1 to compromise the integrity of GWDTE. <u>Biodiversity</u> Route Option CG-LL1 contains a total of 7356.62 Biodiversity Units (BU), at 9.94BU/Ha. In Biodiversity Net Gain (BNG) guidance, semi-natural ancient woodlands are considered to be irreplaceable habitat. Small areas are present within Route Option CG-LL1. Habitats of high distinctiveness within the corridor also include modified wet heaths and small patches of grassland present on open ground along lower ground within Route Option CG-LL1. The route is dominated by coniferous plantation woodland, which is considered to be of low distinctiveness. Loss of irreplaceable habitat would result in 'No Net Loss' being unachievable. Where habitats of high distinctiveness are lost, replacement must be of equivalent value to meet 'No Net Loss'. Removal of coniferous plantation is likely to present an opportunity to enhance biodiversity value within the route, by replacement with habitats of higher distinctiveness value. It should be noted however that removal of woodland habitat creates difficulty in achieving 'No Net Loss' due to the time taken for replacement woodland and/or scrub to achieve suitable structure and condition and for the replacement biodiversity value to be realised. An **Amber** rating has therefore been applied to Route Option CG-LL1 due to the potential loss of semi-natural woodland and Scot's pine plantation associated with this route option, as well as the presence of small areas of habitats that are classed as irreplaceable habitat under BNG Guidance.	
Ornithology	Route Option CG-LL1 predominantly passes through undulating plantation forestry and across the River Garry with several narrow watercourses and rocky outcrops contained within the woodland. Depending on the chosen location of the new substation within the Loch Lundie Substation Search Area, Loch Lundie will also be adjacent to the route. Ornithological constraints are focussed on those species breeding within the forestry, and those species which use the forest or the river for hunting purposes. Potential protected (Schedule 1) species are likely to be limited to Osprey (*Pandion haliaetus*), Goshawk (*Accipiter gentilis*) and Crossbill (*Loxia curvirostra*), although several woodland species are Red and Amber List species of conservation concern including but not limited to, Song Thrush (*Turdus philomelos*), Spotted Flycatcher (*Muscicapa striata*), Tree Pipit (*Anthus trivialis*), Lesser Redpoll (*Acanthis cabaret*), Meadow Pipit (*Anthus pratensis*) and Willow Warbler (*Phylloscopus trochilus*). Should the route pass close to Loch Lundie, Red-throated Diver (*Gavia stellata*) and Common Scoter (*Melanitta nigra*) may be present. Route Option CG-LL1 could compromise the conservation status of population(s) of Schedule 1 bird species or Red or Amber listed if breeding or hunting within the route. Standard bird surveys will need to be undertaken to update the baseline and inform the route selection and appropriate mitigation measures should be implemented to minimise any disturbance / collision risk to protected species along this route. Therefore, an **Amber** rating has been applied for this route.	A
Hydrology / Geology	Route Option CG-LL1 lies entirely within the River Garry catchment, specifically the nested catchment of five tributaries; two of which are unnamed (one discharges to Loch Garry to the west of the route option, one directly to River Garry in the centre of the route option), the	G

	Allt Ruighe Bhlair (that itself lies within the larger Allt na Cailliche catchment), the Caochan nan Damnhan (a northern tributary of River Garry) and Allt a' Bhainne (that itself lies within the larger Aldernaig Burn catchment). Published mapping shows the southern extent of Route Option CG-LL1 is underlain by Class 4 peatland (areas unlikely to be associated with peatland habitats or include carbon-rich soils) while the northern extent is generally absent of peat soils of conservation value. A unit of Class 5 (carbon-rich and deep peat that include areas of bare soil but with no peatland habitat recorded) is recorded extending south of the Garry Falls Tarf SSSI, within the Coille Glean Laogh woodland. Peat land is not considered a development constraint. Superficial cover within Route Option CG-LL1, when present, is dominated by hummocky glacial deposits of diamicton, sand and gravel while alluvium deposits of gravel, sand, silt and clay are bound to the River Garry channel, downstream of the Garry Falls SSSI. Peat is recorded at either end of Route Option CG-LL1, within the shallow gradient areas between hilltops. Route Option CG-LL1 is almost entirely underlain by the Tarvie Psammite Formation, while it is noted within the north eastern end of the route option, units of igneous intrusions exist: West Highland Granite Gneiss Intrusion, Scottish Highland Siluro-Devonian Calc-alkaline Minor Intrusion Suite and Appinite Suite (that is abutting an inferred fault). Route Option CG-LL1 extends marginally into the Aldernaig catchment in the northern end of the route option. The entire Aldernaig Burn catchment has been designated a Drinking Water Protection Area (DWPA), Scottish Water abstract from Aldernaig Burn to supply their Invergarry Water treatment Works (WTW). As this route option only extends marginally into this catchment, there is minimal potential risk to the DWPA. The location of Scottish Water infrastructure would need to be confirmed to ensure the DWPA or Scottish Water infrastructures is not impaired. As the development footprint is very small in area compared to the extent of the DWPA it is considered unlikely that the presence of the DWPA will pose a significant development constraint. SEPA floodplain mapping shows that the Medium (0.5% annual exceedance probability of flooding / 1 in 200yr) likelihood of flooding floodplain extent is crossed by the alignment at the River Garry. Whilst not a development constraint, due regard will need to be made to flood risk during the design, construction and operational phases. Particular attention will be required at proposed watercourse crossings, where floodplains will also be crossed. There are several private water supplies (PWS), generally associated with springs and surface water, registered within catchments downgradient of this alignment. These sources could be prone to pollution and / or distribution pipework damaged without appropriate control. However, given the superficial and solid geology, water catchment to the PWS sources are likely to be localised / close to the water source. A **Green** rating has therefore been applied to this Route.	
Cultural Heritage		
Topics	**Potential Constraints**	**RAG Rating**
Designations	There are no World Heritage Sites (WHS), Scheduled Monuments (SM), Inventory Gardens and Designed Landscapes (GDL), Conservation Areas (CA) or Inventory Battlefields (IB) within Route Option CG-LL1. There is one Category C listed building (LB), Building of low sensitivity, within Route Option CG-LL1. It is anticipated that direct impacts on this LB could be avoided through micrositing the alignment of the OHL within the route option. However, there would be a potential for setting effects upon this LB. No other potential direct or setting effects anticipated. No other potential direct impacts on the designating features or the setting of any cultural heritage designations are	G

	anticipated for this site option. Although there is the potential for setting effects upon one LB within the route option, this cultural heritage asset is a Category LB of low sensitivity. A **Green** rating has therefore been applied to Route Option CG-LL1.	
Cultural Heritage Assets	There would be potential direct impacts on two non-designated heritage assets. Both are Historic Environment Record (HER) sites of low sensitivity. No other potential direct or setting effects on non-designated cultural heritage assets are anticipated. A **Green** rating has therefore been applied to Route Option CG-LL1.	G
People		
Topics	**Potential Constraints**	**RAG Rating**
Proximity to Dwellings	At least one property at Glenluie, within the Forestry at White Bridge, is located within Route Option CG-LL1. An application has been submitted for the erection of a house at the Blar an Eas Salt Store at White Bridge within Route Option CG-LL1, in the area to the north of the River Garry. There are also a few scattered properties and part of the Faichemard Farm Caravan and Camping site within the northern part of Route Option CG-LL1, at Faichem. It is anticipated that a suitable separation buffer (anticipate to be a minimum of 170 m based on preliminary noise modelling) from the OHL route could be applied to all properties within the route option. A **Green** Rating has therefore been applied.	G
Landscape and Visual		
Topics	**Potential Constraints**	**RAG Rating**
Designations	Route Option CG-LL1 would not affect any areas designated or otherwise protected for landscape purpose. The RAG rating is therefore **Green**.	G
Landscape Character	Route Option CG-LL1 would pass through LCT 235 (Broad Forested Strath) and, depending on the substation position chosen within the Loch Lundie Substation Search Area at Invergarry, would also pass through LCT 237 (Rocky Moorland – Lochaber). Both these LCTs are considered to have a Medium (or locally Low where existing OHLs are present) sensitivity to development of this type. The Route Option would require a new wayleave to be established through forestry around White Bridge with the potential to affect areas of Caledonian Pine, an important feature of the landscape in this area. Depending on the substation option chosen at Invergarry, there could be cumulative effects with other existing OHLs in this area, to the south and east of Loch Lundie. The RAG assessment for this Route Option assumes that if a more northerly substation locations were chosen within the Loch Lundie Substation Search Area, the alignment of the OHL would follow existing OHL alignments to the east of Loch Lundie. Due to the potential for loss of areas of Caledonian Pine woodland and other native woodland around White Bridge and Glenluie, an **Amber** RAG rating has been applied to this Route Option.	A
Visual	Route Option CG-LL1 would pass close to a property at Glenluie with potential to appear within views from the house and outdoor areas. It would also cross the A87 road leading to briefly obtained views. The Route may also be noticeable from a parking and forest recreational area at White Bridge and surrounding Core Paths and other locally used forest and woodland paths in this area with the requirement for a new wayleave leading to an increased area where visual effects may be experienced. However, it may be possible to achieve an alignment which avoids these effects. Depending on the choice of substation location within the Loch Lundie Substation Search Area, this route option	A

	may also lead to visual effects on users of a Core Path which passes to the east of Loch Lundie from Invergarry. Although existing OHLs are already visible from this route, the Proposed Development would lead to potential cumulative effects with the potential for the creation of a greater dominance of OHL infrastructure in this area. An **Amber** RAG rating has been applied due to the potential effects on recreational users around White Bridge and Loch Lundie and a residential property at Glenluie.	
Land Use		
Topics	**Potential Constraints**	**RAG Rating**
Agriculture	Route Option CG-LL1 corridor passes through large areas of coniferous plantation. This Route Option would only affect lower quality agricultural land, graded as Agricultural Land Capability (ALC) 3b and below. Most of the on land within this Route Option is only capable of supporting rough grazing (ALC 6.2 and 6.3). A **Green** rating has therefore been applied to Route Option CG-LL1.	G
Forestry	Route Option CG-LL1 includes mid rotation, upland commercial conifers, mainly Sitka spruce and Lodgepole pine. Scots pine and birch are present. At the south western end, the conifer planting is interspaced with a high percentage of open ground. The lower elevation conifer plantations have less open space. The impact on commercial forestry with this route option would have a significant impact on the commercial viability of this forest area. Ancient Woodland Inventory (AWI) maps broad bands of Ancient (of semi-natural origin) ASNO 1860 cross the full width of Route Option CG-LL1. Native Woodlands of Scotland Survey (NWSS) records from SW Native pinewood, established regeneration. Plantation on Ancient Woodland Site (PAWS) is present across a high percentage of the route option south of the A87. The NWSS present also includes upland birchwood. More than 50% of this route option includes the Glen Garry Caledonian pinewood buffer zone. Due to the potential impact on commercial forestry and the presence of a significant area of woodland designations a **Red** RAG rating has been applied to Route Option CG-LL1.	R
Recreation	<u>Recreational Routes</u> The car park and forest recreational area at White Bridge is located within Route Option CG-LL1, on the northern bank of the River Garry. The car park is a popular location for canoeists, due to scheduled water releases from the Dam at White Bridge. There are also Core Paths (classified by The Highland Council (THC)) and other locally used forest and woodland paths in this forest area. It is anticipated that the OHL alignment could be microsited within the route option to avoid direct impacts on the recreational amenity value of this recreational area. However, Route Option CG-LL1 may also be noticeable from the forest recreational area at White Bridge, including from the car park and the surrounding Core Paths and other footpaths. As noted in the 'Landscape and Visual – Visual' section above, the requirement for a new wayleave to accommodate the OHL would lead to an increased area where visual effects may be experienced. However, it may be possible to achieve an alignment which avoids these effects. Part of the Faichemard Farm Caravan and Camping site is located within the north eastern extent of Route Option CG-LL1. It is anticipated direct impacts on the existing access track could be avoided by rerouting the access track of micrositing the OHL infrastructure within the route option, however the OHL may lead to visual effects for residents at the caravan and camping site.	A

	The existing access track which passes to the east of Loch Lundie is classified as a Core Path (by THC) and a Scottish Hill Track (by Scottish Rights of Way and Access Society (SCOTWAYS)). Depending on the choice of the substation location within the Loch Lundie Substation Search Area, Route Option CG-LL1 may be visible from this footpath. It is anticipated direct impacts on the existing access track could be avoided by rerouting the access track or micrositing the OHL infrastructure within the route option. However, an OHL within this route may lead to visual effects on users of the Core Path / Scottish Hill Track. As noted in the 'Landscape and Visual – Visual' section above, although existing OHLs are already visible from this route, a new OHL at this location would lead to potential cumulative effects for user of the Core Path / Scottish Hill Track, with the potential for the creation of a greater dominance of OHL infrastructure in this area. An **Amber** RAG rating has been applied to this route option due to the potential visual effects on recreational users around White Bridge, Faichemard and (potentially) Loch Lundie. <u>Commercial Highland Sports</u> Route Option CG-LL1 is largely located within an area of coniferous plantation woodland and forest recreational area at White Bridge, both owned by Forestry and Land Scotland (FLS). These woodland areas would not be used for commercial highland sport. However, depending on the choice of the substation location within the Loch Lundie Substation Search Area, the northern section of Route Option CG-LL1 may also be routed through land owned by Aberchalder Estate. The estate is managed for sporting activities, including red deer stalking and trout and salmon fishing, as well as other recreational activities such as highland safaris. Loch Lundie is used for brown trout fishing. Stag and hind stalking activities take place in September and October on the estate. Route Option CG-LL1 may interact with areas used for commercial highland sports on Aberchalder Estate in the Loch Lundie area. This route therefore has some potential to compromise the commercial viability of highland sports within the estate, particularly during the construction phase. An **Amber** rating has therefore been applied. An **Amber** RAG rating has been applied to this route option due to the potential visual effects on recreational users around White Bridge, Faichemard and (potentially) Loch Lundie, and the potential impacts on the commercial viability of highland sports on Aberchalder Estate.	
Planning		
Topics	**Potential Constraints**	**RAG Rating**
Policy	Route Option CG-LL1 would be brought forward in full compliance with national, regional or local planning policy. A **Green** RAG rating has been applied to this route option.	G
Proposals	Route Option CG-LL1 may interact with the construction of the access track for the consented Coire Glas Pumped Storage Scheme. However, the OHL is required for the operation of Coire Glas Pumped Storage Scheme. An application has also been submitted for the erection of a house at the Blar an Eas salt store (Ref: 21/02045/FUL) in the area to the north of the River Garry within Route Option CG-LL1. It is anticipated that interaction with this proposal could be avoided by micrositing the route of the proposed OHL within the route option.	G

	Route Option CG-LL1 may interact with the construction or dismantling of other OHLs within the Loch Lundie Substation Search Area. However, all these proposals are being developed by SSEN Transmission. No other proposals that are either consented or known to the planning system have been identified within Route Option CG-LL1. A **Green** RAG rating has been applied.	

Table 2: Coire Glas 400 kV Switching Station – Loch Lundie 400 kV / 132 kV Substation - Route Option CG-LL2 (See Figures 7.1–7.9)

Description:		
Route Option CG-LL2 represent the central route between the new 400 kV Coire Glas Switching Station and the new 400 kV / 132 kV Loch Lundie Substation. Route Option CG-LL2 leaves the eastern side of the new 400 kV Coire Glas Switching Station Search Area to the south east of the forestry at White Bridge and travels in a general north easterly direction for approximately 3.2 km and then in a north north-easterly direction for approximately 2.2 km to enter the south western area of the 400 kV / 132 kV Loch Lundie Substation Search Area. From the new 400 kV Coire Glas Switching Station Search Area, Route Option CG-LL2 would travel through an area of open moorland for approximately 3.5 km and would cross several minor watercourses, including the Allt nan Seileach and the Allt Cruinneachaidh. After crossing the area of open moorland, Route Option CG-LL2 would cross through an area of forestry (to the west) and the settlement of Wester Mandally, including a minor road, before crossing the River Garry. North of the River Garry Route Option CG-LL2 would cross over the western extent of the village of Invergarry, the A87 and a minor road to Faichem, before continuing through an area of forestry to the north of Invergarry for approximately 1.3 km, to enter the south western area of the 400 kV / 132 kV Loch Lundie Substation Search Area. The wayleave for the existing Fort Augustus to Fort William OHL and a forestry track are also routed through this section of forestry. The Aldernaid Burn runs in a north-south direction through the northern 1 km of Route Option CG-LL2, before entering the River Garry.		
Review of Environmental Constraints:		
Natural Heritage		
Topics	**Potential Constraints**	**RAG Rating**
Designations	No regionally, nationally, or internationally designated sites lie within Route Option CG-LL2, whilst one is noted to lie within 1 km: West Inverness-shire Lochs SSSI and SPA. The West Inverness-shire Lochs SSSI and SPA comprises eight freshwater upland lochs and has been designated as they support nationally important numbers of breeding black-throated divers (*Gavia arctica*) and common scoters (*Melanitta nigra*). Route Option CG-LL2 lies approximately 800 m downstream of the West Inverness-shire Lochs SSSI and SPA (which includes Loch Lundie) prior to its discharge to Aldernaig Burn. The West Inverness-shire Lochs SSSI / SPA associated with Loch Lundie, lies upgradient of Route Option CG-LL2, as such it is not in hydrological connection to the proposed development and not considered further. Subject to control measures and good practice it is unlikely that works associated with construction would compromise the qualifying interests of the adjacent SSSI and SPA. A **Green** rating has therefore been applied to this route option.	G
Protected Species	Initial walkover surveys undertaken in August 2021 highlighted the presence of pine marten in areas of forestry south of the river Garry. Abundant woodland, and woodland edge habitat, provides suitable habitat for badger, red squirrel, pine marten and bat species. Riparian zones provide suitable habitat for otter. Wet heath and mire habitats provide suitable habitat for water vole (*Arvicola amphibius*). Loss of small areas of habitat associated with OHL infrastructure is therefore unlikely to significantly reduce habitat suitability or availability of the wider area. Potential for impacts on protected species could be further reduced or eliminated by undertaking pre-construction surveys and adopting appropriate mitigation. Therefore, there is considered to be low potential for Route Option CG-LL2 to compromise the conservation status of, or for the route to be constrained by, the presence of protected species. A **Green** rating has therefore been applied to this route option.	G
Habitats	Initial walkover surveys undertaken in August 2021 indicate that the route corridor passes through large areas of blanket mire and wet heath vegetation across open ground between the eastern banks of Loch Lochy and the land south of the River Garry. Across the River Garry valley the route passes through areas dominated by semi-natural broadleaved woodland, residential areas and the riparian corridor	A

	of the River Garry itself. The north side of the River Garry is dominated by semi-natural broadleaved woodland along the Aldernaig Burn, with more open areas in the woodlands are dominated by Bracken *Pteridium aquilinum* and modified heath communities, with patchy areas of regenerating woodland. Annex 1 Large pockets of blanket mire habitat exist on flatter plateaus and depressions on moorland areas. Wet heaths dominate other open moorland. Both habitats are identified as Annex 1 habitats. Areas of semi-natural woodland and Scot's pine plantation are identified on the AWI. Loss of woodland, including AWI woodland, is considered probable from routeing infrastructure through this corridor. The sensitive habitats identified present modest constraints which could be further reduced or eliminated by micrositing infrastructure and/or adopting appropriate mitigation. Therefore, there is considered to be moderate potential for Route Option CG-LL2 to compromise the conservation status of, or for the route to be constrained by, Annex 1 habitats. GWDTE Wet heath are considered to be moderately dependent on groundwater in certain circumstances. The majority of wet heaths within Route Option CG-LL2 are considered to be principally associated with ombrotrophic mires and as such not generally dependent on groundwater. Therefore, GWDTE are not considered extensive within the route corridor, limited to surrounds of small hydrological pathways. Loss of GWDTE could therefore be minimised by micrositing of infrastructure, and there is low potential for Route Option CG-LL2 to compromise the integrity of GWDTE. Biodiversity Route Option CG-LL2 contains a total of 14591.68 BU, at 11.10BU/Ha. In BNG guidance, blanket mires and semi-natural ancient woodland are considered to be irreplaceable habitat. Large areas of blanket mire are present within the route corridor, with smaller areas of woodland in the River Garry valley. Habitats of high distinctiveness within the corridor also include wet heath and small patches of grassland present on open ground on lower ground within the corridor. Loss of irreplaceable habitat would result in 'No Net Loss' being unachievable. Where habitats of high distinctiveness are lost, replacement must be of equivalent value to meet 'No Net Loss'. Removal of coniferous plantation within Route Option CG-LL2 is likely to present an opportunity to enhance biodiversity value within the route, by replacement with habitats of higher distinctiveness value. It should be noted however that removal of woodland habitat creates difficulty in achieving 'No Net Loss' due to the time taken for replacement woodland and/or scrub to achieve suitable structure and condition and for the replacement biodiversity value to be realised. An **Amber** rating has been applied to Route Option CG-LL2 due to the potential loss of Annex 1 habitats, semi-natural woodland and Scot's pine plantation associated with this route option, as well as the presence of habitats that are classed as irreplaceable habitat under BNG Guidance.	
Ornithology	Route Option CG-LL2 predominantly passes across low-elevation moorland with several narrow watercourses and rocky outcrops and through undulating plantation forestry before crossing the River Garry. Depending on the chosen location of the Loch Lundie Substation, Loch Lundie will also be adjacent to the route. Ornithological constraints are focussed on those species breeding on the open moorland and within the forestry, and those species which use the moorland, forest or the river for hunting purposes. Potential protected (Schedule 1) species are Merlin (*Falco columbarius*), Short-eared Owl (*Asio flammeus*), Osprey, Goshawk and Crossbill, although several woodland species are Red and Amber List species of conservation concern including, but not limited to, Song Thrush, Spotted Flycatcher, Tree Pipit, Lesser Redpoll, Meadow Pipit and Willow Warbler. Should the route pass close to Loch Lundie, Red-throated Diver and Common Scoter may be present.	A

	Route Option CG-LL2 could compromise the conservation status of population(s) of Schedule 1 bird species or Red or Amber listed if breeding or hunting within the route. Standard bird surveys will need to be undertaken to update the baseline and inform the route selection, and appropriate mitigation measures should be implemented to minimise any disturbance / collision risk to protected species along this route. Therefore, an **Amber** rating has been applied to this route option.	
Hydrology / Geology	Route Option CG-LL2 lies entirely within the River Ness catchment, specifically the sub-catchments of the River Garry (including its nested catchments of Allt na Cailliche, Aldernaig Burn Allt a' Bhodaich, Allt Ailein); and Loch Oich (including its western nested catchments of Allt Cruinneachaidh, Allt an Oighre). At higher elevations within Route Option CG-LL2, along the watershed of River Garry and Loch Oich, a large unit of Class 2 peatland (nationally important carbon-rich soils, deep peat and priority peatland habitat that are potentially high conservation value and restoration potential) is recorded. Fringing the Class 2 peatland at lower elevations along Route Option CG-LL2, Class 5 peatland (carbon-rich and deep peat that include areas of bare soil but with no peatland habitat recorded) is recorded, south of the River Garry. The depth and condition of peat will need to be considered as part of any further assessment of this route in order that potential impacts can be minimised and mitigated where required. If the peat is deep and not degraded this poses a development constraint. Superficial cover within Route Option CG-LL2, when present, is dominated by hummocky glacial deposits of diamicton, sand and gravel while a wide band of alluvium of gravel, sand, silt and clay is associated with the River Garry channel. The River Garry downstream of Wester Mandally and Allt nan Seileach before it enters the woodlands include areas of Glaciofluvial deposits of sand and gravel also. Peat is recorded along the watershed between River Garry and Loch Oich along Route Option CG-LL2, and within the low gradient areas within the Aldernaig Burn catchment. The southern half of Route Option CG-LL2 is almost entirely underlain by the Tarvie Psammite Formation while the north half of the route option is dominated by units of igneous intrusions: West Highland Granite Gneiss Intrusion, Scottish Highland Siluro-Devonian Calc-alkaline Minor Intrusion Suite and Appinite Suite. Several minor metamorphic units of amphibolite and hornblende schist are recorded within the northern half of the route option also. An inferred fault is aligned with the River Garry where this route option crosses. Route Option CG-LL2 extends into the lower reaches of the Aldernaig catchment in the northern end of the route option. The entire Aldernaig Burn catchment has been designated a DWPA, Scottish Water abstract from Aldernaig Burn to supply their Invergarry WTW. The location of Scottish Water infrastructure would need to be confirmed to ensure the DWPA or Scottish Water infrastructures is not impaired. As the development footprint is very small in area compared to the extent of the DWPA it is considered unlikely that the presence of the DWPA will pose a significant development constraint. SEPA floodplain mapping shows that the Medium (0.5% annual exceedance probability of flooding / 1 in 200yr) likelihood of flooding floodplain extent is crossed by the alignment at the River Garry and Aldernaig Burn. Whilst not a development constraint, due regard will need to be made to flood risk during the design, construction and operational phase of this route option. Particular attention will be required at proposed watercourse crossings, where floodplains will also be crossed. There are several PWS, generally associated with springs and surface water, registered within catchments downgradient of this route option. These sources could be prone to pollution without appropriate control. However, given the superficial and solid geology, water catchment to the PWS sources are likely to be localised / close to the water source, and thus impacts mitigated. A **Green** rating has therefore been applied to this route option.	G

Cultural Heritage		
Topics	**Potential Constraints**	**RAG Rating**
Designations	There are no World Heritage Sites (WHS), Scheduled Monuments (SM), Inventory Gardens and Designed Landscapes (GDL), Conservation Areas (CA) or Inventory Battlefields (IB) within Route Option CG-LL2. There is one Category 2 listed building (LB), Building of medium sensitivity, within Route Option CG-LL2. It is anticipated that direct impacts on this LB could be avoided through micrositing the alignment of the OHL within the route option. However, there would be a potential for setting effects upon this LB. No other potential direct impacts on the designating features or the setting of any cultural heritage designations are anticipated for this site option. As there is the potential for setting effects upon a Category B LB of medium sensitivity, an **Amber** rating has been applied to Route Option CG-LL2.	A
Cultural Heritage Assets	There would be a potential direct impact on up to seven non-designated HER site of low sensitivity. No other potential direct or setting effects on non-designated cultural heritage assets are anticipated. Due to the number of non-designated HER sites within this Route Option that could be directly impacted by the Proposed Development, an **Amber** RAG rating been applied to Route Option CG-LL2.	A
People		
Topics	**Potential Constraints**	**RAG Rating**
Proximity to Dwellings	Route Option CG-LL2 would cross over two clusters of properties, one at Wester Mandally and the other and the western extent of Invergarry. It may not be possible to apply a suitable separation buffer (anticipated to be a minimum of 170 m based on preliminary noise assessment) to all properties where the steel lattice OHL would pass through Wester Mandally and/or Invergarry within this route option. A **Red** Rating has therefore been applied.	R
Landscape and Visual		
Topics	**Potential Constraints**	**RAG Rating**
Designations	Route Option CG-LL2 does not fall within any areas designated or otherwise protected for landscape reasons. However, it lies less than 1 km from the western boundary of the Loch Lochy and Loch Oich SLA. There would be potential for an OHL comprised of steel lattice towers to influence the experience of this SLA within the wider context, in particular as a constructed artefact crossing the open moorland which provides a setting to the mountains of Ben Tee and Sròn a Choire Ghairbh. It would also form a noticeable feature in views from the summits of these mountains. Whilst this would be seen within a context of features of the consented Coire Glas Pumped Storage Scheme, it would extend the influence of built features to other parts of the context leading to a greater sense of development across the surrounding plateaux. An **Amber** RAG rating has therefore been applied to this route option.	A
Landscape Character	Route Option CG-LL2 passes through LCT 239 (Interlocking Sweeping Peaks – Lochaber), LCT 235 (Broad Forested Strath), and depending on the substation location chosen within the Loch Lundie Substation Search Area, LCT 237 (Rocky Moorland – Lochaber). LCTs 235 and 237 are considered generally capable of accommodating some development of the type proposed whilst LCT 239 is considered to be more sensitive due to its upland characteristics. Locally, this Route Option would cross areas of open slopes of the high plateau, mostly within LCT 235, and cross the Glen Garry in an area where smaller scale residential and pastural characteristics predominate. These areas are considered to	A

	have a heightened sensitivity to this type of development, the former due to its open, upland and remote characteristics and the latter due to its small-scale sense of domesticity which could be easily overwhelmed. On crossing Glen Garry, there would be a requirement to establish a wayleave through native woodland which would be highly visible on the steep glen sides. Towers would also be potentially prominent crossing the floor of the glen. As an existing OHL route similarly crosses Glen Garry nearby, cumulative effects would also occur. Depending on the substation location chosen within the Loch Lundie Substation Search Area, there would also be potential for cumulative effects in the area around Loch Lundie, although existing OHL infrastructure in this area reduces the sensitivity of this area to some extent. An **Amber** RAG rating has been applied to this route option, due to the likely loss of native woodland and prominence of a new OHL crossing Glen Garry.	
Visual	Route Option CG-LL2, including likely wayleaves down the steep glen sides, would be likely to appear prominent within views from properties around the west of Invergarry, including those at Western Mandally and Craigard, and potentially some properties at Faichem. There would also be notable views from recreational areas on the western edge of Invergarry, including the shinty pitch and community centre and also from the A87. The presence of an existing OHL comprised of steel lattice towers crossing Glen Garry on the eastern side of the shinty pitch would lead to noticeable cumulative effects in this area. Ascending up the side of the Aldernaig Burn, this option would be very visible from a Core Path, likely to appear to the western side of the path whilst an existing steel lattice tower OHL is present to the east. This would lead to noticeable cumulative effects. Depending on the substation location selected within the Loch Lundie Substation Search Area, the Route Option would continue to result in cumulative effects as this route option passes Loch Lundie. There would also be likely visual effects on users of other Core Paths around Invergarry and recreational users ascending Ben Tee from either White Bridge or Kilfinnan Glen. Collectively, these visual sensitivities have led to the allocation of a **Red** RAG rating for this route option.	R
Land Use		
Topics	**Potential Constraints**	**RAG Rating**
Agriculture	Route Option CG-LL2 passes through large areas of coniferous plantation. Route Option CG-LL2 would only affect lower quality agricultural land, graded as ALC 3b and below. Most of the land within Route Option CG-LL2 is only capable of supporting rough grazing (ALC 6.2 and 6.3). A **Green** rating has therefore been applied to Route Option CG-LL2.	G
Forestry	Route Option CG-LL2 contains relatively small areas of conifer plantations to the northern extent of the route option, associated with the River Garry and A87. However, these areas of conifer plantations would be significantly impacted by clearances required within this route option. Woodland designations AWI ASNO 1860, 1750 and Long-Established (of plantation origin) LEPO 1860 are present across the route option. NWSS upland birchwood stretch across the route option south of A87. To the north PAWS and Upland birchwood cover most of the woodland present. Caledonian pinewood buffer zone includes the southern open ground. A **Red** rating has therefore been applied to this route option based on both the impact on the commercial viability of the coniferous plantations and the presence of the woodland designations.	R
Recreation	<u>Recreational Routes</u> Route Option CG-LL2 would cross over several locally used forest and woodland paths, including Core Paths (classified by THC) and a Scottish Hill Track (classified by SCOTWAYS), routed along both the northern and southern banks of the River Garry, near Invergarry. This	A

	route option also passes directly over the village of Invergarry, which has several recreational facilities including hotels, a shinty pitch and a community centre. It is anticipated direct impacts on the footpaths and recreational facilities within Invergarry could be avoided by micrositing the OHL infrastructure within the route option or by rerouting the footpaths. However, an OHL within this route may lead to visual effects on users of these footpaths and recreational areas surrounding Invergarry. As noted in the 'Landscape and Visual – Visual' section above, there would be notable views from recreational areas on the western edge of Invergarry, including the shinty pitch and community centre and also from the A87, which is used by many tourists travelling to the Isle of Skye and the west coast. The presence of the existing steel lattice Fort Augustus to Fort William OHL on the eastern side of the shinty pitch would also lead to noticeable cumulative effects in this area. To the north of Invergarry, Route Option CG-LL2 would continue towards Loch Lundie to the north, following the course of the Aldernaig Burn. Within this area, Route Option CG-LL2 would cross an existing access track, which runs parallel to the western bank of the Aldernaig Burn. This access track is classified as a Core Path (by THC) and a Scottish Hill Track (by SCOTWAYS). Depending on the choice of the substation location within the Loch Lundie Substation Search Area, Route Option CG-LL2 may also interact with this access track along the eastern bank of Loch Lundie. It is anticipated direct impacts on the existing access track could be avoided by rerouting the access track or through micrositing the OHL infrastructure within the route option. However, an OHL within this route may lead to visual effects on users of the Core Path / Scottish Hill Track. As noted in the 'Landscape and Visual – Visual' section above, ascending up the side of the Aldernaig Burn, this route option would be very visible from the Core Path / Scottish Hill Track and would lead to noticeable cumulative effects with the existing steel lattice Fort Augustus to Fort William OHL. Depending on the substation location selected within the Loch Lundie Substation Search Area, Route Option CG-LL2 would continue to result in cumulative effects as this route passes Loch Lundie. Although outside of Route Option CG-LL2, there would also be likely visual effects on recreational users ascending Ben Tee from either White Bridge or Kilfinnan Glen if a new steel lattice OHL was to be constructed within this route. An **Amber** RAG rating has been applied to this route option due to the potential visual effects on recreational users around Invergarry, the Aldernaig Burn / Loch Lundie and the footpaths to the summit of Ben Tee. <u>Commercial Highland Sports</u> Route Option CG-LL2 would largely be routed through land owned by Aberchalder Estate, as well as the settlement of Wester Manderly and the village of Invergarry. Aberchalder Estate is managed for sporting activities, including red deer stalking and trout and salmon fishing, as well as other recreational activities such as highland safaris. Loch Lundie is used for brown trout fishing. Stag and hind stalking activities take place in September and October on the estate. Depending on the substation location selected within the Loch Lundie Substation Search Area, Route Option CG-LL2 may also interact with areas used for commercial highland sports on Aberchalder Estate in the Loch Lundie area. This route therefore has some potential to compromise the commercial viability of highland sports within the estate, particularly during the construction phase. An **Amber** rating has therefore been applied to this route option. An **Amber** RAG rating has been applied due to the potential visual effects on recreational users around Invergarry, the Aldernaig Burn / Loch Lundie and the footpaths to the summit of Ben Tee, and the potential impacts on the commercial viability of highland sports on Aberchalder Estate, an **Amber** RAG rating has been applied to this route option.	
Planning		

Topics	Potential Constraints	RAG Rating
Policy	Route Option CG-LL2 would be brought forward in full compliance with national, regional or local planning policy. A **Green** RAG rating has been applied to this route option.	G
Proposals	Route Option CG-LL2, this route option may interact with the construction of the access track for the consented Coire Glas Pumped Storage Scheme. However, the OHL is required for the operation of Coire Glas Pumped Storage Scheme. Consent has recently been given for the erection of eight eco holiday cabins and an amenity building (Ref: 20/04717/FUL) at a FLS depot in an area of forestry to the north of the A87 west of Invergarry, near the village cemetery. The eco resort would be partially located within Route Option CG-LL2. It is anticipated that interaction with this proposal could be avoided by micrositing the route of the proposed OHL within the route option. Consent has recently been given for the erection of two new properties in Wester Mandally (Ref: 20/04146/FUL). It is anticipated that interaction with these proposals could be avoided by micrositing of the proposed OHL within the route option. However, the area where Route Option CG-LL2 crosses Wester Mandally and Invergarry is already highly constrained by proximity to residential properties and other community and commercial premises within the settlements (see 'People – Proximity to Dwellings' section above). Route Option CG-LL2 may interact with the construction or dismantling of other within the Loch Lundie Substation Search Area. However, all these proposals are being developed by SSEN Transmission. No other proposals that are wither consented or known to the planning system have been identified within Route Option CG-LL2. However, as Route Option CG-LL2 may interact with the recently consented developments in Wester Mandally and Invergarry, an area within the route that is already highly constrained by proximity to dwellings, an **Amber** RAG rating has been applied.	A

Table 3: Coire Glas 400 kV Switching Station – Loch Lundie 400 kV / 132 kV Substation - Route Option CG-LL3 (See Figures 7.1–7.9)

Description:
Route Option CG-LL3 represents the most easterly route between the new 400 kV Coire Glas Switching Station and the new 400 kV / 132 kV Loch Lundie Substation. Route Option CG-LL3 leaves the south/south eastern side of the new 400 kV Coire Glas Switching Station Search Area and travels in a general north easterly direction along the steep, western slopes of Loch Lochy and Loch Oich for approximately 9 km. The route then travels in a northerly direction for approximately 1.3 km to enter the south eastern side of the new 400 kV / 132 kV Loch Lundie Substation Search Area. After leaving the new 400 kV Coire Glas Switching Station Search Area, part of Route Option CG-LL3 (to the south east) travels through South Laggan Forestry, which is planted along the western shore of Loch Lochy. The Great Glen Way and Cycle Route 78 are also routed along the western shore of Loch Lochy and are both located within Route Option CG-LL3. As Route Option CG-LL3 travels along the banks of Loch Lochy, it would cross several small watercourses, including the Kilfinnan Burn which enters the Creann Loch, to the north/north east of Loch Lochy. Some of these watercourses, including the Kilfinnan Burn, are surrounded by small areas of woodland. Kilfinnan Falls waterfall, located on the Kilfinnan Burn, would also be located within Route Option CG-LL3 (to the west). Part of the small settlement of Kilfinnan is located within Route Option CG-LL3, on the north western bank of Loch Lochy. To the north east of Loch Lochy, Route Option CG-LL3 would travel through a small block of forestry (to the west) of Creann Loch, before travelling along the western banks of the Caledonian Canal between Loch Lochy and Loch Oich, past the small settlements of Balma Glaster and North Laggan (to the east). The minor road from the A82 that leads to the settlements of North Laggan, Balma Glaster and Kilfinnan, is also routed parallel to the western bank of the Caledonian Canal and would be located within Route Option CG-LL3. Route Option CG-LL3 would cross the existing Fort Augustus to Fort William OHL to the west/north-west of North Laggan. As Route Option CG-LL3 travels along the banks of the Caledonian Canal, it would cross several small watercourses, including the Allt Crunneachaidh, which enters the Caledonian Canal at North Laggan. To the north east of the Caledonian Canal, Route Option CG-LL3 would travel along the western banks of Loch Oich. Along the western banks of Loch Oich, Route Option CG-LL3 would predominantly be routed through an area of commercial forestry, with some areas of open moorland on the upper slopes to the east/north east, surrounding Meall nan Reicheachan. Route Option CG-LL3 would cross several forestry tracks within this area of forestry. The A82 runs parallel to the western banks of Loch Oich between the Laggan Swing Bridge and Invergarry and would be located within Route Option CG-LL3 (to the east). There is also a picnic area, campsite and land monument located on the A82, on the western banks of Loch Oich north east of the Laggan Swing Bridge. As Route Option CG-LL3 travels along the banks of the Loch Oich, it would cross several small, unnamed watercourses. After Route Option CG-LL3 exits the forestry to the north, it would cross a minor road to the settlements of Easter and Wester Mandally to the west and the A82 to the east, before crossing the River Garry to the south of Invergarry. After the crossing at Invergarry Route Option CG-LL3 changes direction from north east to north. Immediately after crossing the River Garry, Route Option CG-LL3 would cross the A87 to the west and the A82 (to Fort Augustus) to the west, as well as through the village of Invergarry itself. Route Option CG-LL3 would then enter the area of forestry to the north of Invergarry for approximately 1.3 km to enter the south eastern side of the new 400 kV / 132 kV Loch Lundie Substation Search Area to the south east of Loch Lundie. The existing Fort Augustus to Skye OHL is located within this area of forestry and would pass through the northern extremity of Route Option CG-LL3. Although it is anticipated that this OHL will be dismantled and replaced by the Skye Reinforcement Project, this assessment has been undertaken using the existing baseline. Figure 7.6 illustrates both existing and planned infrastructure.
Review of Environmental Constraints:
Natural Heritage

Topics	**Potential Constraints**	**RAG Rating**
Designations	No regionally, nationally, or internationally designated sites lie within Route Option CG-LL3, whilst one is noted to lie within 1 km: South Laggan Fen Special SSSI on the east shore of Loch Oich at Laggan. The South Laggan Fen SSSI is one of a very small number of rich lowland fens found within Lochaber described as located on free draining soils and glacial debris with small areas of peat, the high-water table and	G

	seasonal patterns of flooding ensure that most of the site supports wetland plant species. Subject to control measures and good practice it is unlikely that works associated with construction would compromise the qualifying interests of the adjacent SSSI. A **Green** rating has therefore been applied to this route option.	
Protected Species	Initial walkover surveys undertaken in August 2021 highlighted the presence of pine marten in areas of forestry along Loch Lochy and around Invergarry. Abundant woodland, and woodland edge habitat, provides suitable habitat for badger, red squirrel, pine marten and bat species. Riparian zones provide suitable habitat for otter. Loss of small areas of habitat associated with overhead line infrastructure is therefore unlikely to significantly reduce habitat suitability or availability of the wider area. Potential for impacts on protected species could be further reduced or eliminated by undertaking pre-construction surveys and adopting appropriate mitigation. Therefore, there is considered to be low potential for Route Option CG-LL3 to compromise the conservation status of, or for the route to be constrained by, the presence of protected species. A **Green** rating has therefore been applied to this route option.	G
Habitats	Initial walkover surveys undertaken in August 2021 indicate that the route corridor passes through a number of habitat types including coniferous plantation, semi-natural mixed and broadleaved woodland, grasslands, heath and mire vegetation and Bracken scrub. Along track sides and riparian corridors, including the River Garry, semi-natural mixed and broadleaved woodland is particularly prevalent. These are commonly represented by *Birch Betula spp*. woodlands. More open areas in the woodlands are dominated by Bracken and modified heath communities, with patchy areas of regenerating woodland. North of the River Garry the route passes through coniferous plantation dominated by Sitka spruce and Lodgepole pine. Open moorland areas towards the western half of the route option are dominated by wet heath and blanket mire communities. Open ground on steeper banks along Loch Lochy is dominated heath and Bracken. <u>Annex 1</u> Large pockets of blanket mire habitat exist on flatter plateaus and depressions on moorland areas. Wet heaths dominate other open moorland. Both habitats are identified as Annex 1 habitats. Areas of semi-natural woodland and Scot's pine plantation are identified on the AWI. Loss of woodland, including AWI woodland, is considered probable from routeing infrastructure through this route option. The sensitive habitats identified present modest constraints which could be further reduced or eliminated by micrositing infrastructure and/or adopting appropriate mitigation. Therefore, there is considered to be moderate potential for the Route Option CG-LL3 to compromise the conservation status of, or for the route to be constrained by, Annex 1 habitats. <u>GWDTE</u> Wet heaths are considered to be moderately dependent on groundwater in certain circumstances. The majority of wet heaths within Route Option CG-LL3 are considered to be principally associated with ombrotrophic mires and as such not generally dependent on groundwater. Therefore, GWDTE are not considered extensive within the route option corridor, limited to surrounds of small hydrological pathways. Loss of GWDTE could therefore be minimised by micrositing of infrastructure, and there is low potential for Route Option CG-LL3 to compromise the integrity of GWDTE. <u>Biodiversity</u> Route Option CG-LL3 contains a total of 16448.79 BU, at 8.69BU/Ha. In BNG guidance, blanket mires and semi-natural ancient woodland are considered to be irreplaceable habitat. Small areas of both are present within Route Option CG-LL3. Habitats of high distinctiveness within the route option also include wet heath and grassland present on open ground. This route option is dominated by coniferous plantation woodland, which is considered to be of low distinctiveness. Loss of irreplaceable habitat would result in 'No Net Loss' being unachievable. Where habitats of high distinctiveness are lost, replacement must be of equivalent value to meet 'No Net Loss'. Removal of coniferous	A

	plantation is likely to present an opportunity to enhance biodiversity value within this route option corridor, by replacement with habitats of higher distinctiveness value. It should be noted however that removal of woodland habitat creates difficulty in achieving 'No Net Loss' due to the time taken for replacement woodland and/or scrub to achieve suitable structure and condition and for the replacement biodiversity value to be realised. An **Amber** rating has been applied to Route Option CG-LL3 due to the potential loss of Annex 1 habitats, semi-natural woodland and Scot's pine plantation associated with this route option, as well as the presence of small areas of habitats that are classed as irreplaceable habitat under BNG Guidance.	
Ornithology	Route Option CG-LL3 predominantly passes across open moorland with several narrow watercourses and rocky outcrops and through plantation forestry and areas of rough grazing at the moorland edge alongside Loch Lochy, the Caledonian Canal and Loch Oich. Depending on the chosen location of the Loch Lundie Substation, Loch Lundie will also be adjacent to the route. Ornithological constraints are focussed on those species breeding on the open moorland and rough pasture as well as within the forestry, and those species which use the open land, forest or the lochs for hunting purposes. Potential protected (Schedule 1A and Schedule 1 species are Golden Eagle (*Aquila chrysaetos*) at the southern end of the route, Merlin, Short-eared Owl, Osprey, Goshawk and Crossbill, although several additional woodland and open environment species are Red and Amber List species of conservation concern including Lapwing (*Vanellus vanellus*), Curlew (*Numenius arquata*), Skylark (*Alauda arvensis*), Song Thrush, Spotted Flycatcher, Tree Pipit, Lesser Redpoll and Meadow Pipit. Should the route pass close to Loch Lundie, Red-throated Diver and Common Scoter may be present. Route Option CG-LL3 could compromise the conservation status of population(s) of Schedule 1A and Schedule 1 bird species or Red or Amber listed if breeding or hunting within the route option. Standard bird surveys will need to be undertaken to update the baseline and inform the route selection and appropriate mitigation measures should be implemented to minimise any disturbance / collision risk to protected species along this route option. As Route Option CG-LL3 is the least preferable option from an ornithological perspective, a **Red** rating has been applied to this route.	R
Hydrology / Geology	Route Option CG-LL3 lies within the River Ness and River Lochy catchments (separated by the Caledonian Canal at Laggan), specifically the sub-catchments of the River Garry (including its nested catchments of Alt na Criche); Loch Oich (including its western nested catchments of Allt Cruinneachaidh, Allt an Oighre, Allt na h-Atha, Allt an Fhuarain) and Loch Lochy (including its nested catchments of Allt a' Choire Ghlais and Allt na Bruaich). At higher elevations within Route Option CG-LL3, generally along the watershed of surface water catchments, Class 2 peatland (nationally important carbon-rich soils, deep peat and priority peatland habitat that are potentially high conservation value and restoration potential) is recorded, below which Class 5 peatland (carbon-rich and deep peat that include areas of bare soil but with no peatland habitat recorded) is recorded. Two small areas of Class 1 peatland (nationally important carbon-rich soils, deep peat and priority peatland habitat, likely to be of high conservation value) are recorded; one between the woodlands upgradient of Kilfinnan and another between the watercourses Allt Cruinneachaidh, Allt an Oighre. A single area of Class 3 peatland (dominant vegetation cover is not priority peatland habitat) is associated with wet and acidic type with occasional peatland habitats can be found. Most soils are carbon-rich soils, with some areas of deep peat) is recorded between the areas of Class 1 and 2 peatlands at the watercourses Allt Cruinneachaidh, Allt an Oighre. It is noted that recorded peatlands are absent at lower elevations along Loch Oich. Superficial cover within Route Option CG-LL3, when present, is dominated by hummocky glacial deposits of diamicton, sand and gravel while alluvium and Glaciofluvial deposits of gravel, sand, silt and clay are generally associated with waterbodies. A wide area of alluvial fan deposits consisting of gravel, sand, silt and clay are recorded at the mouth of Allt a' Choire Ghlais next to Loch Lochy. Peat is generally recorded along the ridges between surface water catchments along Route Option CG-LL3. The southern half of Route Option CG-LL3 is	A

	generally underlain by the Tarvie Psammite Formation, cataclasite of the Great Glen Fault Zone and the Upper Garry Psammite Formation. The northern half of the route option is dominated by the West Highland Granite Gneiss Intrusion. There are many minor units of metamorphic rock and igneous intrusions recorded within Route Option CG-LL3. Inferred faults generally separate the major bedrock units within the route option. Route Option CG-LL3 extends into the eastern reaches of the Aldernaig catchment near Monadh Seann-Talaimh in the northern end of the route option. The entire Aldernaig Burn catchment has been designated a DWPA, Scottish Water abstract from Aldernaig Burn to supply their Invergarry WTW. The location of Scottish Water infrastructure would need to be confirmed to ensure the DWPA or Scottish Water infrastructures is not impaired. As the development footprint is very small in area compared to the extent of the DWPA it is considered unlikely that the presence of the DWPA will pose a significant development constraint. SEPA floodplain mapping shows that the Medium (0.5% annual exceedance probability of flooding / 1 in 200yr) likelihood of flooding floodplain extent is crossed by the route option along the banks of Loch Lochy and Loch Oich, Allt a' Choire Ghlais and River Garry. Whilst not a development constraint, due regard will need to be made to flood risk during the design, construction and operational phase of this route option. Particular attention will be required at proposed watercourse crossings, where floodplains will also be crossed. There are many PWS, generally associated with springs and surface water, registered within and in close proximity downgradient, of this route option. These sources could be prone to pollution without appropriate control. Given the superficial and solid geology, water catchment to the PWS sources are likely to be localised / close to the water source. However, given the number of PWS sources and the steep surface gradients on the northern bank of Loch Lochy rapid water movement to PWS sources and pollution of these could occur. An **Amber** rating has therefore been applied to this route option.	
Cultural Heritage		
Topics	**Potential Constraints**	**RAG Rating**
Designations	There are no WHSs, Inventory GDLs or Cas within Route Option CG-LL3. A new steel Lattice OHL within Route Option CG-LL3 would have the potential for direct impacts and setting effects upon Blar na Léine (BTL29), an Inventory Historic Battlefield of high sensitivity and setting effects upon Invergarry Castle (SM5481), a SM of high sensitivity. A new steel Lattice OHL within Route Option CG-LL3 would have the potential for setting effects upon up to 12 Category B Listed Buildings of medium sensitivity and six Category C Listed Buildings of low sensitivity, particularly where Route Option CG-LL3 passes over Invergarry Village where most of these LB are clustered. A few of the Listed buildings are also located along the western banks of Loch Lochy and Loch Oich to the east of Route Option CG-LL3. Due to the potential for direct and setting impacts on an Inventory Historic Battlefield of high sensitivity and setting effects upon a SM of high sensitivity, a **Red** rating has been applied to Route Option CG-LL3.	R
Cultural Heritage Assets	There would be a potential direct impact on up to 26 non-designated HER sites of low sensitivity. No other potential direct or setting effects on non-designated cultural heritage assets are anticipated. Due to the high number of non-designated HER sites within this Route Option that could be directly impacted by the Proposed Development, a **Red** RAG rating been applied to Route Option CG-LL3.	R
People		
Topics	**Potential Constraints**	**RAG Rating**
Proximity to Dwellings	Route Option CG-LL3 would cross over two main clusters of properties, one at Easter Mandally and the other and the eastern extent of Invergarry. There are also scattered properties along the minor road from the A82, adjacent to the western bank of Loch Oich, which leads	R

	to the settlements of North Laggan, Balma Glaster and Kilfinnan Farm. It may not be possible to apply a suitable separation buffer (anticipated to be a minimum of 170 m based on preliminary noise assessment) to all properties where the steel lattice OHL would pass through Invergarry within this route option. A **Red** Rating has therefore been applied to this route option.	
Landscape and Visual		
Topics	**Potential Constraints**	**RAG Rating**
Designations	Route Option CG-LL3 would fall within the Loch Lochy and Loch Oich SLA and would be likely to be prominent along the steep glen side or edge of the plateau for much of its length. This would form focus and distraction on the consistently steep enclosing slopes, and would likely affect appreciation of the trench-like glen. It could potentially visually affect parts of the Great Glen Way and would be seen to interrupt the setting of some of the smaller areas of interest along the glen, such as settled and wooded landscapes, particularly around Invergarry, which are seen within the wider context of the more dramatic topography. These features are all cited within the Special Qualities of the SLA. A **Red** RAG rating has therefore been applied to this Route Option.	R
Landscape Character	Route Option CG-LL3 passes through LCT 239 (Interlocking Sweeping Peaks – Lochaber) and LCT 235 (Broad Forested Strath), and, depending on the substation location selected within the Loch Lundie Substation Search Area, would also pass through LCT 237 (Rocky Moorland – Lochaber). LCTs 235 and 237 are considered generally capable of accommodating some development of the type proposed whilst LCT 239 is considered to be more sensitive due to its upland characteristics. Locally, this route option would cross the side slope of the Great Glen and would be likely to form a very noticeable feature. The position on the glen slope would be inconsistent with the existing pattern of development which is situated on the floor and at the base of the side slopes and the proposed steel lattice towers would therefore be likely to appear prominent. Elsewhere, crossing the mouth of Glen Garry there would be a requirement for the removal of trees to facilitate a wayleave, which could lead to effects on policy and designed landscape areas in the grounds of the Invergarry Castle Hotel or effects on domestic scale landscapes around houses and properties where the proposed towers would appear prominent. Depending on the substation site selected, there would also be potential for cumulative effects in the Loch Lundie area with other OHL infrastructure. On the basis of these potential collective effects, a **Red** RAG rating has been applied to this route option.	R
Visual	Route Option CG-LL3 would pass along the western side of the Great Glen and would be likely be visible from residential and tourist properties from areas including Kilfinnan, Laggan Locks and North and South Laggan. Towers and a wayleave through forest and woodland would also likely be very visible from properties at the eastern end of Invergarry including the Invergarry Hotel. There would also be views from parts of the A82 and the A87 which this route option would cross, as well as a minor road to Kilfinnan. The Proposed Development would also likely appear prominent from some parts of the Caledonian Canal and the Great Glen Way, particularly optional, elevated sections which pass to the west of Loch Oich and, depending on the substation site selected, the Core Path and Scottish Hill Track to the east of Loch Lundie. Towers would also be prominent in views from the initial parts of walking routes up Ben Tee and Sròn a Choire Ghairbh, which pass through forestry areas alongside Loch Lochy, where there would also be a requirement for a wayleave to be established. There would also be likely cumulative visual effects for some of these visual receptors in combination with the existing Fort William – Fort Augustus steel lattice OHL. Based on the numbers and sensitivity of potential visual receptors who would be likely be affected by this Route Option, a **Red** RAG rating has been applied to this Route Option.	R

Land Use		
Topics	**Potential Constraints**	**RAG Rating**
Agriculture	Route Option CG-LL3 passes through large areas of coniferous plantation. Route Option CG-LL3 would only affect lower quality agricultural land, graded as ALC 3b and below. Most of the land within Route Option CG-LL3 is only capable of supporting rough grazing (ALC 6.2 and 6.3). A **Green** rating has therefore been applied to Route Option CG-LL3.	G
Forestry	CG-LL3 includes commercial coniferous plantations. In the southern areas of the route option includes part of South Laggan Forest, an isolated block above Laggan Locks then into commercial conifer forest around Invergarry. This route option would impact the commercial viability of these coniferous plantations. AWI woodland designation for South Laggan and south of Invergarry.. South of Invergarry is ASNO 1860 and to the north is LEPO 1860. South Laggan includes NWSS, a small area of wet woodland, PAWS, and Upland birchwood. The isolated block is native pinewood to the south of Invergarry contains PAWS. The summary of the impact on the commercial viability of the conifer plantations and the presence of the woodland designations results in a **Red** rating being applied to this route option.	R
Recreation	Recreational Routes Both the Great Glen Way and Cycle Route 78 (classified by ScotWays) are located within Route Option CG-LL3 along the western banks of Loch Lochy. The Great Glen Way is classified as one of 'Scotland's Great Trails'[2]. Route Option CG-LL3 would also pass several other footpaths up along the western banks of Loch Lochy and Loch Oich, including a Scottish Hill Track (classified by SCOTWAYS) leading to Sròn a' Choire Ghairbh and Meall na Teanga, mountain routes to the summit of Ben Tee and several Core Paths in the woodlands surrounding the River Garry, near Invergarry. It is anticipated direct impacts on the Great Glen Way, Cycle Route 78 and the other recreational routes identified along the western banks Loch Lochy could be avoided by micrositing the OHL infrastructure within the route option or by rerouting of the footpaths / recreational routes. However, as noted in the 'Landscape and Visual – Visual' section above, a steel lattice OHL structure within Route Option CG-LL3 would likely appear prominent from some parts of the Great Glen Way, particularly optional, elevated sections which pass to the west of Loch Oich (outside of Route Option CG-LL3). Towers would also be prominent in views from the initial parts of walking routes up Ben Tee and Sròn a Choire Ghairbh. There would also be likely cumulative visual effects for some of these visual receptors in combination with the existing Fort William to Fort Augustus OHL. Route Option CG-LL3 is routed along the western banks of Loch Lochy and Loch Oich. Both lochs are used by many recreational users for water sports, including sailing and canoeing. Although Loch Lochy and Loch Oich are both outside of Route Option CG-LL3, a steel lattice	R

[2] Scotland's Great Trails (2022). Great Glen Way. Available at: https://www.scotlandsgreattrails.com/trail/great-glen-way/ [Last accessed 03/05/2022]

	OHL structure within this route option would likely appear prominent from some parts of these lochs, as noted in the 'Landscape and Visual – Visual' section above. Although it is anticipated that direct impacts on recreational receptors within Route Option CG-LL3 could be avoided, based on the numbers and sensitivity of potential visual recreational receptors, including users of Loch Lochy, Loch Oich, the Great Glen Way, Cycle Route 78 and the Caledonian Canal, who would be likely to be affected by Route Option CG-LL3, a **Red** RAG rating has been applied to this Route Option. <u>Commercial Highland Sports</u> Route Option CG-LL3 would largely be routed through land owned by Aberchalder Estate, as well as through the village of Invergarry and some areas of commercial forestry and woodland. Aberchalder Estate is managed for sporting activities, including red deer stalking and trout and salmon fishing, as well as other recreational activities such as highland safaris. Loch Lundie is used for brown trout fishing. Stag and hind stalking activities take place in September and October on the estate. Depending on the substation location selected within the Loch Lundie Substation Search Area, Route Option CG-LL3 may also interact with areas used for commercial highland sports in the Loch Lundie area. This route option therefore has some potential to compromise the commercial viability of highland sports within the estate, particularly during the construction phase. An **Amber** rating has therefore been applied. Although it is anticipated that direct impacts on recreational receptors within Route Option CG-LL3 could be avoided, based on the numbers and sensitivity of potential visual recreational receptors, including users of Loch Lochy, Loch Oich, the Great Glen Way, Cycle Route 78 and the Caledonian Canal, who would be likely to be affected by this route option, an overall **Red** RAG rating has been applied.	
Planning		
Topics	**Potential Constraints**	**RAG Rating**
Policy	Route Option CG-LL3 would be brought forward in full compliance with national, regional or local planning policy. A **Green** RAG rating has been applied to this route option.	G
Proposals	To the south of this route option, Route Option CG-LL3 may interact with the construction of the Coire Glas Pumped Storage Scheme. However, this development is being developed by SSE-Renewables and is not considered a third-party proposal. Consent has recently been renewed to erect a dwelling welling (Ref: 19/04141/FUL; renewal of Ref 16/04708/FUL) at Balmaglaster North Laggan, which would be located within Route Option CG-LL3. It is anticipated that interaction with this proposal could be avoided by micrositing the proposed OHL within the route option. Consent has recently been granted for a twelve-room hotel annex and erection of staff accommodation house (Ref: 20/00303/FUL) at the Invergarry Hotel, which lies within Route Option CG-LL3. It is anticipated that interaction with this proposal could be avoided by micrositing the proposed OHL within the route option. However, the area where Route Option CG-LL3 crossed Invergarry is already highly constrained by proximity to residential properties and other community and commercial premises within the village (see 'People – Proximity to Dwellings' section above. Route Option CG-LL3 may interact with the construction or dismantling of other OHLs within the Loch Lundie Substation Search Area. However, all these proposals are being developed by SSEN Transmission.	A

	No other proposals that are either consented or known to the planning system have been identified within Route Option CG-LL3. However, as Route Option CG-LL3 may interact with the recently consented developments in Invergarry, an area within the route that is already highly constrained by proximity to dwellings, an **Amber** RAG rating has been applied.	

APPENDIX 8.2 – TECHNICAL APPRAISAL OF ROUTE OPTIONS: 400 kV COIRE GLAS SWITCHING STATION – 400 KV / 132 KV LOCH LUNDIE SUBSTATION

1.1 Technical Assessment

1.1.1 The technical feasibility of a Route Option and its compliance to standards and specification are a key consideration as to the suitability for use. Each route option between the 400 kV Coire Glas Switching Station and the 400 kV / 132 kV Loch Lundie Substation has therefore been assessed against the technical criteria in SSEN Transmission plc's guidance[1], as summarised in Table 1.

Table 1: Topic Areas Considered

Topic Area	Category	Sub-Topic
Engineering	**Infastructure Crossing**	Major Crossings
		Road Crossings
	Environmental Design	Elevation
		Atmospheric Pollution
		Contaminated Land
		Flooding
	Construction / Maintenance	Access
		Angle Towers
	Ground Conditions	Terrain
		Peat
	Proximity	Clearing Distance
		Windfarms
		Communications Masts
		Urban Environments
		Metallic Pipelines

1.1.2 As part of a comparative appraisal using the methodology in the SSEN Transmission plc's guidance[2], as summarised in Appendix 3.1, the Route Options were assigned RAG (Red, Amber, Green) ratings for each of the technical categories based on the whether the anticipated impact and/or risk was High, Intermediate or Low to identify a Preferred Route Option from a technical perspective. Table 2 defines the convention for the RAG ratings.

Table 2: Economic Topic Areas Considered

Performance	Comparative Appraisal
Most Preferred	The option has a low impact/risk and would require no special measures or mitigations

[1] SSEN (March 2018), Procedures for Routeing Overhead Lines of 132kV and above
[2] SSEN (March 2018), Procedures for Routeing Overhead Lines of 132kV and above

Performance	Comparative Appraisal
 **Least Preferred**	The option has an intermediate impact/risk and would require special measures or mitigations. However, the measure/mitigations to be adopted are standard solutions known to suitably control the impact/risk.
	The option has a high impact/risk and would require non-standard/unproven special measures or mitigations. The ability of the measures/mitigations to control the impact/risk is uncertain.

1.2 Comparative Analysis

Infrastructure Crossing

1.2.1 Major infrastructure crossings, including road and watercourse crossings, can have a significant bearing on the feasibility and construction methodology to be utilised.

Table 3: RAG Apprisal – Infastructure Crossing

	Comparative Appraisal	Sub-Topic	RAG Rating
Route Option CG-LL1	This route option crosses over the A87 to the north-west of Invergarry. This will be a standard road crossing; scaffold protection would be required for conductor pulls.	Major Crossings	
		Road Crossings	
Route Option CG-LL2	This route option crosses over the A87 to the west of Invergarry. This will be a standard road crossing; scaffold protection would be required for conductor pulls.	Major Crossings	
		Road Crossings	
Route Option CG-LL3	This route option crosses over the A87 and over the village of Invergarry. This will be a standard road crossing; scaffold protection would be required for conductor pulls.	Major Crossings	
		Road Crossings	

Environmental Design

1.2.2 The impact on the natural and human environment from overhead line (OHL) works can be significant. It is thus important, when evaluating different route options, to consider the impact on the environment and favour those options with a minimal or mitigable impact. Environmental impacts include: flora, fauna, protected sites, visual impact, watercourses (including ground water), atmospheric pollution, noise impact, EMF/RIV, areas of cultural or historical significance, archaeological sites, greenhouse gases, the local community and its economy. Route

options with a disproportional environmental impact are difficult to justify both in terms of consent and planning, and in ethical and moral terms.

Table 4: RAG Apprisal – Environmental Design

	Comparative Appraisal	Sub-Topic	RAG Rating
Route Option CG-LL1	No significant environmental desgin issues identified at this time. The route option would be through commercial forest, some tree cutting may be required for this route. The route option would also crosses over the River Garry.	Elevation	
		Atmospheric Pollution	
		Contaminated Land	
		Flooding	
Route Option CG-LL2	No significant environmental desgin issues dentified at this time. The route option would be through commercial forest, some tree cutting may be required for this route. The route option would also cross over the River Garry. There is a potential flood plain on this route as it crosses the River Garry to the west of Invergarry.	Elevation	
		Atmospheric Pollution	
		Contaminated Land	
		Flooding	
Route Option CG-LL3	No significant environmental design issues dentified at this time. The route option would be through commercial forest, some tree cutting may be required for this route. Ground slopes down to toward Loch Lochy at the start of the route, protection may be required to stop any silt run off during civils work. The route option would also cross over the Rriver Garry. There is a potential flood plain on this route as it crosses the River Garry to the west of Invergarry.	Elevation	
		Atmospheric Pollution	
		Contaminated Land	
		Flooding	

Construction and Maintenance

1.2.3 All route options should be capable of being constructed safely with risk to operatives and the public suitably controlled. Ordinary activities are usually suitably controlled by standard methods of work, but site-specific hazards and specific methods of work may introduce additional risk that need further control. Route options with high-risk work will likely need extensive control measures and will be challenged as to whether there was a safer way of achieving the same outcome.

Table 5: RAG Apprisal – Contruction and Maintenance

	Comparative Appraisal	Sub-Topic	RAG Rating
Route Option CG-LL1	Much of this route option will be accessed via forest tracks. These will need to be assessed before construction starts to confirm the suitability and any upgrade requirements. Section towards Loch Lundie Substation has no direct access now. Access to substation may be used once the route has been confirmed.	Access	
		Angle Towers	
Route Option CG-LL2	Much of this route option will be accessed via forest tracks. These will need to be assessed before construction starts to confirm the suitability and any upgrade requirements. Section towards Loch Lundie Substation has no direct access now. Access to substation may be used once the route has been confirmed.	Access	
		Angle Towers	
Route Option CG-LL3	First section of this route would be located on a steep side slope down towards Loch Lochy. Substantial cut and fill will be required to allow safe access along this section of the route option.	Access	
		Angle Towers	

Ground Conditions

1.2.4 Ground conditions can have a significant bearing on the construction methodology to be utilised. All route options should be assessed taking into account the ground conditions along each section, including the terrain.

Table 6: RAG Apprisal – Ground Conditions

	Comparative Appraisal	Sub-Topic	RAG Rating
Route Option CG-LL1	Rock expected to be encountered on the section surrounding Coire Glas Switching Station Site Option CG1 with areas peat also expected to be preseny. Site Invertigations (SI) to carried out during alignment selection. Relatively flat sections of ground are present throughout the route option, although area through forestry at White Bridge may have some challenging slopes.	Terrain	
		Peat	
Route Option CG-LL2	Rock expected to be encountered on the section surrounding Coire Glas Switching Station Site Option CG1 with areas peat also expected to be present. SI to carried out during route selection. Relatively flat sections of ground are present throughout the route option, although area through forestry at White Bridge may have some challenging slopes.	Terrain	
		Peat	
Route Option CG-LL3	Rock expected to be encountered on the section surrounding Coire Glas Switching Station Site Option CG1 with areas peat also expected to be preseny. SI to carried out during route selection. Substantial cut and fill would requite to access the section of the route option located along the steep side slopes on the western banks of Loch Lochy	Terrain	
		Peat	

Proximity

1.2.5 Options should be feasible to safely construct and maintain safety clearances from existing infrastructure. When any infrastructure is found within the search area, the asset owner should be contacted to confirm safety clearances and any protection requirements for construction activities. Urban environments should also be considered and avoided where possible.

Table 7: RAG Apprisal – Proximiy

	Comparative Appraisal	Sub-Topic	RAG Rating
Route Option CG-LL1	No utilities or infrastructure expected in this area. Further checks required during alignment.	Clearance Distance	
		Windfarms	
		Communication Masts	
		Urban Environments	
		Metallic Pipelines	
Route Option CG-LL2	Route option crosses nearby urban areas at Mandally and Invergarry, with some properties adjacent. Greater risk of encountering underground services in these areas. This area is more densely populated with some homes around the potential route. These properties would potentially have full view of proposed towers. Scaffold Protection would be required for Conductor Pulls.	Clearance Distance	
		Windfarms	
		Communication Masts	
		Urban Environments	
		Metallic Pipelines	
Route Option CG-LL3	This Route Option is more densely populated than the other routes and crosses over Mandally and Invergarry where there is a greater risk of encountering underground services. This Rotue Option also crosses over the A87 over the village of Invergarry. Crossing towers would be difficult to screen from any local properties. Scaffold Protection would be required for Conductor Pulls.	Clearance Distance	
		Windfarms	
		Communication Masts	
		Urban Environments	
		Metallic Pipelines	

1.3 Conclusion

1.3.1 Overall, Route Option CG-LL1 is the Preferred Route between the 400 kV Coire Glas Switching Station and the 400 kV / 132 kV Loch Lundie Substation from a Technical Perspective as it avoids urban areas and no utilities or infrastructure expected within this area. Route Option CG-LL3 is the Least Preferred Option due to the technical constrains associated with the challenging terrain where the route would cross the steep slopes along the western banks of Loch Lundie and technical challenges where the route would cross through the village of Invergarry.

APPENDIX 8.3 – COST APPRAISAL OF ROUTE OPTIONS: 400 kV COIRE GLAS SWITCHING STATION – 400 KV / 132 KV LOCH LUNDIE SUBSTATION

1.1 Economic Assessment

1.1.1 Each route option between the 400 kV Coire Glas Switching Station and the 400 kV / 132 kV Loch Lundie Substation has been assigned a red-green-amber (RAG) colour ranking using the methodology described in Appendix 3.1 to reflect its relative economic impact. In the economic assessment route options would usually be assessed against the criteria SSEN Transmission plc's guidance[1] as set out below and a resultant comparative cost assessment would be prepared for each economic topic:

Table 1: Economic Topic Areas Considered

Economic	
Capital	Construction
	Diversions
	Public Road Improvements
	Felling
	Land Assembly
	Consent Mitigations
Operational	Inspections
	Maintenance

1.1.2 However, due however to the nature and extent of this project, it was deemed unnecessary to assess all of the criteria as differentials between each option proposed for elements such as Public Road Improvements, Land Assembly, Consent Mitigations, diversions of existing utilities and Operational requirements would be negligible. Felling costs would be subject to a final negotiated fee with relevant landowners (rather than an assumed rate per km) as the extent of tree felling would depend on factors such as the requirement to fell wind firm edges and woodland management plans. As such the below cost comparisons reflect the differential in construction costs per option only.

Table 2: Economic RAG Criteria

Economic Colour Coded RAG Rating		
Performance	**Comparative Appraisal**	
Most Preferred  Least Preferred	Lower Impact	< 120% of least cost option
	Moderate Impact	120% - 140% of least cost option
	Higher Impact	> 140% of least cost option

1.1.3 The site selection exercise for the Coire Glas Grid Connection Project concluded that Site Options CG1 was the Preferred Site for the 400 kV Corie Glas Switching Station and Site Option LL5 was the Preferred Site for the 400

[1] SSEN (March 2018), Procedures for Routeing Overhead Lines of 132kV and above

kV / 132 kV Loch Lundie Substation. An OHL development between Site Option CG1 and Site Option LL5 was assumed for the economic assessment for Route Option CG-LL1. However, in order to allow for further technical assessment and micrositing through subsequent design phases, a mid-point between Site Options CG1 and CG2 and a mid-point between Site Options LL5 and LL6 was calculated and used as a basis for cost for Route Option CG-LL1.

1.1.4 For the purposes of this economic assessment, it is assumed that an OHL development within Route Option CG-LL2 would commence at Site Option CG3 and an OHL development within Route Option CG-LL3 would commence at Site Option CG4. These site options and the midpoint between Site Options LL5 andLL6 were therefore used as a basis for cost for Route Options CG-LL2 and CG-LL3.

1.2 Table 3: RAG Assessment

Route Option	RAG Rating
Route Option CG-LL1	least cost option
Route Option CG-LL2	< 120% of least cost option
Route Option CG-LL3	< 120% of least cost option

1.3 Conclusion

Route Option CG-LL1 is the overall Preferred Route between the 400 kV Coire Glas Switching Station and the 400 kV / 132 kV Loch Lundie Substation as it represents the Least Cost Option.

Scottish & Southern Electricity Networks
TRANSMISSION

APPENDIX 8.4: ROUTE OPTIONS: 400 KV COIRE GLAS SWITCHING STATION SEARCH AREA – 400 KV / 132 KV LOCH LUNDIE SUBSTATION SEARCH AREA ROUTE SELECTION - RAG SUMMARY TABLE

Appendix 8.4: Evaluation Criteria During Routing Process – 400 kV Coire Glas Switching Station Search Area to 400 kV / 132 kV Loch Lundie Substation Search Area			Route Options		
			CG-LL1 (West)	CG-LL2 (Central)	CG-LL3 (East)
Environmental / Consenting	Natural Heritage	Designations	Moderate Impact	Lower Impact	Lower Impact
		Protected Species	Lower Impact	Lower Impact	Lower Impact
		Habitats	Moderate Impact	Moderate Impact	Moderate Impact
		Ornithology	Moderate Impact	Moderate Impact	Higher Impact
		Hydrology / Geology / Hydrogeology	Lower Impact	Lower Impact	Moderate Impact
	Cultural Heritage	Designations	Lower Impact	Moderate Impact	Higher Impact
		Cultural Heritage Assets	Lower Impact	Moderate Impact	Higher Impact
	People	Proximity to Dwellings	Lower Impact	Higher Impact	Higher Impact
	Landscape & Visual	Designations	Lower Impact	Moderate Impact	Higher Impact
		Landscape Character	Moderate Impact	Moderate Impact	Higher Impact
		Visual	Moderate Impact	Higher Impact	Higher Impact
	Land Use	Agriculture	Lower Impact	Lower Impact	Lower Impact
		Forestry	Higher Impact	Higher Impact	Higher Impact
		Recreation	Moderate Impact	Moderate Impact	Higher Impact
	Planning	Policy	Lower Impact	Lower Impact	Lower Impact
		Proposals	Lower Impact	Moderate Impact	Moderate Impact
Engineering	Infrastructure Crossings	Major Crossings	Lower Impact	Lower Impact	Lower Impact
		Road Crossings	Moderate Impact	Moderate Impact	Moderate Impact
	Environmental Design	Elevation	Lower Impact	Lower Impact	Moderate Impact
		Atmospheric Pollution	Lower Impact	Lower Impact	Lower Impact
		Contaminated Land	Lower Impact	Lower Impact	Lower Impact
		Flooding	Moderate Impact	Moderate Impact	Moderate Impact

	Construction / Maintenance	Access	Moderate Impact	Moderate Impact	Higher Impact
		Angle Towers	Moderate Impact	Moderate Impact	Higher Impact
	Ground Conditions	Terrain	Moderate Impact	Higher Impact	Higher Impact
		Peat	Moderate Impact	Moderate Impact	Moderate Impact
	Proximity	Clearance Distance	Moderate Impact	Lower Impact	Moderate Impact
		Windfarms	Lower Impact	Lower Impact	Lower Impact
		Communication Masts	Lower Impact	Lower Impact	Lower Impact
		Urban Environments	Lower Impact	Moderate Impact	Higher Impact
		Metallic Pipelines	Lower Impact	Lower Impact	Lower Impact
Cost	**Capital**	Construction	Lower Impact	Higher Impact	Higher Impact
		Diversions	No Preference	No Preference	No Preference
		Public Road Improvements	No Preference	No Preference	No Preference
		Tree Felling	No Preference	No Preference	No Preference
		Land Assembly	No Preference	No Preference	No Preference
		Consent Mitigations	No Preference	No Preference	No Preference
	Operational	Inspections	No Preference	No Preference	No Preference
		Maintenance	No Preference	No Preference	No Preference

APPENDIX 9.1 – ENVIRONMENTAL APPRAISAL OF ROUTE OPTIONS: 400 KV / 132 KV LOCH LUNDIE SUBSTATION SEARCH AREA – FORT AUGUSTUS SUBSTATION

Environmental Appraisal

Each route option between the 400 kV / 132 kV Loch Lundie Substation Search Area and the existing Fort Augustus Substation has been assessed against the environmental categories in SSEN Transmission plc's guidance[1]. Using the methodology summarised in Appendix 3.1, the route options were assigned RAG (Red, Amber, Green) ratings for each of the environmental categories based on the whether the anticipated impact and/or risk was High, Intermediate or Low to identify a Preferred Route Option from an environmental perspective.

Table 1: 400 kV / 132 kV Loch Lundie Substation Search Area – Fort Augustus Substation - Route Option LL-FA1 (See Figures 7.1–7.9)

Description:
Route Option LL-FA1 represent the most westerly route between the new 400 kV / 132 kV Loch Lundie Substation and the existing Fort Augustus Substation. Route Option LL-FA1 would exit the north/north western extent of the Loch Lundie Substation Search Area and travel in a general north easterly direction for approximately 7.2 km, to approach the south eastern side of the existing Fort Augustus Substation. From the Loch Lundie Substation Search Area, Route Option LL-FA1 would travel directly through an area of open moorland at Dail a Chuirn for 1.2 km. An existing estate access track (leading to Loch Lundie), a small area of woodland (to the west of the existing access track), part of the Fort Augustus to Fort William OHL and the Fort Augustus to Skye T OHL would be located within the route option within this area. Although is anticipated that the Fort Augustus to Skye T OHL will be replaced by the proposed Skye Reinforcement Project and dismantled, this assessment has been undertaken using the existing baseline. Existing and planned grid infrastructure are illustrated in Figure 7.6. Route Option LL-FA1 would then cross the Allt Dail a Chuirn burn before entering the forestry at Inchnacardoch Forest at Achadh nan Darach. In total Route Option LL-FA1 would travel along the upper slopes of Coire Mhadadh, through Inchnacardoch Forest for approximately 6 km and would cross several small watercourses, including the upper tributaries of the Allt na Graidhe and the Auchterawe Burn. Approximately 3.1 km after the entering the forestry, Route Option LL-FA1 would change direction from north-east direction to an east-north-east direction. The route would continue in this direction for 1.7 km before changing direction again, to an east south easterly direction, to approach south-eastern side of the existing Fort Augustus Substation. This final 1.2 km of Route Option LL-FA1 on the approach to the existing Fort Augustus Substation would cross several existing forestry tracks and the Auchterawe Road (including properties located along the Auchterawe Road). Existing grid infrastructure that connects into the Fort Augustus Substation would also be located within this terminal section of Route Option LL-FA1

[1] Referenced in: SSEN (March 2018), Procedures for Routeing Overhead Lines of 132kV and above

and would potentially need to be crossed, including the Fort Augustus to Skye T OHL (to the north west), the Beauly Denny OHL (to the north west), the Bhlaraidh to Beinneun OHL (to the north west) and the Fort Augustus to Fort William OHL (to the south west). The 400 kV infrastructure within the Fort Augustus Substation is also located in the south-eastern corner of the substation so it would be technically challenging to connect a route option which approached the existing substation from the north to the existing 400 kV infrastructure within the substation.		
Review of Environmental Constraints:		
Natural Heritage		
Topics	**Potential Constraints**	**RAG Rating**
Designations	There are no regionally, nationally, or internationally designated sites within Route Option LL-FA1. Within 1 km of Route Option LL-FA1 lies the West Inverness-shire Lochs Special Site of Scientific Interest (SSSI) and Special Protection Area (SPA). The West Inverness-shire Lochs SSSI and SPA comprises eight freshwater upland lochs (specifically Loch Lundie with respect to Route Option LL-FA1) and has been designated as they support nationally important numbers of breeding black-throated divers (*Gavia arctica)* and common scoters (*Melanitta nigra).* Route Option LL-FA1 includes two upgradient tributaries of Loch Lundie. A review of the Geological Conservation Review (GCR) sites highlights that within 1 km of this route option the quaternary of Scotland Fort Augustus site (ID 1953) includes an assemblage of landforms and deposits at Fort Augustus that provides evidence for a range of geomorphological processes in the Loch Ness area during the Loch Lomond Stadial. It is noted that the majority of the GCR site is forested with commercial conifers. Due to its limited access and limited exposure this site is not considered a constraint to development. Subject to control measures and good practice it is unlikely that works associated with construction would compromise the qualifying interests of the West Inverness-shire Lochs SSSI and SPA, and Fort Augustus GCR. However, as there is hydrological connectivity between Route Option LL-FA1 and the West Inverness-shire Lochs SSSI and SPA, an **Ambe**r RAG rating has therefore been applied to this route option.	A
Protected Species	Initial walkover surveys undertaken in August 2021 highlighted the presence of pine marten in areas of forestry south of the river Garry. Abundant woodland, and woodland edge habitat, provides suitable habitat for badger (*Meles meles*), red squirrel (*Sciurus vulgaris*), pine marten (*Martes martes*) and bat species. Riparian zones provide suitable habitat for otter (*Lutra lutra*). Wet heath and mire habitats provide suitable habitat for water vole (*Arvicola amphibius*). Loss of small areas of habitat associated with overhead line infrastructure is therefore unlikely to significantly reduce habitat suitability or availability of the wider area. Potential for impacts on protected species could be further reduced or eliminated by undertaking pre-construction surveys and adopting appropriate mitigation. There is therefore considered to be low potential for Route Option LL-FA1 to compromise the conservation status of, or for the route to be constrained by, the presence of protected species. A **Green** rating has therefore been applied to this route option.	G
Habitats	Initial walkover surveys undertaken in August 2021 indicated that the route option passes through large areas of coniferous plantation. Many coupes within the plantation are stocked with mature Sitka spruce (*Picea sitchensis)* and Lodgepole pine (*Pinus contorta)*. Along track sides and riparian corridors, including the Invervigar Burn, semi-natural mixed and broadleaved woodland is also present. These are commonly represented by Birch (*Betula spp).* woodlands. More open areas in the woodlands are dominated by Bracken (*Pteridium aquilinum)* and modified heath communities. Open ground to the south west of the route is dominated by wet heath and blanket mire communities.	A

	Annex 1 Large pockets of blanket mire habitat exist on flatter plateaus and depressions on moorland areas. Wet heaths dominate other open moorland. Both habitats are identified as Annex 1 habitats. Areas of semi-natural woodland and Scot's pine plantation are identified on the Ancient Woodland Inventory (AWI). Loss of woodland, including AWI woodland, is considered probable from routeing infrastructure through this route option. The sensitive habitats identified present modest constraints which could be further reduced or eliminated by micrositing infrastructure and/or adopting appropriate mitigation. Therefore, there is considered to be moderate potential for Route Option LL-FA1 to compromise the conservation status of, or for the route to be constrained by, Annex 1 habitats. GWDTE (Groundwater Dependent Terrestrial Ecosystems) GWDTE are not considered extensive within the route option corridor, limited to surrounds of small hydrological pathways. Loss of GWDTE could therefore be minimised by micrositing of infrastructure, and there is low potential for Route Option LL-FA1 to compromise the integrity of GWDTE. Biodiversity Route Option LL-FA1 contains a total of 29503.17 Biodiversity Units (BU), at 8.92BU/Ha. In Biodiversity Net Gain (BNG) guidance, blanket mires and semi-natural ancient woodland are considered to be irreplaceable habitat. Small areas of both are present within this route option. Habitats of high distinctiveness within the route also include wet heath and small patches of grassland present on open ground to the south west of the route. Route Option LL-FA1 is dominated by coniferous plantation woodland, which is considered to be of low distinctiveness. Loss of irreplaceable habitat would result in 'No Net Loss being' unachievable. Where habitats of high distinctiveness are lost, replacement must be of equivalent value to meet 'No Net Loss'. Removal of coniferous plantation is likely to present an opportunity to enhance biodiversity value within this route option, by replacement with habitats of higher distinctiveness value. However, it should be noted that removal of woodland habitat creates difficulty in achieving 'No Net Loss' due to the time taken for replacement woodland and/or scrub to achieve suitable structure and condition and for the replacement biodiversity value to be realised. An **Amber** rating has therefore been applied due to the potential loss of Annex 1 habitats, semi-natural woodland and Scot's pine plantation associated with this route option, as well as the presence of habitats that are classed as irreplaceable habitat under BNG Guidance.	
Ornithology	Route Option LL-FA1 predominantly passes through undulating plantation forestry with several narrow watercourses and rocky outcrops contained within the woodland. Depending on the chosen location of the Loch Lundie Substation, Loch Lundie will also be adjacent to the route option. Ornithological constraints are focussed on those species breeding within the forestry, and those species which use the forest or the river for hunting purposes. Potential protected (Schedule 1) species are likely to be limited to Goshawk (*Accipiter gentilis*) and Crossbill (*Loxia curvirostra*), although several woodland species are Red and Amber List species of conservation concern including, but not limited to, Song Thrush (*Turdus philomelos*), Spotted Flycatcher (*Muscicapa striata*), Tree Pipit (*Anthus trivialis*) and Lesser Redpoll (*Acanthis cabaret*), Meadow Pipit (*Anthus pratensis*) and Dunnock (*Prunella modularis*). Should the route pass close to Loch Lundie, Red-throated Diver (*Gavia stellata*) and Common Scoter (*Melanitta nigra*) may be present. Route Option LL-FA1 could compromise the conservation status of population(s) of Schedule 1 bird species or Red or Amber listed if breeding or hunting within the route. Standard bird surveys will need to be undertaken to update the baseline and inform the route selection and appropriate mitigation measures should be implemented to minimise any disturbance / collision risk to protected species along this route option. An **Amber** rating has been applied to this route option.	A
Hydrology / Geology	Route Option LL-FA1 lies entirely within the River Oich catchment, specifically the nested catchments of Aldernaig Burn, Invervigar Burn, Allt na Graidhe and Auchterawe Burn.	G

	Route Option LL-FA1 is generally underlain by Class 5 peatlands (carbon-rich and deep peat that include areas of bare soil but with no peatland habitat recorded), while Class 2 peatland (nationally important carbon-rich soils, deep peat and priority peatland habitat that are potentially high conservation value and restoration potential) is recorded west of Allt Dail a' Chuirn (an upstream tributary of Invervigar Burn) and above the treeline towards the summit of Carn Mhic Raonuill. Peatland is generally absent below 150 m AOD within the Auchterawe Burn catchment, towards the Fort Augustus Substation. Subject to peat probing and peat condition assessment, it is likely impacts on peatland can be avoided and the presence of peatland is not considered a development constraint. Superficial cover within Route Option LL-FA1, when present, is a mixture of at higher elevations with hummocky glacial deposits of diamicton, sand and gravel, lying below. Glaciofluvial deposits of sand and gravel are also noted towards the Fort Augustus Substation whilst alluvium deposits of gravel, sand, silt, and clay is bound to the Allt na Graidhe channel within the route option. Peat is recorded related to low gradient areas around Allt Dail a' Chuirn within the Invervigar Burn catchment. Alluvial fan deposits of gravel, sand, silt and clay are recorded upgradient of the peat within the Allt Dail a' Chuirn catchment and several tributaries of the Auchterawe Burn on the approach to the Fort Augustus Substation. Route Option LL-FA1 is almost entirely underlain by the Tarvie Psammite Formation that includes many minor igneous intrusions. Route Option LL-FA1 extends into the lower reaches of the Aldernaig catchment in the southern end of the route option. The entire Aldernaig Burn catchment has been designated a Drinking Water Protection Area (DWPA), Scottish Water abstract from Aldernaig Burn to supply their Invergarry Water treatment Works (WTW). The location of Scottish Water infrastructure would need to be confirmed to ensure the DWPA or Scottish Water infrastructures was not impaired. As the development footprint is very small in area compared to the extent of the DWPA it is considered unlikely that the presence of the DWPA will pose a significant development constraint. SEPA floodplain mapping shows that the Medium (0.5% annual exceedance probability of flooding / 1 in 200yr) likelihood of flooding floodplain extent is crossed by the alignment at the Allt Dail a' Chuirn, where a particularly wide flood extent is noted, and Auchterawe Burn in proximity to the Fort Augustus Substation. Whilst not a development constraint, due regard will need to be made to flood risk during the design, construction and operational phase of this route option. Particular attention will be required at proposed watercourse crossings, where floodplains will also be crossed. There are several private water supplies (PWS), generally associated with springs and surface water, registered within catchments in proximity to the Fort Augustus Substation and within Route Option LL-FA1. These sources could be prone to pollution without appropriate control. However, given the superficial and solid geology, water catchment to the PWS sources are likely to be localised / close to the water source, and thus impacts mitigated. Subject to best practice construction and mitigation it is likely that any impacts on soils, peat, geology and the water environment can be mitigated. A **Green** rating has therefore been applied to this Route Option.	

Cultural Heritage		
Topics	**Potential Constraints**	**RAG Rating**
Designations	There are no World Heritage Sites (WHS), Scheduled Monuments (SM), Listed Buildings (LB), Inventory Gardens and Designed Landscapes (GDL), Conservation Areas (CA) or Inventory Battlefields (IB) within Route Option LL-FA1. No potential impacts on the designating features or setting of any cultural heritage designations are anticipated for this site option.	

	A **Green** rating has therefore been applied to Route Option LL-FA1.	
Cultural Heritage Assets	There would be a potential direct impact on three non-designated HER sites located within Route Option LL-FA1. These cultural heritage assets are of low sensitivity and could be avoided by micrositing the alignment of the OHL within the route option. A **Green** rating has therefore been applied to Route Option LL-FA1.	G
People		
Topics	**Potential Constraints**	**RAG Rating**
Proximity to Dwellings	There are no dwellings within Route Option LL-FA1, except on the approach to the existing Fort Augustus Substation, where there would be approximately seven properties within Route Option LL-FA1. It may not be possible to apply a suitable separation buffer to all properties (anticipated to be a minimum of 170 m based on a preliminary noise assessment) where the steel lattice OHL would pass through Auchterawe whilst also keeping a suitable distance from the other grid infrastructure which connects into the existing substation at this location, including the Beauly to Denny OHL and the Bhlaraidh to Beinneun OHL. . An **Amber** Rating has therefore been applied to this route option.	A
Landscape and Visual		
Topics	**Potential Constraints**	**RAG Rating**
Designations	Route Option LL-FA1 would not affect any designated or otherwise protected landscapes. The RAG Rating is therefore **Green to** this route option.	G
Landscape Character	Route Option LL-FA1 would directly affect LCT 237 (Rocky Moorland – Lochaber) and LCT 225 (Broad Steep-Sided Glen), both considered to have some degree of ability to accommodate a development of this type. It would also potential indirectly affect the adjacent LCT, LCT 220 (Rugged Massif - Inverness) which is considered to have higher sensitivity. Depending on the substation position adopted, the route option would initially follow or replace an existing steel lattice tower line through LCT 237 to the east of Loch Lundie, thereby affecting an area with reduced sensitivity to this type of development, though potentially leading to increased cumulative effects should the existing OHL not be removed. The remaining part of the route through the Broad Steep-Sided Glen LCT is mostly through forest which is usually broadly accommodating of this type of development. However, it is likely that the steel towers would be more prominent from the Great Glen in places than existing wood poles which follow this route option, due to their elevated position high on the hill. There would also be potential for a broader wayleave to be established through this area than currently exists for the existing wood pole OHL. The Proposed Development may therefore be more evident across a wider landscape area. The allocated **Amber** rating has been applied due to the potential for cumulative effects in the area around Loch Lundie, in the scenario that one of the more southerly substation options was selected and if the existing steel lattice OHL was <u>not</u> removed. In a scenario whereby the existing OHL were to be removed, the RAG rating would be **Green** for this route option.	A

Visual	If a substation location towards the south of the Loch Lundie Substation Search Area was chosen, Route Option LL-FA1 would initially be likely to follow close to a Core Path for around 3 – 4 km to the east of Loch Lundie. Assuming that the existing OHL were to remain in place this would reduce visual sensitivity to some degree but and would result in cumulative visual effects with potentially increased prominence and visual confusion of towers and OHL conductors. The more northerly part of the route would also be likely to be visible from parts of the A82 and Fort Augustus, including the steel lattice tower which would be taller than the existing wood poles which currently occupy this route, and as a widened wayleave through the forest. There would also be a potential cumulative visual effect on users of Core Paths within the forest with other OHLs following the Beauly – Denny wayleave and leading to the Fort Augustus Substation. In general, it is considered that these effects would be relatively small, and therefore a **Green** RAG rating has been allocated to this route option.	G
Land Use		
Topics	**Potential Constraints**	**RAG Rating**
Agriculture	Route Option LL-FA1 passes through large areas of coniferous plantation. Route Option LL-FA1 would only affect lower quality agricultural land, graded as Agricultural Land Capability (ALC) 3b and below. Most of the land within Route Option LL-FA1 is only capable of supporting rough grazing (ALC 6.3). A **Green** rating has therefore been applied to this route option.	G
Forestry	Route Option LL-FA1 contains a high proportion of commercial coniferous forest, a mixture of Lodgepole pine and Sitka spruce. The extent of the forest blocks suggest that this route option will have a significant impact upon the commercial viability of this forest area. A small area of AWI (ASNO1860) is included in the southern tip of the route and at the edge of the route in the northern end. NWSS is located within the same sections and includes upland birchwood at the southern end and PAWS in the north. It is anticipated that these areas of designated woodland could be avoided by micrositing the OHL alignment within the route option. This route option is allocated a **Red** RAG rating based on the potential impact on commercial forestry.	R
Recreation	<u>Recreational Routes</u> The existing access track which passes to the east of Loch Lundie and extend northwards into the southern section of Inchnacardoch Forest, is classified as a Core Path (by the Highland Council (THC)) and a Scottish Hill Track (by Scottish Rights of Way and Access Society (SCOTWAYS)). Depending on the choice of the Loch Lundie substation location, Route Option LL-FA1 may also lead to visual effects on users of this footpath. It is anticipated direct impacts on the existing access track could be avoided by micrositing the OHL alignment within the route option or by rerouting the access track. However, an OHL within this route may lead to visual effects on users of the Core Path / Scottish Hill Track. Although existing OHLs are already visible from this route, a new OHL at this location would lead to potential cumulative effects for user of the Core Path / Scottish Hill Track, with the potential for the creation of a greater dominance of OHL infrastructure in this area. There are also several other woodland footpaths, including Core Paths within the area of Inchnacardoch Forest to the north of Auchterawe, which would cross through Route Option LL-FA1. It is anticipated direct impacts on these Core Paths could be avoided by mircositing the OHL infrastructure within the OHL route option or by rerouting sections of the Core Paths. However, short sections of the OHL may be visible to users of the Core Paths and there would also be potential cumulative visual effects on users of Core Paths within the forest with	A

	other OHLs in the surrounding area, particularly on the approach to Fort Augustus Substation. In the 'Landscape and Visual – Visual' section above, it is considered that the visual effects on users of these Core Paths would be relatively small. No other recreational receptors have been identified within Route Option LL-FA1. However, due to the potential visual effects on recreational users of the Core Path around Loch Lundie, an **Amber** RAG rating has been allocated to this route option. However, if one of the more northerly substation sites was chosen for the new Loch Lundie Substation and the Proposed Development replaces the existing steel lattice Fort Augustus to Fort William OHL to the north of new Loch Lundie Substation, this RAG rating would be reduced to **Green**. <u>Commercial Highland Sports</u> Route Option LL-FA1 is largely located within an area of coniferous plantation woodland owned by Forestry and Land Scotland (FLS). These woodland areas would not be used for commercial highland sport. A **Green** RAG rating has been allocated. An overall **Amber** RAG rating has been applied to this route option due to the potential visual effects on recreational users around Loch Lundie.	
Planning		
Topics	**Potential Constraints**	**RAG Rating**
Policy	Route Option LL-FA1 would be brought forward in full compliance with national, regional or local planning policy. A **Green** RAG rating has been applied to this route option.	G
Proposals	Depending on where the new Loch Lundie Substation is constructed, Route Option LL-FA1 may interact with the construction or dismantling of SSEN Transmission OHL proposals. There are some recent planning consents located within Route Option LL-FA1 that are related to the existing Fort Augustus Substation, including retrospective application for the formation of two screening bunds and associated landscaping (Ref: 21/00478/FUL) and alterations to substation access entrance (Ref: 20/00724/FUL). However, none of these developments are third party proposals is anticipated that interaction with this proposal could be avoided by micrositing of the OHL alignment within the route option. No other proposals that are wither consented or known to the planning system have been identified within Route Option LL-FA1. A **Green** RAG rating has been applied to this route option.	G

Table 2: 400 kV / 132 kV Loch Lundie Substation Search Area – Fort Augustus Substation - Route Option LL-FA2 (Scenario A - No Rationalisation of the existing 132 kV Fort Augustus to Fort William Overhead Line) (See Figures 7.1–7.9)

Description:		
Route Option LL-FA2 represent the central route between the new 400 kV / 132 kV Loch Lundie Substation and the existing Fort Augustus Substation and broadly follows the route of the existing Fort Augustus to Fort William OHL. Route Option LL-FA2 leaves the north/north eastern side of the new 400 kV / 132 kV Loch Lundie Substation Search Area and travels in a general north easterly direction for approximately 6.5 km to approach the south western side of the existing Fort Augustus Substation. From the new 400 kV / 132 kV Loch Lundie Substation Search Area, Route Option LL-FA2 would travel directly through an area of open moorland at Dail a Chuirn for approximately 1.6 km in a north easterly direction, crossing an existing estate access track (leading to Loch Lundie), two small areas of woodland (to the west of the existing access track), part of the Fort Augustus to Fort William OHL and the Fort Augustus to Skye T OHL. Although it is anticipated that the Fort Augustus to Skye T OHL will be replaced by the proposed Skye Reinforcement Project and dismantled, this assessment has been undertaken using the existing baseline. Existing and planned grid infrastructure are illustrated in Figure 7.6. Several minor watercourses are also located within this area of open moorland. Route Option LL-FA2 would then cross the Allt Dail a Chuirn burn (to the west) and/or the Invervidar Burn (to the east), before entering the forestry at Inchnacardoch Forest at Achadh nan Darach. After entering the forestry, Route Option LL-FA2 would change direction from a north easterly to an east-north-easterly direction. The route would then travel through the forestry for approximately 3.4 km, broadly following the route of the wayleave for the existing Fort Augustus to Fort William OHL, passing Lon Mor to the north and Collie Torr Dhuin to the south. As it travels through the forestry, Route Option LL-FA2 would cross several existing forestry tracks and minor watercourses. To the east of the forestry, the easternmost extent of Route Option LL-FA2 would run parallel to the River Oich, which forms part of the Caledonian Canal and the Great Glen Way footpath. A small area of Route Option LL-FA2 would fully cross over to the eastern banks of the River Oich, near the Kytra Lock. Route Option LL-FA2 would exit the forestry at the Forestry and Land Scotland (FLS) Carpark and Picnic Area at Torr Dhuin, where the route would cross the Allt na Graidhe burn (to the west) and/or River Oich (to the east) and change direction again, from an east-north-easterly direction to a north easterly direction. The route would continue to broadly follow the route of the existing Fort Augustus to Fort William OHL for a further 1.5 km, through an open, grassy field, to approach the south western side of the existing Fort Augustus Substation. Part of the Auchterawe Road (including several properties located along the Auchterawe Road) and a small area of the forestry at Auchterawe Wood (part of Inchnacardoch Forest) is located within Route Option LL-FA2, to the north-west of the open, grassy field at Auchterawe. Part of the FLS forestry area at Torr Dhuin, including the existing access tracks / public footpaths, is located within Route Option LL-FA2, to the south east of the open, grassy field at Auchterawe. On the approach to the existing Fort Augustus Substation, Route Option LL-FA2 would cross at least two more minor watercourse, as well as the existing grid infrastructure that connects into the Fort Augustus Substation, including the Beauly Denny OHL (to the north / north east) and the Bhlaraidh to Beinneun OHL (to the north / north east).		
Review of Environmental Constraints:		
Natural Heritage		
Topics	**Potential Constraints**	**RAG Rating**
Designations	There are no regionally, nationally, or internationally designated sites within Route Option LL-FA2. Within 1 km of Route Option LL-FA2 lies the West Inverness-shire Lochs SSSI and SPA. The West Inverness-shire Lochs SSSI and SPA comprises eight freshwater upland lochs (specifically Loch Lundie with respect to Route Option LL-FA2) and has been designated as they support nationally important numbers of breeding black-throated divers (*Gavia arctica)* and common scoters (*Melanitta nigra).* Route Option LL-FA2 lies outside of the catchments that feed Loch Lundie, as such Route Option LL-FA2 is not in hydrological connection to the West Inverness-shire Lochs SSSI and SPA sites. A review of the GCR sites, highlights that within 1 km of this route option the quaternary of Scotland Fort Augustus site (ID 1953) includes an assemblage of landforms and deposits at Fort Augustus that provides evidence for a range of geomorphological processes in the Loch	G

	Ness area during the Loch Lomond Stadial. It is noted that the majority of the GCR site is forested with commercial conifers. Due to its limited access and limited exposure this site is not considered a constraint to development. Subject to control measures and good practice it is unlikely that works associated with construction would compromise the qualifying interests of the West Inverness-shire Lochs SSSI and SPA, and Fort Augustus GCR. A **Green** rating has therefore been applied to Route Option LL-FA2 under Scenario A.	
Protected Species	Initial walkover surveys undertaken in August 2021 highlighted the presence of pine marten in areas of forestry in Inchnacardoch forest. Signs of otter were also recorded along minor burns and under bridges in forested areas. Abundant woodland, and woodland edge habitat, provides suitable habitat for badger, red squirrel, pine marten and bat species. Riparian zones provide suitable habitat for otter. Wet heath and mire habitats provide suitable habitat for water vole. Loss of small areas of habitat associated with OHL infrastructure is therefore unlikely to significantly reduce habitat suitability or availability of the wider area. Potential for impacts on protected species could be further reduced or eliminated by undertaking pre-construction surveys and adopting appropriate mitigation. Therefore, there is considered to be low potential for Route Option LL-FA2 to compromise the conservation status of, or for the route to be constrained by, the presence of protected species. A **Green** rating has therefore been applied to this route option under Scenario A.	G
Habitats	Initial walkover surveys undertaken in August 2021 indicate that Route Option LL-FA2 passes through large areas of coniferous plantation. Many coupes within the plantation are stocked with mature Sitka spruce and Lodgepole pine. Along track sides and riparian corridors, including the Invervigar Burn, semi-natural mixed and broadleaved woodland is also present. These are commonly represented by Birch. woodlands. More open areas in the woodlands are dominated by Bracken and modified heath communities. Open ground to the south west of the route option is dominated by wet heath and blanket mire communities. <u>Annex 1</u> Large pockets of blanket mire habitat exist on flatter plateaus and depressions on moorland areas. Wet heaths dominate other open moorland. Both habitats are identified as Annex 1 habitats. Areas of semi-natural woodland and Scot's pine plantation are identified on the AWI. Loss of woodland, including AWI woodland, is considered probable from routeing infrastructure through Route Option LL-FA2. The sensitive habitats identified present modest constraints which could be further reduced or eliminated by micro-siting infrastructure and/or adopting appropriate mitigation. Therefore, there is considered to be moderate potential for Route Option LL-FA2 to compromise the conservation status of, or for the route to be constrained by, Annex 1 habitats. <u>GWDTE</u> GWDTE are not considered extensive within this route option corridor, limited to surrounds of small hydrological pathways. Loss of GWDTE could therefore be minimised by micro-siting of infrastructure, and there is low potential for Route Option LL-FA2 to compromise the integrity of GWDTE. <u>Biodiversity</u> Route Option LL-FA2 contains a total of 19943.31BU, at 9.40BU/Ha. In BNG guidance, blanket mires and semi-natural ancient woodland are considered to be irreplaceable habitat. Small areas of both are present within the route option. Habitats of high distinctiveness within the route corridor also include wet heath and small patches of grassland present on open ground to the south west of the route option. Route Option LL-FA2 is dominated by coniferous plantation woodland, which is considered to be of low distinctiveness. Loss of irreplaceable habitat would result in 'No Net Loss' being unachievable. Where habitats of high distinctiveness are lost, replacement must be of equivalent	A

	value to meet 'No Net Loss'. Removal of coniferous plantation is likely to present an opportunity to enhance biodiversity value within the route, by replacement with habitats of higher distinctiveness value. However, tt should be noted that removal of woodland habitat creates difficulty in achieving 'No Net Loss' due to the time taken for replacement woodland and/or scrub to achieve suitable structure and condition and for the replacement biodiversity value to be realised. An **Amber** rating has therefore been applied to this route option under Scenario A due to the potential loss of Annex 1 habitats, semi-natural woodland and Scot's pine plantation associated with this route option, as well as the presence of habitats that are classed as irreplaceable habitat under BNG Guidance.	
Ornithology	Route Option LL-FA2 predominantly passes through undulating plantation forestry with several narrow watercourses and rocky outcrops contained within the woodland. Depending on the chosen location of the Loch Lundie Substation, Loch Lundie will also be adjacent to the route, as will the Caledonian Canal. Ornithological constraints are focussed on those species breeding within the forestry, and those species which use the forest or the river for hunting purposes. Potential protected (Schedule 1) species are likely to be limited to Goshawk and Crossbill, although several woodland species are Red and Amber List species of conservation concern including, but not limited to, Song Thrush, Spotted Flycatcher, Tree Pipit, Lesser Redpoll, Meadow Pipit and Dunnock. Should the route pass close to Loch Lundie, Red-throated Diver and Common Scoter may be present. Route Option LL-FA2 could compromise the conservation status of population(s) of Schedule 1 bird species or Red or Amber listed if breeding or hunting within the route. Standard bird surveys will need to be undertaken to update the baseline and inform the route selection and appropriate mitigation measures should be implemented to minimise any disturbance / collision risk to protected species along this route. An **Amber** rating has been applied to this route option under Scenario A.	A
Hydrology / Geology	Route Option LL-FA2 lies entirely within the River Oich catchment, specifically the nested catchments of Invervigar Burn, Allt na Graidhe and Auchterawe Burn. Route Option LL-FA2 is generally underlain by Class 5 peatlands (carbon-rich and deep peat that include areas of bare soil but with no peatland habitat recorded), while Class 2 peatland (nationally important carbon-rich soils, deep peat and priority peatland habitat that are potentially high conservation value and restoration potential) is recorded west of Allt Dail a' Chuirn (an upstream tributary of Invervigar Burn). Peatland is generally absent below 120 m AOD within the Allt na Graidhe catchment and 150 m AOD within the Auchterawe Burn catchment, towards the Fort Augustus Substation. Subject to peat probing and peat condition assessment, it is likely impacts on peatland can be avoided and the presence of peatland is not considered a development constraint. Superficial cover is generally absent within Route Option LL-FA2, while hummocky glacial deposits of diamicton, sand and gravel, are noted within the headwater tributaries of Invervigar Burn. Glaciofluvial deposits of sand and gravel and alluvium of gravel, sand, silt and clay are linked to the River Oich towards the Fort Augustus Substation. Peat is recorded related to low gradient areas around Allt Dail a' Chuirn within the Invervigar Burn catchment and within discrete areas in Coille Torr Dhuin woodland. Alluvial fan deposits of gravel, sand, silt and clay are recorded upgradient of the peat within the Allt Dail a' Chuirn catchment, Allt na Graidhe and several tributaries of the Auchterawe Burn on the approach to the Fort Augustus Substation. Route Option LL-FA2 is underlain by the Tarvie Psammite Formation and the West Highland Granite Gneiss Intrusion, both of which include many minor igneous intrusions. SEPA floodplain mapping shows that the Medium (0.5% annual exceedance probability of flooding / 1 in 200yr) likelihood of flooding floodplain extent is crossed by the alignment at the Allt Dail a' Chuirn, where a particularly wide flood extent is noted, River Oich and the Caledonian Canal, and Allt na Graidhe, Auchterawe Burn that both form a single wide flood extent to the south west of the Fort Augustus Substation. Whilst not a development constraint, due regard will need to be made to flood risk during the design, construction and	G

	operational phase of this route option. Particular attention will be required at proposed watercourse crossings, where floodplains will also be crossed. There are several PWS, generally associated with springs and surface water, registered within catchments in proximity to the Fort Augustus Substation and within Route Option LL-FA2. These sources could be prone to pollution without appropriate control. However, given the superficial and solid geology, water catchment to the PWS sources are likely to be localised / close to the water source, and thus impacts mitigated. Subject to best practice construction and mitigation it is likely that any impacts on soils, peat, geology and the water environment can be mitigated. A **Green** rating has therefore been applied to this route option under Scenario A.	
Cultural Heritage		
Topics	**Potential Constraints**	**RAG Rating**
Designations	There are no WHSs, LBs, GDLs, CAs or IBs within Route Option LL-FA2. The Torr Dhuin fort, Fort Augustus (SM794), a SM of high sensitivity, is located within Route Option LL-FA2. It is anticipated that a direct impact on this SM could be avoided through micrositing of the OHL alignment within this route option under Scenario A. However, it is likely that there would be a settings effect in this SM. An **Amber** rating has therefore been applied to Route Option LL-FA2 under Scenario A.	A
Cultural Heritage Assets	There would be a potential direct impact on up to ten non-designated HER sites located within Route Option LL-FA2. These cultural heritage assets are of low sensitivity and could be avoided by micrositing the alignment of the OHL within the route option under Scenario A. Due to the number of non-designated HER sites within this route option, as **Amber** rating has been applied to Route Option LL-FA2 under Scenario A.	A
People		
Topics	**Potential Constraints**	**RAG Rating**
Proximity to Dwellings	There are no dwellings within Route Option LL-FA2, except on the approach to the existing Fort Augustus Substation, where there would be approximately twelve properties located within the route option, scattered along the along the Auchterawe Road. It may be possible to apply a suitable separation buffer (anticipated to be a minimum of 170 m based on a preliminary noise assessment) to all properties if the OHL is routed through the FLS forestry plantation at Torr Dhuin, to the south of Fort Augustus Substation. If the OHL is routed through the existing field to the north of the FLS forestry plantation at Torr Dhuin, it may not be possible to apply a suitable separation buffer to all properties within the route option under Scenario A. An **Amber** Rating has therefore been applied to this route option under Scenario A.	A
Landscape and Visual		
Topics	**Potential Constraints**	**RAG Rating**
Designations	Route Option LL-FA2 would not affect any designated or otherwise protected landscapes.	G

	A **Green** RAG Rating has therefore been applied to this route option under Scenario A.	
Landscape Character	Route Option LL-FA2 would follow the alignment of the existing Fort Augustus to Fort William steel lattice OHL alongside Loch Lundie and through forest. It would directly affect LCT 237 (Rocky Moorland – Lochaber) and LCT 225 (Broad Steep-Sided Glen). Both of these LCT are considered to have some sensitivity to development of this type, but this would be lowered by the presence of the existing OHL through the route. However, assuming that the existing OHL were to remain in place under Scenario A, it would lead to potential for cumulative impacts and would increase the influence of overhead line development. There may also be limited effects from increased felling to accommodate a wider wayleave in places. On approach to Fort Augustus Substation, small scale residential landscapes at Auchterawe have an increased sensitivity to cumulative effects. Although existing OHL infrastructure is present in this area, there is greater potential for these smaller areas to be dominated by multiple overhead lines and particularly increased numbers of steel lattice towers. Therefore, there would be a higher potential for notable landscape effects within this area under Scenario A. The applied **Red** RAG rating is due to the anticipated effects of a second OHL through Auchterawe under Scenario A.	R
Visual	Depending on the choice of the substation location within the Loch Lundie Substation Search Area, Route Option LL-FA2 may initially follow close to a Core Path for around 3 – 4 km to the east of Loch Lundie and would also cross this route and other Core Paths intermittently at other points through the forest. If the existing OHL were to remain in place this would reduce visual sensitivity to some degree but would result in cumulative visual effects with potentially increased prominence and visual confusion of towers and OHL conductors. On approach to Fort Augustus Substation this route would pass by and be visible from a number of residential properties, a minor road and a small carparking / amenity area within the edge of the forest. If the Proposed Development would be in addition to the existing steel lattice Fort Augustus to Fort William OHL through this area there would be potential for notably increased visual effects from these properties. Whilst the existing Fort Augustus to Fort William OHL already leads to some desensitisation of the view, the addition of another OHL to this view would be noticeable and likely to be adverse. A **Red** RAG rating has been applied to this route option due to the anticipated effects of a second OHL through Auchterawe under Scenario A.	R
Land Use		
Topics	**Potential Constraints**	**RAG Rating**
Agriculture	Route Option LL-FA2 passes through large areas of coniferous plantation. Route Option LL-FA2 would only affect lower quality agricultural land, graded as ALC 3b and below. Most of the land within Route Option LL-FA2 is only capable of supporting rough grazing (ALC 6.3). A **Green** rating has therefore been applied to this route option under Scenario A.	G
Forestry	Route Option LL-FA2 includes a high proportion of commercial coniferous forest, consisting of mixed conifer mainly Lodgepole pine and Sitka spruce. Within the route option some felling and replanting has taken place. Open ground is present within the forest area and the existing OHL provides additional open ground. As a route option there would be clearance required which would have further commercial impact on an already constrained route. Woodland designations within Route Option LL-FA2 include AWI (ASNO1860), which appears	R

	throughout the route option, but is largely confined to the south eastern portion of the route. NWSS mirrors the area of AWI and includes upland birchwood, PAWS and native pinewood. A Route Option LL-FA2 would require the clearance of commercial conifer under Scenario A which would compromise the commercial returns from the overall forest. The woodland designations could be avoided through mircositing. However, with the woodland removal potentially required this is classed as **Red** RAG rating**.**	
Recreation	<u>Recreational Routes</u> The existing access track which passes to the east of Loch Lundie and extend northwards into the southern section of Inchnacardoch Forest, is classified as a Core Path (by THC) and a Scottish Hill Track (by SCOTWAYS). Depending on the choice of the substation location within the Loch Lundie Substation Search Area, Route Option LL-FA2 may also lead to visual effects on users of this footpath. It is anticipated direct impacts on the existing access track could be avoided by micrositing the OHL alignment within the route option or by rerouting the access track. However, an OHL within this route may lead to visual effects on users of the Core Path / Scottish Hill Track. Although existing OHLs are already visible from this route, a new OHL at this location would lead to potential cumulative effects for user of the Core Path / Scottish Hill Track under Scenario A, with the potential for the creation of a greater dominance of OHL infrastructure in this area. There are also several other woodland footpaths, including Core Paths, within Inchnacardoch Forest (between Loch Lundie and Auchterawe), which would cross Route Option LL-FA2 intermittently. Part of Cycle Route 78 is also crosses through Route Option LL-FA2 near Torr Dhuin, before following the Auchterawe Road towards Fort Augustus. There is also a car park, picnic area and FLS woodland trains located within the forestry at Torr Dhuin in Auchterawe. A short section of the Great Glen Way footpath also runs along the eastern boundary of Route Option LL-FA2, on the western bank of the Caledonian Canal. It is anticipated that direct impacts on these recreational routes/areas could be avoided by mircositing the OHL infrastructure within the route or by rerouting sections of the footpaths/cycle paths. However, short sections of the OHL may be visible to users of these footpaths. As noted in the 'Landscape and Visual – Visual' section above, if the existing Fort Augustus – Fort William OHL were not replaced under Scenario A, this would result in cumulative visual effects with potentially increased prominence and visual confusion of towers and OHL conductors. No other recreational receptors have been identified within Route Option LL-FA2. However, due to the potential visual effects on users of the recreational routes around Loch Lundie, within Inchnacardoch Forest and Torr Dhuin, an **Amber** RAG rating has been allocated to this route option under Scenario A. <u>Commercial Highland Sports</u> Route Option LL-FA2 is largely located within an area of coniferous plantation woodland owned by FLS. These woodland areas would not be used for commercial highland sport. A **Green** RAG rating has been allocated to this route option under Scenario A. An overall **Amber** RAG rating has been applied to this route option under Scenario A due to the potential visual effects on recreational users around Loch Lundie, within Inchnacardoch Forest and near Torr Dhuin.	A
Planning		
Topics	**Potential Constraints**	**RAG Rating**
Policy	Route Option LL-FA2 would be brought forward in full compliance with national, regional or local planning policy.	G

	A **Green** RAG rating has been applied to this route option under Scenario A.	
Proposals	Depending on where the new Loch Lundie Substation is constructed, Route Option LL-FA2 may interact with the construction or dismantling of SSEN Transmission OHL proposals. Consent has recently been granted for the re-opening and lateral extension of a muir pit (Ref: 19/04341/FUL) to the south-east of Fort Augustus Substation. A planning application for a battery energy storage system (Ref: 20/04565/FUL) in the fields to the west of the Fort Augustus Substation, near Torr Dhuin, has been submitted and is currently under consideration. A steel lattice OHL within Route Option LL-FA2 may interact with these developments, if constructed, on the approach to Fort Augustus Substation, unless it is routed through the FLS woodland to the south of the substation, near Torr Dhuin. No other proposals that are either consented or known to the planning system have been identified within Route Option LL-FA2. However, as Route Option LL-FA2 may interact with the recently consented or known planning application in the Auchterawe area, on the approach to the Fort Augustus Substation, an **Amber** RAG rating has been applied to this route option under Scenario A.	A

Table 3: 400 kV / 132 kV Loch Lundie Substation Search Area – Fort Augustus Substation - Route Option LL-FA (Scenario B - Rationalisation of the existing 132 kV Fort Augustus to Fort William Overhead Line) (See Figures 7.1–7.9)

Description:		
Under Scenario B Route Option LL-FA2 would follow the same route as Route Option LL-FA2 (see description above). However, this Route Option assumes that the existing 132 kV Fort Augustus to Fort William OHL would be dismantled to the north of the new 400 kV / 132 kV Loch Lundie Substation as part of a rationalisation exercise and the alignment within this route option could therefore utilise the operational corridor of the existing 132 kV Fort Augustus to Fort William OHL.		
Review of Environmental Constraints:		
Natural Heritage		
Topics	**Potential Constraints**	**RAG Rating**
Designations	There are no regionally, nationally, or internationally designated sites within Route Option LL-FA2. Within 1 km of Route Option LL-FA2 lies the West Inverness-shire Lochs SSSI and SPA. The West Inverness-shire Lochs SSSI and SPA comprises eight freshwater upland lochs (specifically Loch Lundie with respect to Route Option LL-FA2) and has been designated as they support nationally important numbers of breeding black-throated divers and common scoters. Route Option LL-FA2 lies outside of the catchments that feed Loch Lundie, as such Route Option LL-FA2 is not in hydrological connection to the West Inverness-shire Lochs SSSI and SPA sites. A review of the GCR sites, highlights that within 1 km of this route option the quaternary of Scotland Fort Augustus site (ID 1953) includes an assemblage of landforms and deposits at Fort Augustus that provides evidence for a range of geomorphological processes in the Loch Ness area during the Loch Lomond Stadial. It is noted that the majority of the GCR site is forested with commercial conifers. Due to its limited access and limited exposure this site is not considered a constraint to development. Subject to control measures and good practice it is unlikely that works associated with construction would compromise the qualifying interests of the West Inverness-shire Lochs SSSI and SPA, and Fort Augustus GCR. A **Green** rating has therefore been applied to this route option under Scenario B.	G
Protected Species	Initial walkover surveys undertaken in August 2021 highlighted the presence of pine marten in areas of forestry in Inchnacardoch forest. Signs of otter were also recorded along minor burns and under bridges in forested areas. Abundant woodland, and woodland edge habitat, provides suitable habitat for badger, red squirrel, pine marten and bat species. Riparian zones provide suitable habitat for otter. Wet heath and mire habitats provide suitable habitat for water vole. Loss of small areas of habitat associated with overhead line infrastructure is therefore unlikely to significantly reduce habitat suitability or availability of the wider area. Potential for impacts on protected species could be further reduced or eliminated by undertaking pre-construction surveys and adopting appropriate mitigation. There is therefore considered to be low potential for Route Option LL-FA2 to compromise the conservation status of, or for the route to be constrained by, the presence of protected species under Scenario B. A **Green** rating has therefore been applied to this route option under Scenario B.	G

Habitats	Initial walkover surveys undertaken in August 2021 indicate that Route Option LL-FA2 passes through large areas of coniferous plantation. Many coupes within the plantation are stocked with mature Sitka spruce and Lodgepole. Along track sides and riparian corridors, including the Invervigar Burn, semi-natural mixed and broadleaved woodland is also present. These are commonly represented by Birch. woodlands. More open areas in the woodlands are dominated by Bracken *Pteridium aquilinum* and modified heath communities. Open ground to the south-west of the route is dominated by wet heath and blanket mire communities. Annex 1 Large pockets of blanket mire habitat exist on flatter plateaus and depressions on moorland areas. Wet heaths dominate other open moorland. Both habitats are identified as Annex 1 habitats. Areas of semi-natural woodland and Scot's pine plantation are identified on the AWI. Loss of woodland, including AWI woodland, is considered probable from routeing infrastructure through Route Option LL-FA2. The sensitive habitats identified present modest constraints which could be further reduced or eliminated by micrositing infrastructure and/or adopting appropriate mitigation. Therefore, there is considered to be moderate potential for Route Option LL-FA2 to compromise the conservation status of, or for the route to be constrained by, Annex 1 habitats. GWDTE GWDTE are not considered extensive within the route corridor, limited to surrounds of small hydrological pathways. Loss of GWDTE could therefore be minimised by micrositing of infrastructure, and there is low potential for Route Option LL-FA2 to compromise the integrity of GWDTE. Biodiversity Route Option LL-FA2 contains a total of 19943.31BU, at 9.40BU/Ha. In BNG guidance, blanket mires and semi-natural ancient woodland are considered to be irreplaceable habitat. Small areas of both are present within this route option. Habitats of high distinctiveness within this route option also include wet heath and small patches of grassland present on open ground to the south west of the route. Route Option LL-FA2 is dominated by coniferous plantation woodland, which is considered to be of low distinctiveness. Loss of irreplaceable habitat would result in 'No Net Loss' being unachievable. Where habitats of high distinctiveness are lost, replacement must be of equivalent value to meet 'No Net Loss'. Removal of coniferous plantation is likely to present an opportunity to enhance biodiversity value within the route, by replacement with habitats of higher distinctiveness value. However, It should be noted that removal of woodland habitat creates difficulty in achieving 'No Net Loss' due to the time taken for replacement woodland and/or scrub to achieve suitable structure and condition and for the replacement biodiversity value to be realised. An **Amber** rating has therefore been applied to this Route Option under Scenario B due to the potential loss of Annex 1 habitats, semi-natural woodland and Scot's pine plantation associated with this route option, as well as the presence of habitats that are classed as irreplaceable habitat under BNG Guidance.	A
Ornithology	Route Option LL-FA2 predominantly passes through undulating plantation forestry with several narrow watercourses and rocky outcrops contained within the woodland. Depending on the chosen location of the Loch Lundie Substation, Loch Lundie will also be adjacent to the route, as will the Caledonian Canal. Ornithological constraints are focussed on those species breeding within the forestry, and those species which use the forest or the river for hunting purposes. Potential protected (Schedule 1) species are likely to be limited to Goshawk and Crossbill, although several woodland species are Red and Amber List species of conservation concern including, but not limited to, Song Thrush, Spotted Flycatcher, Tree Pipit, Lesser Redpoll, Meadow Pipit and Dunnock. Should the route pass close to Loch Lundie, Red-throated Diver and Common Scoter may be present. Route Option LL-FA2 could compromise the conservation status of population(s) of Schedule 1 bird species or Red or Amber listed if breeding or hunting within the route. Standard bird surveys will need to be undertaken to update the	A

	baseline and inform the route selection and appropriate mitigation measures should be implemented to minimise any disturbance / collision risk to protected species along this route. An **Amber** rating has been applied to this route option under Scenario B.	
Hydrology / Geology	Route Option LL-FA2 lies entirely within the River Oich catchment, specifically the nested catchments of Invervigar Burn, Allt na Graidhe and Auchterawe Burn. Route Option LL-FA2 is generally underlain by Class 5 peatlands (carbon-rich and deep peat that include areas of bare soil but with no peatland habitat recorded), while Class 2 peatland (nationally important carbon-rich soils, deep peat and priority peatland habitat that are potentially high conservation value and restoration potential) is recorded west of Allt Dail a' Chuirn (an upstream tributary of Invervigar Burn). Peatland is generally absent below 120 m AOD within the Allt na Graidhe catchment and 150 m AOD within the Auchterawe Burn catchment, towards the Fort Augustus Substation. Subject to peat probing and peat condition assessment, it is likely impacts on peatland can be avoided and the presence of peatland is not considered a development constraint. Superficial cover is generally absent within Route Option LL-FA2, while hummocky glacial deposits of diamicton, sand and gravel, are noted within the headwater tributaries of Invervigar Burn. Glaciofluvial deposits of sand and gravel and alluvium of gravel, sand, silt and clay are linked to the River Oich towards the Fort Augustus Substation. Peat is recorded related to low gradient areas around Allt Dail a' Chuirn within the Invervigar Burn catchment and within discrete areas in Coille Torr Dhuin woodland. Alluvial fan deposits of gravel, sand, silt and clay are recorded upgradient of the peat within the Allt Dail a' Chuirn catchment, Allt na Graidhe and several tributaries of the Auchterawe Burn on the approach to the Fort Augustus Substation. Route Option LL-FA2 is underlain by the Tarvie Psammite Formation and the West Highland Granite Gneiss Intrusion, both of which include many minor igneous intrusions. SEPA floodplain mapping shows that the Medium (0.5% annual exceedance probability of flooding / 1 in 200yr) likelihood of flooding floodplain extent is crossed by the alignment at the Allt Dail a' Chuirn, where a particularly wide flood extent is noted, River Oich and the Caledonian Canal, and Allt na Graidhe, Auchterawe Burn that both form a single wide flood extent to the south west of the Fort Augustus Substation. Whilst not a development constraint, due regard will need to be made to flood risk during the design, construction and operational phase of this route option. Particular attention will be required at proposed watercourse crossings, where floodplains will also be crossed. There are several PWS, generally associated with springs and surface water, registered within catchments in proximity to the Fort Augustus Substation and within Route Option LL-FA2. These sources could be prone to pollution without appropriate control. However, given the superficial and solid geology, water catchment to the PWS sources are likely to be localised / close to the water source, and thus impacts mitigated. Subject to best practice construction and mitigation it is likely that any impacts on soils, peat, geology and the water environment can be mitigated. A **Green** rating has therefore been applied to this route option under Scenario B.	G
Cuttural Heritage v		
Topics		

Designations	There are no WHSs, LBs, GDLs, CAs or IBs within Route Option LL-FA2. The Torr Dhuin fort, Fort Augustus (SM794), a SM of high sensitivity, is located within Route Option LL-FA2. It is anticipated that a direct impact on this SM could be avoided through micrositing of the OHL alignment within the route option. If the existing Fort Augustus – Fort William OHL were to be replaced with the proposed OHL under Scenario B, the baseline setting of SM794 would remain substantively unchanged. A **Green** rating has therefore been applied to Route Option LL-FA2 under Scenario B.	G
Cultural Heritage Assets	There would be a potential direct impact on up to 11 non-designated HER sites located within Route Option LL-FA2. These cultural heritage assets are of low sensitivity and could be avoided by micrositing the alignment of the OHL within the route option under Scenario B. Due to the number of non-designated HER sites within this route option, an **Amber** rating has been applied to Route Option LL-FA2 under Scenario B.	A
Topics		
Proximity to Dwellings	There are no dwellings within Route Option LL-FA2, except on the approach to the existing Fort Augustus Substation, where there would be approximately twelve properties located within the route option, scattered along the along the Auchterawe Road. It may be possible to apply a suitable separation buffer (anticipated to be a minimum of 170 m based on a preliminary noise assessment) to all properties if the OHL is routed through the FLS forestry plantation at Torr Dhuin, to the south of Fort Augustus Substation. Alternatively, the OHL could be routed through the existing to the field to the north of the FLS forestry plantation at Torr Dhuin, where it could replace the existing Fort Augustus to Fort William OHL. Under Scenario B the OHL would not be any closer to dwellings that the existing OHL that it would replace although the 400 kV towers would be larger than the existing 132 kV towers. A **Green** RAG rating has therefore been applied to this route option under Scenario B.	G
Landscape and Visual		
Topics	**Potential Constraints**	**RAG Rating**
Designations	Route Option LL-FA2 would not affect any designated or otherwise protected landscapes. A **Green** RAG Rating has therefore been applied to this route option under Scenario B.	G
Landscape Character	If a more northerly position for the substation within the Loch Lundie Substation Search Area were selected, Route Option LL-FA2 would follow the alignment of an existing steel lattice OHL for some or all of the way alongside Loch Lundie through LCT 237 (Rocky Moorland – Lochaber). Although sensitivity to further OHL development is anticipated to be lower where the existing OHL is influential, this would lead to likely cumulative effects. However, if a more southerly substation location were selected, the proposed OHL would effectively replace the existing OHL under Scenario B leading to a less noticeable change to landscape character. This option would lead to an effective like-for-like replacement through LCT 225 (Broad Steep-Sided Glen), with minor differences to alignment and tower type unlikely to lead to noticeable changes to landscape character. The effect on this LCT would therefore be limited. The applied **Amber** RAG rating for this route option is based on a worst case scenario, assuming a more northerly substation site would be selected and cumulative effects would therefore occur around Loch Lundie.	A

Visual	If a more northerly location was chosen within the Loch Lundie Substation Search Area, the route, on approach to the substation, would initially follow close to and be very visible from, a Core Path for around 3 – 4 km to the east of Loch Lundie. However, if a more southerly location was chosen the view from this Core Path would be relatively similar to the existing situation under Scenario B, albeit, towers may appear closer in some situations. Similarly, due to the slightly modified alignment in comparison to the existing OHL on approach to Fort Augustus Substation, the Proposed Development may appear closer under Scenario B, leading to a greater effect on views obtained from some residential properties and routes, but generally would be relatively similar in the view. An **Amber** RAG rating has been applied to this route option due to the potential for cumulative effects on the Loch Lundie Core Path and potential for the proposed OHL to appear more prominently in views from the Auchterawe area under Scenario B, in comparison with the existing OHL.	A
Land Use		
Topics	**Potential Constraints**	**RAG Rating**
Agriculture	Route Option LL-FA2 would only affect lower quality agricultural land, graded as ALC 3b and below. Most of the land within Route Option LL-FA2 is only capable of supporting rough grazing (ALC 6.3). A **Green** rating has therefore been applied to this route option under Scenario B.	G
Forestry	Under Scenario B Route Option LL-FA2 would follow the existing wayleave through the commercial conifer plantation would, in theory, have no further impact on the commercial viability of the forest operations and would have no impact on the woodland classifications, AWI and NWSS within the route option. In this respect the rationalised option would be allocated a **Green** RAG rating. However, as the steel lattice towers associated with the replacement 400 kV OHL would be larger than the existing towers it is likely that the rationalised route would require widening beyond the current unplanted wayleave, for construction or operational reasons, leading to potential impacts to the commercial viability of the forest operations and AWI and NWSS woodlands located along the edge of the existing wayleave An overall an **Amber** rating has therefore been allocated to this route option under Scenario B**.**	A
Recreation	<u>Recreational Routes</u> The existing access track which passes to the east of Loch Lundie and extend northwards into the southern section of Inchnacardoch Forest, is classified as a Core Path (by THC) and a Scottish Hill Track (by SCOTWAYS). Depending on the choice of the substation location within the Loch Lundie Substation Search Area, Route Option LL-FA2 may also lead to visual effects on users of this footpath. It is anticipated direct impacts on the existing access track could be avoided by micrositing the OHL alignment within the route option or by rerouting the access track. However, an OHL within this route may lead to visual effects on users of the Core Path / Scottish Hill Track. If the Proposed Development replaces the existing steel lattice Fort Augustus to Fort William OHL to the north of new Loch Lundie Substation under Scenario B, the potential impacts on recreational receptors Route Option LL-FA2 would be reduced around Loch Lundie, particularly if a more southerly substation location is selected within the Loch Lundie Substation Search Area. There are also several other woodland footpaths, including Core Paths, within Inchnacardoch Forest (between Loch Lundie and Auchterawe), which would cross Route Option LL-FA2 intermittently. Part of National Cycle Route (NCR) 78 also crosses through Route Option LL-FA2 near Torr Dhuin, before following the Auchterawe Road towards Fort Augustus. There is also a car park, picnic area and FLS	G

	woodland trains located within the forestry at Torr Dhuin in Auchterawe. A short section of the Great Glen Way footpath also runs along the eastern boundary of Route Option LL-FA2, on the western bank of the Caledonian Canal. It is anticipated that direct impacts on these recreational routes/areas could be avoided by mircositing the OHL infrastructure within the OHL route or by rerouting sections of the footpaths / cycle paths. However, short sections of the OHL may be visible to users of these footpaths. As noted in the 'Landscape and Visual – Visual' section above, should the Proposed Development replace the existing steel lattice Fort Augustus to Fort William OHL in this area, this would lead to minimal effects. No other recreational receptors have been identified within Route Option LL-FA2. A **Green** RAG rating has been allocated to this rote option under Scenario B. <u>Commercial Highland Sports</u> Route Option LL-FA2 is largely located within an area of coniferous plantation woodland owned by FLS. These woodland areas would not be used for commercial highland sport. A **Green** RAG rating has been allocated to this route option under Scenario B. An overall **Green** RAG rating has therefore been allocated to this route option under Scenario B for recreation.	
Planning		
Topics	**Potential Constraints**	**RAG Rating**
Policy	Route Option LL-FA2 would be brought forward in full compliance with national, regional or local planning policy. A **Green** RAG rating has been applied to this route option under Scenario B.	G
Proposals	Depending on where the new Loch Lundie Substation is constructed within the Loch Lundie Substation Search Area, Route Option LL-FA2 may interact with the construction or dismantling of SSEN Transmission OHL proposals. Consent has recently been granted for the re-opening and lateral extension of a muir pit (Ref: 19/04341/FUL) to the south east of Fort Augustus Substation. A planning application for a battery energy storage system (Ref: 20/04565/FUL) in the fields to the west of the Fort Augustus Substation, near Torr Dhuin, has been submitted and is currently under consideration. A steel lattice OHL within Route Option LL-FA2 may interact with these developments, if constructed, on the approach to Fort Augustus Substation, unless it is routed through the FLS woodland to the south of the substation, near Torr Dhuin. No other proposals that are either consented or known to the planning system have been identified within Route Option LL-FA2. However, as Route Option LL-FA2 may interact with the recently consented or known planning application in the Auchterawe area, on the approach to the Fort Augustus Substation, an **Amber** RAG rating has been applied under Scenario B.	A

Table 4: 400 kV / 132 kV Loch Lundie Substation Search Area – Fort Augustus Substation - Route Option LL-FA3 (See Figures 7.1–7.9)

Description:		
Route Option LL-FA3 represents the most easterly route between the new 400 kV / 132 kV Loch Lundie Substation and the existing Fort Augustus Substation. Route Option LL-FA3 leaves the north eastern side of the new 400 kV / 132 kVLoch Lundie Substation Search Area and travels in a general north easterly direction for approximately 7.6 km to approach the south western side of the existing Fort Augustus Substation. The most southerly area of Route Option LL-FA3 is located within the area of forestry to the north of Invergarry. From this area of forestry, Route Option LL-FA3 would travel in a north-easterly direction through an area of open moorland for 1.8 km, where it would cross several small watercourses / waterbodies. Route Option LL-FA3 would then travel through the woodland at Coille Reidh nan Lair, where the route would change direction from a north easterly direction to an east-north-easterly direction for approximately 3 km. The route would continue through a mosaic of woodland at Coille Reidh nan Lair, located to the south of the Invervidar Burn, where it would also cross an existing estate access track. The small area of Route Option LL-FA3 that is located to the north of the Invervidar Burn would cross through an area of the forestry at Coille Torr Dhuine. Route Option LL-FA3 would then cross the River Oich, which forms part of the Caledonian Canal, and the Great Glen Way footpath, which runs along the southern bank of the River Oich. To the east of the River Oich, Route Option LL-FA3 would travel through a small area of forestry to the north of Newton, followed by some agricultural fields at Coiltry, to the south / south east of the River Oich. Route Option LL-FA3 would then change direction again from an east-north-easterly direction to a north-north-easterly direction for 1.5 km. Within the area of agricultural fields at Coiltry, Route Option LL-FA3 would travel past farm buildings, existing access roads and at least one minor watercourse. Immediately east of the agricultural fields at Coiltry, the eastern extent of Route Option LL-FA3 would travel through an area of forestry, to the north east of Newtown. To the north east of the agricultural fields at Coiltry, a small area of the Route Option LL-FA3 would be located within an area of woodland and open moorland on the slopes of the eastern banks of Loch Oich, to the west of Loch Uanagan. Route Option LL-FA3 would then cross the River Oich and the Great Glen Way footpath a second time, near the Kytra lock. To the north of the River Oich, Route Option LL-FA3 would enter the FLS forestry area at Torr Dhuin. The route would change direction again from a north-north-easterly direction to a north-north-westerly direction for the final 1.3 km of the route, to approach the south / south western side of the existing Fort Augustus Substation, through the FLS forestry area at Torr Dhuin. On the approach to the existing Fort Augustus Substation, Route Option LL-FA3 would cross the access tracks / public footpaths within the FLS forestry area at Torr Dhuin, as well at least one minor watercourse and the existing grid infrastructure that connects into the Fort Augustus Substation, including the Beauly Denny OHL and the Bhlaraidh to Beinneun OHL. The most northerly area of Route Option LL-FA3 would also cross the Auchterawe Road.		
Review of Environmental Constraints:		
Natural Heritage		
Topics	**Potential Constraints**	**RAG Rating**
Designations	There are no regionally, nationally, or internationally designated sites within Route Option LL-FA3. Within 1 km of Route Option LL-FA3 lies the West Inverness-shire Lochs SSSI and SPA. The West Inverness-shire Lochs SSSI and SPA comprises eight freshwater upland lochs (specifically Loch Lundie with respect to Route Option LL-FA3) and has been designated as they support nationally important numbers of breeding black-throated divers and common scoters. Route Option LL-FA3 lies outside of the catchments that feed Loch Lundie, as such Route Option LL-FA3 is not in hydrological connection to the West Inverness-shire Lochs SSSI and SPA sites. A review of the GCR sites, highlights that within 1 km of this route option the quaternary of Scotland Fort Augustus site (ID 1953) includes an assemblage of landforms and deposits at Fort Augustus that provides evidence for a range of geomorphological processes in the Loch Ness area during the Loch Lomond Stadial. It is noted that the majority of the GCR site is forested with commercial conifers. Due to its limited access and limited exposure this site is not considered a constraint to development.	G

	Subject to control measures and good practice it is unlikely that works associated with construction would compromise the qualifying interests of the West Inverness-shire Lochs SSSI and SPA, and Fort Augustus GCR. A **Green** RAG rating has therefore been applied to this route option.	
Protected Species	Initial walkover surveys undertaken in August 2021 highlighted the presence of pine marten in areas of forestry in Inchnacardoch forest. Signs of otter were also recorded along minor burns and under bridges in forested areas. Abundant woodland, and woodland edge habitat, provides suitable habitat for badger, red squirrel, pine marten and bat species. Riparian zones provide suitable habitat for otter. Wet heath and mire habitats provide suitable habitat for water vole. Loss of small areas of habitat associated with OHL infrastructure is therefore unlikely to significantly reduce habitat suitability or availability of the wider area. Potential for impacts on protected species could be further reduced or eliminated by undertaking pre-construction surveys and adopting appropriate mitigation. There is therefore considered to be low potential for Route Option LL-FA3 to compromise the conservation status of, or for the route to be constrained by, the presence of protected species. A **Green** rating has therefore been applied to this route option.	G
Habitats	Initial walkover surveys undertaken in August 2021 indicate that the route passes through large areas of coniferous plantation. Many coupes within the plantation are stocked with mature Sitka spruce and Lodgepole pine. Along track sides and riparian corridors, including the River Oich and Invervigar burn, semi-natural mixed and broadleaved woodland is also present. These are commonly represented by Birch woodlands. More open areas in the woodlands are dominated by Bracken and modified heath communities. Open ground to the south west of the route is dominated by wet heath and blanket mire communities. <u>Annex 1</u> Large pockets of blanket mire habitat exist on flatter plateaus and depressions on moorland areas. Wet heaths dominate other open moorland. Both habitats are identified as Annex 1 habitats. Areas of semi-natural woodland and Scot's pine plantation are identified on the AWI. Loss of woodland, including AWI woodland, is considered probable from routeing infrastructure through this route option. The sensitive habitats identified present modest constraints which could be further reduced or eliminated by micrositing infrastructure and/or adopting appropriate mitigation. Therefore, there is considered to be moderate potential for Route Option LL-FA3 to compromise the conservation status of, or for the route to be constrained by, Annex 1 habitats. <u>GWDTE</u> GWDTE are not considered extensive within this route option, limited to surrounds of small hydrological pathways. Loss of GWDTE could therefore be minimised by micrositing of infrastructure, and there is low potential for Route Option LL-FA3 to compromise the integrity of GWDTE. <u>Biodiversity</u> Route Option LL-FA3 contains a total of 18840.30 BU, at 10.06BU/Ha. In In BNG guidance, blanket mires and semi-natural ancient woodland are considered to be irreplaceable habitat. Small areas of both are present within this route option. Habitats of high distinctiveness within the route also include wet heath and small patches of grassland present on open ground to the south west of the route. This route option also contains large amounts of coniferous plantation woodland, which is considered to be of low distinctiveness. Loss of irreplaceable habitat would result in 'No Net Loss' being unachievable. Where habitats of high distinctiveness are lost, replacement must be of equivalent value to meet 'No Net Loss'. Removal of coniferous plantation is likely to present an opportunity to enhance biodiversity value within the route option, by replacement with habitats of higher distinctiveness value. However, It should be noted that removal of woodland habitat creates difficulty in achieving 'No Net Loss'	A

	due to the time taken for replacement woodland and/or scrub to achieve suitable structure and condition and for the replacement biodiversity value to be realised. An **Amber** rating has therefore been applied due to the potential loss of Annex 1 habitats, semi-natural woodland and Scot's pine plantation associated with this route option, as well as the presence of habitats that are classed as irreplaceable habitat under BNG Guidance.	
Ornithology	Route Option LL-FA3 predominantly passes through plantation forestry with several narrow watercourses and rocky outcrops and across areas of rough grazing at the moorland edge potentially crossing the Caledonian Canal. Depending on the chosen location of the Loch Lundie Substation, Loch Lundie will also be adjacent to this route option. Ornithological constraints are focussed on those species breeding on the open ground as well as within the forestry, and those species which use the open land, forest or the lochs for hunting purposes. Potential protected (Schedule 1) species are Merlin (*Falco columbarius*), Osprey (*Pandion haliaetus*), Goshawk and Crossbill, although several additional woodland and open environment species are Red and Amber List species of conservation concern including Lapwing (*Vanellus vanellus*), Curlew (*Numenius arquata*), Skylark (*Alauda arvensis*), Song Thrush, Spotted Flycatcher, Tree Pipi, Lesser Redpoll, Meadow Pipit, Dunnock and Willow Warbler. Should the route pass close to Loch Lundie, Red-throated Diver and Common Scoter may be present. Route Option LL-FA3 could compromise the conservation status of population(s) of Schedule 1 bird species or Red or Amber listed if breeding or hunting within the route. Standard bird surveys will need to be undertaken to update the baseline and inform the route selection and appropriate mitigation measures should be implemented to minimise any disturbance / collision risk to protected species along this route. Route Option LL-FA3 is the least desirable route of the routes from an ornithological perspective but is still rated as **Amber**.	A
Hydrology / Geology	Route Option LL-FA3 lies entirely within the River Oich catchment, specifically the nested catchments of Allt Leth-bheinne, Invervigar Burn, Allt na Graidhe and Auchterawe Burn. Route Option LL-FA3 is generally absent of peatland while in the headwaters of the Allt Leth-bheinne, Invervigar Burn catchments Class 2 peatland (nationally important carbon-rich soils, deep peat and priority peatland habitat that are potentially high conservation value and restoration potential) and Class 5 peatlands (carbon-rich and deep peat that include areas of bare soil but with no peatland habitat recorded) are recorded. A further unit of Class 2 peatland is recorded to the east of the banks of the Caledonian Canal and River Oich, outside of the woodlands to the north of Newtown. Peatland is generally absent below 90 m AOD within the Invervigar Burn catchment. Subject to peat probing and peat condition assessment, it is likely impacts on peatland can be avoided and the presence of peatland is not considered a development constraint. Superficial cover is generally absent within Route Option LL-FA3 at higher elevations, while hummocky glacial deposits of diamicton, sand and gravel, are noted linked to the tributaries of Invervigar Burn while an alluvial fan deposits of gravel, sand, silt and clay is recorded where Invervigar Burn discharges to River Oich. Glaciofluvial deposits of sand and gravel and alluvium of gravel, sand, silt and clay are linked to the River Oich and Caledonian Canal towards the Fort Augustus Substation. Glacial Till is recorded to the east of River Oich and Caledonian Canal. Peat is recorded bound to Invervigar Burn and low gradient areas upgradient of the Glacial Till to the east of River Oich and Caledonian Canal. Route Option LL-FA3 is underlain by the West Highland Granite Gneiss Intrusion and the Tarvie Psammite Formation, both of which include many minor igneous intrusions. SEPA floodplain mapping shows that the Medium (0.5% annual exceedance probability of flooding / 1 in 200yr) likelihood of flooding floodplain extent is crossed by the alignment at Invervigar Burn, River Oich and the Caledonian Canal, and Auchterawe	G

	Burn where wide flood extent is noted within the substation platform and to the south west. Whilst not a development constraint, due regard will need to be made to flood risk during the design, construction and operational phase of this route option. Particular attention will be required at proposed watercourse crossings, where floodplains will also be crossed. There are several PWS, generally associated with springs and surface water, registered near Mingulay, within Route Option LL-FA3. These sources could be prone to pollution without appropriate control. However, given the superficial and solid geology, water catchment to the PWS sources are likely to be localised / close to the water source, and thus impacts mitigated. Subject to best practice construction and mitigation it is likely that any impacts on soils, peat, geology and the water environment can be mitigated. A **Green** rating has therefore been applied to this route option.	
Cultural Heritage		
Topics	**Potential Constraints**	**RAG Rating**
Designations	There are no WHSs, LBs, GDLs, CAs or IBs within Route Option Route Option LL-FA3. An OHL lattice structure within Route Option LL-FA3 would have the potential to have direct impacts and/or setting effects upon three SMs of high sensitivity: the Caledonian Canal, Kyltra Lock (SM5291), the Caledonian Canal, Cullochy Lock to Kyltra Lock (SM6496) and the Caledonian Canal, Kyltra Lock to Fort Augustus (SM6497). Route Option LL-FA3 would also have the potential to have setting effects upon the Torr Dhuin fort, Fort Augustus (SM794), another SM of high sensitivity. No other potential direct or setting effects are anticipated. Due to the potential for this route option to have both direct and/or settings impacts on up to four SMs of high sensitivity, a **Red** RAG rating has been applied to Route Option LL-FA3.	R
Cultural Heritage Assets	There would be a potential direct impact on up to twelve non-designated HER sites located within Route Option LL-FA3. It is likely that many of these cultural heritage assets are of low sensitivity and could be avoided by micrositing the alignment of the OHL within the route option. As this route option contains more non-designated HER sites than the alternative options, it is the least preferred route option and a **Red** rating has therefore been applied.	R
People		
Topics	**Potential Constraints**	**RAG Rating**
Proximity to Dwellings	There are three rural properties at Coiltry, to the west of the A82 at Newton. To the west of these properties the route option would be constrained by the Caledonian canal, so it may not be possible to apply suitable separation buffer (anticipated to be a minimum of 170 m based on a preliminary noise assessment) between these properties and a steel lattice OHL alignment within this route option. There are also approximately three dwellings in Auchterawe that lie within Route Option LL-FA3. These properties are scattered along the Auchterawe to the north of the existing substation. As Route Option LL-FA3 would approach the Fort Augustus Substation from the south and the connection point for the proposed grid connection for the Proposed Development is	A

	anticipated to be to the at the south western corner of the substation, it is not anticipated that these properties to the north of Auchterawe would present a constraint to Route Option LL-FA3. As it may not be possible to apply a suitable separation buffer between the properties at Coiltry and a steel lattice OHL alignment within this route option, an **Amber** Rating has been applied.	
Landscape and Visual		
Topics	**Potential Constraints**	**RAG Rating**
Designations	There may be some intervisibility of Route Option LL-FA3 with the Loch Ness and Duntelchaig SLA and Loch Lochy and Loch Oich SLA with the potential for steel lattice towers to appear within framed views within the Great Glen. However, this is unlikely to result in any notable effect on either of these SLAs. A **Green** rating has been applied to this route option.	G
Landscape Character	Route Option LL-FA3 would pass through LCT 237 (Rocky Moorland – Lochaber) and the LCT 225 (Broad Steep-Sided Glen LCT), both considered to have some degree of ability to accommodate a development of this type. There would be a requirement for a new wayleave to be established which would lead to potential loss of small areas of woodland and forestry in areas such as Coille Rèidhe nan Làir and Invervigar and on approach to Fort Augustus Substation to the east of Auchterawe. There would also be potential for a new wayleave through forest areas to the north of Invergarry depending on the substation option chosen within the Loch Lundie Substation Search Area. Although avoiding the area around Auchterawe, the Proposed Development would be potentially prominent within some of the similar smaller scale landscapes around the Caledonian Canal, forming a new feature where there is no precedent for existing steel lattice OHL development. An **Amber** RAG rating has therefore been applied to this route option.	A
Visual	Depending on the substation option chosen within the Loch Lundie Substation Search Area, Route Option LL-FA3 would be potentially visible from the Core Path and Scottish Hill track passing to the east of Loch Lundie, and also the Core Path descending Ciolle Rèidh nan Làir to Bridge of Oich, being potentially prominent from these routes, although existing OHL infrastructure is already visible from some areas may locally reduce sensitivity. This Route Option would also cross the Caledonian Canal twice, with towers likely to form a prominent feature in views for boat and towpath users and recreational users of the Great Glen Way. There would also be a cumulative effect with the existing Beauly – Denny OHL which already crosses the canal. There would potentially be views of this route option from properties at and around Coiltry and Kytra Locks and potentially prominent views for recreational users using routes up Invervigar Burn. Based on the numbers and sensitivity of visual receptors which would be affected by this route option, a **Red** RAG rating has been applied.	R
Land Use		
Topics	**Potential Constraints**	**RAG Rating**
Agriculture	Route Option LL-FA3 would only affect lower quality agricultural land, graded as ALC 3b and below. Most of the land within Route Option LL-FA3 is only capable of supporting rough grazing (ALC 6.3).	G

	A **Green** rating has therefore been applied to this route option.	
Forestry	Route option LL-FA3 contains less than 50% commercial conifer plantation of the route option. This consists of mixed conifer, predominantly Lodgepole pine and Sitka spruce in the upper areas with Scots pine plantations on the lower ground. Areas of broadleaf mainly birch woodland are present particularly on the higher ground. Woodland designations include AWI (ASNO1750 and ASNO1860) mapped across the route option, but mainly located to the west of A82. NWSS replicates the same areas as the AWI and includes upland birchwood, PAWS and, in the northern section, native pinewood. The area to the east of A82 includes a narrow strip of lowland mixed deciduous woodland, upland birchwood and a small area of native pinewood. Commercial conifer plantations will be commercially compromised by this route option, particularly in the eastern portion. Areas of woodland designations can mainly be avoided but some removal would be inevitable. A **Red** RAG rating is allocated on the direct impact on the AWI and NWSS, which are located across the full width of this route option.	R
Recreation	<u>Recreational Routes</u> The existing access track which passes to the east of Loch Lundie and extend northwards into the southern section of Inchnacardoch Forest, is classified as a Core Path (by THC) and a Scottish Hill Track (by SCOTWAYS). Depending on the choice of the substation location within the Loch Lundie Substation Search Area, Route Option LL-FA3 may also lead to visual effects on users of this footpath, although it is anticipated direct impacts on the existing access track could be avoided by micrositing the OHL alignment within the route option or by rerouting the access track. Although existing OHLs are already visible from this route, a new OHL at this location would lead to potential cumulative effects for user of the Core Path / Scottish Hill Track, with the potential for the creation of a greater dominance of OHL infrastructure in this area. There are also several other footpaths, including Core Paths and part of the Great Glen Way, located within Inchnacardoch Forest (between Loch Lundie and Auchterawe) and along the eastern bank of the Caledonian Canal, which would cross Route Option LL-FA3 intermittently. Part of NCR 78 is routed along the western bank of the Caledonian Canal within this route option. On the approach to existing Fort Augustus Substation, Route Option LL-FA3 would also pass-through part the FLS recreational woodland at Torr Dhuine, which contains several woodland trails. It is anticipated that direct impacts on these recreational routes could largely be avoided by mircositing the OHL infrastructure within the OHL route or by rerouting sections of the footpaths / cycle paths. However, short sections of the OHL may be visible to users of these recreational routes, with the Core Path descending Ciolle Rèidh nan Làir to Bridge of Oich being potentially prominent from this route option. This Route Option would also cross the Caledonian Canal and the Great Glen Way twice. As noted in the 'Landscape and Visual – Visual' section above, towers would likely to form a prominent feature in views for boat and towpath users along the Caledonian Canal, as well as recreational users of the Great Glen Way. There would also be a cumulative effect with the existing Beauly to Denny OHL, which already crosses the Caledonian Canal within Route Option LL-FA3. Although it is anticipated that direct impacts on recreational receptors within Route Option LL-FA3, based on the numbers and sensitivity of potential visual recreational receptors, including users of, the Great Glen Way, NCR 78 and the Caledonian Canal, who would be likely to be affected by Route Option LL-FA3, a **Red** RAG rating has been applied to this route option.	R

	Commercial Highland Sports Route Option LL-FA3 is largely located within an area of coniferous plantation woodland owned by FLS. These woodland areas would not be used for commercial highland sport. A **Green** RAG rating has been allocated to this route option. Although it is anticipated that direct impacts on recreational receptors within Route Option LL-FA3, based on the numbers and sensitivity of potential visual recreational receptors, including users of, the Great Glen Way, Cycle Route 78 and the Caledonian Canal, who would be likely to be affected by Route Option LL-FA3, an overall **Red** RAG rating has been applied to this route option.	
Planning		
Topics	**Potential Constraints**	**RAG Rating**
Policy	Route Option LL-FA3 would be brought forward in full compliance with national, regional or local planning policy. A **Green** RAG rating has been applied to this route option.	G
Proposals	Depending on where the new Loch Lundie Substation is constructed within the Loch Lundie Substation Search Area, Route Option LL-FA3 may interact with the construction or dismantling of SSEN Transmission OHL proposals. Consent has recently been granted for the re-opening and lateral extension of a muir pit (Ref: 19/04341/FUL) to the south east of Fort Augustus Substation, within Route Option LL-FA3. It is anticipated that interaction with this proposal could be avoided by micrositing of the OHL alignment within the route option. Consent has also recently been granted for a new (non-residential) farm building at Coiltry, located within Route Option LL-FA3, to the west of the A82 at Newton and Invernahaven Culachy Wood. It is anticipated that interaction with this proposal could be avoided by micrositing of the OHL alignment within the route option. No other proposals that are wither consented or known to the planning system have been identified within Route Option LL-FA3. A **Green** RAG rating has been applied to this route option.	G

APPENDIX 9.2 – TECHNICAL APPRAISAL OF ROUTE OPTIONS: 400 KV / 132 KV LOCH LUNDIE SUBSTATION – FORT AUGUSTUS SUBSTATION

1.1 Technical Assessment

1.1.1 The technical feasibility of a Route Option and its compliance to standards and specification are a key consideration as to the suitability for use. Each route option between the 400 kV / 132 kV Loch Lundie Substation and the Fort Augustus has therefore been assessed against the technical criteria in SSEN Transmission plc's guidance[1], as summarised in Table 1.

Table 1: Topic Areas Considered

Topic Area	Category	Sub-Topic
Engineering	**Infastructure Crossing**	Major Crossings
		Road Crossings
	Environmental Design	Elevation
		Atmospheric Pollution
		Contaminated Land
		Flooding
	Construction / Maintenance	Access
		Angle Towers
	Ground Conditions	Terrain
		Peat
	Proximity	Clearing Distance
		Windfarms
		Communications Masts
		Urban Environments
		Metallic Pipelines

1.1.2 As part of a comparative appraisal using the methodology in the SSEN Transmission plc's guidance[2], as summarised in Appendix 3.2, the Route Options were assigned RAG (Red, Amber, Green) ratings for each of the technical categories based on the whether the anticipated impact and/or risk was High, Intermediate or Low to identify a Preferred Route Option from a technical perspective. Table 2 defines the convention for the RAG ratings.

Table 2: Economic Topic Areas Considered

Performance	Comparative Appraisal
Most Preferred	The option has a low impact/risk and would require no special measures or mitigations

[1] SSEN (March 2018), Procedures for Routeing Overhead Lines of 132kV and above
[2] SSEN (March 2018), Procedures for Routeing Overhead Lines of 132kV and above

Performance	Comparative Appraisal
	The option has an intermediate impact/risk and would require special measures or mitigations. However, the measure/mitigations to be adopted are standard solutions known to suitably control the impact/risk.
Least Preferred	The option has a high impact/risk and would require non-standard/unproven special measures or mitigations. The ability of the measures/mitigations to control the impact/risk is uncertain.

1.2 Comparative Analysis

Infrastructure Crossing

1.2.1 Major infrastructure crossings, including road and watercourse crossings, can have a significant bearing on the feasibility and construction methodology to be utilised.

Table 3: RAG Apprisal – Infastructure Crossing

	Comparative Appraisal	Sub-Topic	RAG Rating
Route Option LL-FA1	No major infrastructure crossings identified. Roads adjacent to the Fort Augustus Substation will be crossed as the overhead line (OHL) Auchterawe. Any single track road that will be crossed will be protected using a scaffold.	Major Crossings	
		Road Crossings	
Route Option LL-FA2 (Scenario A)	No major infrastructure crossings identified. Any single track road that will be crossed will be protected using a scaffold.	Major Crossings	
		Road Crossings	
Route Option LL-FA2 (Scenario B)	As Route Option LL-FA2.	Major Crossings	
		Road Crossings	
Route Option LL-FA3	No major infrastructure crossings identified. Any single track road that will be will be protected using a scaffold.	Major Crossings	
		Road Crossings	

Environmental Design

1.2.2 The impact on the natural and human environment from overhead line (OHL) works can be significant. It is thus important, when evaluating different route options, to consider the impact on the environment and favour those options with a minimal or mitigable impact. Environmental impacts include: flora, fauna, protected sites, visual impact, watercourses (including ground water), atmospheric pollution, noise impact, EMF/RIV, areas of cultural or historical significance, archaeological sites, greenhouse gases, the local community and its economy. Route

options with a disproportional environmental impact are difficult to justify both in terms of consent and planning, and in ethical and moral terms.

Table 4: RAG Apprisal – Environmental Design

	Comparative Appraisal	Sub-Topic	RAG Rating
Route Option LL-FA1	No significant environmental issues identified at this time. The OHL will need to be positioned to avoid Loch Lundie where possible. On the approach to Aucterawe the route option would cross through an area of commercial forest and would be located at a higher elevation than the other rotue options	Elevation	
		Atmospheric Pollution	
		Contaminated Land	
		Flooding	
Route Option LL-FA2 (Scenario A)	No significant environmental issues identified at this time. The OHL will need to be positioned to avoid avoid Loch Lundie where possible. On the approach to Aucterawe the route option would cross through an area of commercial forest.	Elevation	
		Atmospheric Pollution	
		Contaminated Land	
		Flooding	
Route Option LL-FA2 (Scenario B)	As Route Option LL-FA2.	Elevation	
		Atmospheric Pollution	
		Contaminated Land	
		Flooding	
Route Option LL-FA3	No significant environmental issues identified at this time. The OHL will need to be positioned to avoid Loch Lundie where possible. On the approach to Aucterawe the route option would cross through an area of commercial forest.	Elevation	
		Atmospheric Pollution	
		Contaminated Land	
		Flooding	

Construction and Maintenance

1.2.3 All route options should be capable of being constructed safely with risk to operatives and the public suitably controlled. Ordinary activities are usually suitably controlled by standard methods of work, but site-specific hazards and specific methods of work may introduce additional risk that need further control. Route options with

high-risk work will likely need extensive control measures and will be challenged as to whether there was a safer way of achieving the same outcome.

Table 5: RAG Apprisal – Contruction and Maintenance

	Comparative Appraisal	Sub-Topic	RAG Rating
Route Option LL-FA1	Much of this route option could be accessed via existing access tracks constructed for previous projects. As the route deviates towards a steeper section near the Fort Augustus Substation, new access will be required, possibly with some cut and fill. Additional angle towers required to bring the route down into the Fort Augustus Substation.	Access	
		Angle Towers	
Route Option LL-FA2 (Scenario A)	Much of this route option could be accessed via existing access tracks constructed for previous projects. Additional angle towers required to divert the OHL away from properties in Auchterawe on the approach to the Fort Augustus Substation.	Access	
		Angle Towers	
Route Option LL-FA2 (Scenario B)	As Route Option LL-FA2.	Access	
		Angle Towers	
Route Option LL-FA3	Much of this route option could be accessed via existing access tracks constructed for previous projects. Additional angle towers required to divert the OHL away from properties in Auchterawe on the approach to the Fort Augustus Substation. The end section of this route, on the approach to the Fort Augustus Substation, is located close to local infrastructure than the other route options.	Access	
		Angle Towers	

Ground Conditions

1.2.4 Ground conditions can have a significant bearing on the construction methodology to be utilised. All route options should be assessed taking into account the ground conditions along each section, including the terrain.

Table 6: RAG Apprisal – Ground Conditions

	Comparative Appraisal	Sub-Topic	RAG Rating
Route Option LL-FA1	Peat and rock expected to be found along the route option. Site Invertigations (SI) works will be required to be carried out during OHL alignment. This route option is at a higher elevation along approach to Auchterawe than the other rotue options.	Terrain	
		Peat	
Route Option LL-FA2 (Scenario A)	Peat and rock expected to be found along the route option. Site Invertigations (SI) works will be required to be carried out during OHL alignment.	Terrain	
		Peat	
Route Option LL-FA2 (Scenario B)	As Route Option LL-FA2.	Terrain	
		Peat	
Route Option LL-FA3	Peat and rock expected to be found along the route option. Site Invertigations (SI) works will be required to be carried out during OHL routing.	Terrain	
		Peat	

Proximity

1.2.5 Options should be feasible to safely construct and maintain safety clearances from existing infrastructure. When any infrastructure is found within the search area, the asset owner should be contacted to confirm safety

clearances and any protection requirements for construction activities. Urban environments should also be considered and avoided where possible.

Table 7: RAG Apprisal – Proximiy

	Comparative Appraisal	Sub-Topic	RAG Rating
Route Option LL-FA1	An OHL development within this Route Option would be in proximity to the existing 132 kV Fort Augustus to Fort William OHL near Loch Lundie. Rationalisation of the 132 kV OHL will be carried to confirm if the route is to be dismantled. As the OHL moves up the hillside towards Auchteraw. checks will be required to confirm there are no windfarms in the area.	Clearance Distance	
		Windfarms	
		Communication Masts	
		Urban Environments	
		Metallic Pipelines	
Route Option LL-FA2 (Scenario A)	An OHL development within this Route Option would be in proximity to the existing 132 kV Fort Augustus to Fort William OHL for the entirety of the route. Rationalisation of the 132 kV OHL will be carried to confirm if the route is to be dismantled. The RAG rating for Rotue Option LL-FA2 under Scenario A assumes that the 132 kV OHL would either be retained or dismantled after the construction of the new 400 kV OHL.	Clearance Distance	
		Windfarms	
		Communication Masts	
		Urban Environments	
		Metallic Pipelines	
Route Option LL-FA2 (Scenario B)	An OHL development within this Route Option would be in proximity to the existing 132 kV Fort Augustus to Fort William OHL for the entirety of the route. Rationalisation of the 132 kV OHL will be carried to confirm if the route is to be dismantled. Depending on the sequence of work the 132 kV OHL may be removed prior to installation of the new 400 kV OHL. The RAG rating for Route Option LL-FA2 under Scenario B assumes that 132 kV OHL would be dismantled prior to the construction of the new 400 kV OHL.	Clearance Distance	
		Windfarms	
		Communication Masts	
		Urban Environments	
		Metallic Pipelines	
Route Option LL-FA3	An OHL development within this Route Option would be in proximity to the existing 132 kV Fort Augustus to Fort William OHL near Loch Lundie. Rationalisation of the 132 kV OHL will be carried to confirm if the route is to be dismantled.	Clearance Distance	
		Windfarms	
		Communication Masts	
		Urban Environments	
		Metallic Pipelines	

1.3 Conclusion

1.3.1 Overall, Route Option LL-FA3 is the Preferred Route between the 400 kV / 132 kV Loch Lundie Substation and the Fort Augustus Substation from a Technical Perspective as it avoids urban areas as well as areas steep terrain, which would likely require significant cut and fill. Route Option LL-FA2 under Scenario A is the Least Preferred Option due to the proximity of this route the route option to the existing 132 kV Fort Augustus to Fort William OHL. However, if the existing 132 kV where to be decommission and dismantled prior to the construction

to the construction of the new 400 kV OHL, then this would make this route option more preferable from a technical perspective.

APPENDIX 9.3 – COST APPRAISAL OF ROUTE OPTIONS: 400 KV / 132 KV LOCH LUNDIE SUBSTATION – FORT AUGUSTUS SUBSTATION

1.1 Economic Assessment

1.1.1 Each route option between the 400 kV / 132 kV Loch Lundie Substation and the existing Fort Augustus has assigned a red-green-amber (RAG) colour ranking using the methodology described in Appendix 2 to reflect its relative economic impact. In the economic assessment route options would usually be assessed against the criteria SSEN Transmission plc's guidance[1] as set out below and a resultant comparative cost assessment would be prepared for each economic topic.

Table 1: Economic Topic Areas Considered

Economic	
Capital	Construction
	Diversions
	Public Road Improvements
	Felling
	Land Assembly
	Consent Mitigations
Operational	Inspections
	Maintenance

1.1.2 However, due however to the nature and extent of this project, it was deemed unnecessary to assess all of the criteria as differentials between each option proposed for elements such as Public Road Improvements, Land Assembly, Consent Mitigations, diversions of existing utilities and Operational requirements would be negligible. Felling costs would be subject to a final negotiated fee with relevant landowners (rather than an assumed rate per km) as the extent of tree felling would depend on factors such as the requirement to fell wind firm edges and woodland management plans. As such the below cost comparisons reflect the differential in construction costs per option only.

Table 2: Economic RAG Criteria

Economic Colour Coded RAG Rating		
Performance	**Comparative Appraisal**	
Most Preferred  Least Preferred	Lower Impact	< 120% of least cost option
	Moderate Impact	120% - 140% of least cost option
	Higher Impact	> 140% of least cost option

1.1.3 The site selection exercise for the Coire Glas Grid Connection Project concluded that Site Option Site Option LL5 was the Preferred Site for the 400 kV / 132 kV Loch Lundie Substation. Therefore, the economic assessment

[1] SSEN (March 2018), Procedures for Routeing Overhead Lines of 132kV and above

assumes that an OHL development within each of the route options would commence at Site Option LL5. However, to allow for further technical assessment and micrositing through subsequent design phases, a mid-point between Site Options LL5 and LL6 was calculated and used as a basis for cost comparison. To allow a comparative cost assessment, it was also assumed that the existing 132 kV Fort Augustus to Fort William OHL would be rationalised to the north of Site Option LL5 / LL6. Route Options LL-FA2 and LL-FA2R are therefore assessed as a single option in the economic assessment.

1.2 Table 3: Economic RAG Assessment

Route Option	RAG Rating
Route Option LL-FA1	least cost option
Route Option LL-FA2 / LL-FA2R	< 120% of least cost option
Route Option LL-FA3	< 120% of least cost option

1.3 Conclusion

From a cost perspective, Route Option LL-FA1 is the overall Preferred Route between the 400 kV / 132 kV Loch Lundie Substation and the Fort Augustus Substation as it represents the Least Cost Option. Route Option LL-FA2 and Route Option LL-FA3 are comparatively close in value, both to each other and when compared to the least cost option (< 120% of least cost option), thus there is no differentiation in terms of RAG criteria.

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APPENDIX 9.4: ROUTE OPTIONS: 400 KV / 132 KV LOCH LUNDIE SUBSTATION SEARCH AREA – FORT AUGUSTUS SUBSTATION ROUTE SELECTION - RAG SUMMARY TABLE

Appendix 9.4: Evaluation Criteria During Routing Process - 400 kV / 132 kV Loch Lundie Substation Search Area - Fort Augustus Substation			Route Options			
			LL-FA1 (West)	LL-FA2 - Central (Scenario A - Not Rationalised)	LL-FA2 - Central (Scenario B - Rationalised)	LL-FA3 (East)
Environmental / Consenting	Natural Heritage	Designations	Moderate Impact	Lower Impact	Lower Impact	Lower Impact
		Protected Species	Lower Impact	Lower Impact	Lower Impact	Lower Impact
		Habitats	Moderate Impact	Moderate Impact	Moderate Impact	Moderate Impact
		Ornithology	Moderate Impact	Moderate Impact	Moderate Impact	Moderate Impact
		Hydrology / Geology / Hydrogeology	Lower Impact	Lower Impact	Lower Impact	Lower Impact
	Cultural Heritage	Designations	Lower Impact	Moderate Impact	Lower Impact	Higher Impact
		Cultural Heritage Assets	Lower Impact	Moderate Impact	Moderate Impact	Higher Impact
	People	Proximity to Dwellings	Moderate Impact	Moderate Impact	Lower Impact	Moderate Impact
	Landscape & Visual	Designations	Lower Impact	Lower Impact	Lower Impact	Lower Impact
		Landscape Character	Moderate Impact	Higher Impact	Moderate Impact	Moderate Impact
		Visual	Lower Impact	Higher Impact	Moderate Impact	Higher Impact
	Land Use	Agriculture	Lower Impact	Lower Impact	Lower Impact	Lower Impact

		Forestry	Higher Impact	Higher Impact	Moderate Impact	Higher Impact
		Recreation	Moderate Impact	Moderate Impact	Lower Impact	Higher Impact
	Planning	Policy	Lower Impact	Lower Impact	Lower Impact	Lower Impact
		Proposals	Lower Impact	Moderate Impact	Moderate Impact	Lower Impact
Engineering	**Infrastructure Crossings**	Major Crossings	Lower Impact	Lower Impact	Lower Impact	Lower Impact
		Road Crossings	Moderate Impact	Moderate Impact	Moderate Impact	Moderate Impact
	Environmental Design	Elevation	Moderate Impact	Lower Impact	Lower Impact	Lower Impact
		Atmospheric Pollution	Lower Impact	Lower Impact	Lower Impact	Lower Impact
		Contaminated Land	Lower Impact	Lower Impact	Lower Impact	Lower Impact
		Flooding	Lower Impact	Lower Impact	Lower Impact	Lower Impact
	Construction / Maintenance	Access	Moderate Impact	Moderate Impact	Moderate Impact	Lower Impact
		Angle Towers	Moderate Impact	Moderate Impact	Moderate Impact	Moderate Impact
	Ground Conditions	Terrain	Higher Impact	Moderate Impact	Moderate Impact	Moderate Impact
		Peat	Moderate Impact	Moderate Impact	Moderate Impact	Moderate Impact
	Proximity	Clearance Distance	Moderate Impact	Higher Impact	Lower Impact	Moderate Impact
		Windfarms	Moderate Impact	Lower Impact	Lower Impact	Lower Impact
		Communication Masts	Moderate Impact	Moderate Impact	Moderate Impact	Moderate Impact
		Urban Environments	Lower Impact	Moderate Impact	Moderate Impact	Moderate Impact
		Metallic Pipelines	Lower Impact	Lower Impact	Lower Impact	Lower Impact
Cost	**Capital**	Construction	Lower Impact	Lower Impact		Lower Impact

		Diversions	No Preference	No Preference	No Preference
		Public Road Improvements	No Preference	No Preference	No Preference
		Tree Felling	No Preference	No Preference	No Preference
		Land Assembly	No Preference	No Preference	No Preference
		Consent Mitigations	No Preference	No Preference	No Preference
	Operational	Inspections	No Preference	No Preference	No Preference
		Maintenance	No Preference	No Preference	No Preference

APPENDIX 10.1 – ENVIRONMENTAL APPRAISAL OF ROUTE OPTIONS: 400 KV / 132 KV LOCH LUNDIE SUBSTATION CONNECTION

Environmental Appraisal

Each Route Connection Options between the Preferred Routes (Route Options CG-LL1 and LL-FA2) and the Preferred Substation Site Options (Site Option LL5 and LL7) within the 400 KV / 132 KV Loch Lundie Substation Search Area has been assessed against the environmental categories in SSEN Transmission plc's guidance[1]. Using the methodology summarised in Appendix 3.1, the route options were assigned RAG (Red, Amber, Green) ratings for each of the environmental categories based on the whether the anticipated impact and/or risk was High, Intermediate or Low to identify a Preferred Route Option from an environmental perspective.

[1] Referenced in: SSEN (March 2018), Procedures for Routeing Overhead Lines of 132kV and above

Table 1: Connection Route Option for the 400 KV / 132 KV Loch Lundie Substation - Site Option LL7 (See Figures 7.10a and 7.11a)

Description:
This table provides a RAG assessment of the Connection Route Option between the Loch Lundie Substation Site Option LL7 and the Preferred Route Options identified between the Coire Glas Switching Station Search Area and the Loch Lundie Substation Search Area (Route Option CG-LL1) and between the Loch Lundie Substation Search Area and the existing Fort Augustus Substation (Connection Route Option LL-FA2) within the Loch Lundie Search Area. Although it is anticipated that the existing Fort Augustus to Skye overhead line (OHL), the Fort Augustus to Skye T OHL and the Quoich to Aberchalder OHL will be replaced by the proposed Skye Reinforcement Project and dismantled, this assessment has been undertaken using the existing baseline. Existing and planned grid infrastructure is illustrated in Figure 7.11a. It also assumes that the existing Fort Augustus to Fort William OHL would be rationalised and dismantled to the north of the new Loch Lundie substation location. This connection route option also assumes that the existing 132 kV OHL Fort Augustus to Fort William OHL and the existing Invergarry Tee OHL would be rerouted from the point where it currently crosses the Fort Augustus to Skye OHL (along the southern bank of Loch Lundie) to connect into the new Loch Lundie Substation at Site Option LL7. This OHL would then be dismantled to the north of where it currently crosses the Fort Augustus to Skye OHL (to the east and north of Loch Lundie). Connection Route Option LL7-FA would connect to Site Option LL7 near the south western section of the Loch Lundie Substation Search Area, in an elevated area of open moorland to the south west of Loch Lundie and to the north east of the forestry at Munerigie Wood. Loch Lundie forms the most westerly extent of the West Inverness-shire Special Protected Area (SPA) and Site of Special Scientific Interest (SSSI). From Site Option LL7, Connection Route Option LL7-FA would travel in an easterly direction along the southern banks of Loch Lundie for approximately 1.5 km, where it would cross the Allt a Bhainne, the Aldernaid Burn and the existing access track on Aberchalder, which is also a Core Path. In this area, it is also anticipated that Connection Route Option LL7-FA would also run parallel to the existing Fort Augustus to Skye OHL and the Quoich to Aberchalder OHL in this area, in addition to the diverted Fort Augustus to Fort William OHL and the existing Invergarry Tee OHL. At approximately the location where the existing Fort Augustus to Fort William OHL and the existing Fort Augustus to Skye OHL cross each other to the south east of Loch Lundie, the route option would change direction in a north / north easterly direction for approximately 2 km, where it would connect to Route Option LL-FA2, which is assessed separately in Appendix 9.1. In this area Connection Route Option LL7-FA would be travel along the eastern bank of Loch Lundie to the west and the area of commercial forestry to the north of Invergarry to the east. The existing access track on Aberchalder, which is also a Core Path, runs parallel to the eastern bank of Loch Lundie and would be located within Connection Route Option LL7-FA in this area. As well as the commercial forestry to the north of Invergarry, the Connection Route Option LL7-FA would also cross over small areas of woodland to the north of Faichem and to the south-east and north of Loch Lundie. In addition to the Allt a Bhainne and the Aldernaid Burn, Connection Route Option LL7-FA would also cross several small watercourse, including tributaries of the Lochan Doire Cadha to the east and tributaries of the Invervigar Burn to the north.
Review of Environmental Constraints:
Natural Heritage

Topics	**Potential Constraints**	**RAG Rating**
Designations	**Connection Route Option LL7-FA** A small extent of Connection Route Option LL7-FA is located within the West Inverness-shire Lochs SSSI and SPA. The West Inverness-shire Lochs SSSI and SPA comprises eight freshwater upland lochs (specifically Loch Lundie with respect to Connection Route Option LL7-FA) and	G

	has been designated as they support nationally important numbers of breeding black-throated divers (*Gavia arctica*) and common scoters (*Melanitta nigra*). Connection Route Option LL7-FA is partially located within the Aldernaig Burn catchment, part of which drains to Loch Lundie. With careful avoidance of the SSSI and SPA and subject to control measures and good practice, it is unlikely that works associated within construction would compromise the qualifying interest of the SSSI and SPA. A **Green** rating has therefore been applied to this connection route option.	
Protected Species	**<u>Connection Route Option LL7-FA</u>** Initial walkover surveys undertaken in August 2021 did not record the presence of protected species in the vicinity of Connection Route Option LL7-FA. Abundant woodland, and woodland edge habitat, provides suitable habitat for badger (*Meles meles*), red squirrel (*Sciurus vulgaris*), pine marten (*Martes mates*) and bat species. Riparian zones provide suitable habitat for otter (*Lutra lutra*). Loss of small areas of habitat associated with substation infrastructure is therefore unlikely to significantly reduce habitat suitability or availability of the wider area. Potential for impacts on protected species could be further reduced or eliminated by undertaking pre-construction surveys and adopting appropriate mitigation. Therefore, there is considered to be low potential for Connection Route Option LL7-FA to compromise the conservation status of, or for the site to be constrained by, the presence of protected species. A **Green** rating has therefore been applied to this connection route option.	G
Habitats	**<u>Connection Route Option LL7-FA</u>** Initial walkover surveys undertaken in August 2021 indicate that the connection route option passes through large areas of blanket mire and wet heath vegetation across open ground, and through a stand of conifer plantation, between substation location LL7 and the Fort Augustus Substation. <u>Annex 1</u> Large pockets of blanket mire habitat exist on flatter plateaus and depressions on moorland areas. Wet heaths dominate other open moorland. Both habitats are identified as Annex 1 habitats. The sensitive habitats identified present modest constraints which could be further reduced or eliminated by micrositing infrastructure and/or adopting appropriate mitigation. Therefore, there is considered to be moderate potential for Connection Route Option LL7-FA to compromise the conservation status of, or for the route to be constrained by, Annex 1 habitats. <u>GWDTE Groundwater Dependent Terrestrial Ecosystems)</u> Wet heaths are considered to be moderately dependent on groundwater in certain circumstances. The majority of wet heaths within Connection Route Option LL7-FA are considered to be principally associated with ombrotrophic mires and as such not generally dependent on groundwater. Therefore, GWDTE are not considered extensive within the coonectionroute option, limited to surrounds of small hydrological pathways. Loss of GWDTE could therefore be minimised by micrositing of infrastructure, and there is low potential for Connection Route Option LL7-FA to compromise the integrity of GWDTE. <u>Biodiversity</u> In BNG guidance, blanket mires are considered to be irreplaceable habitat. Large areas of blanket mire are present within the connection route option. Habitats of high distinctiveness within the corridor also include wet heath and small patches of grassland present on open	A

	ground on lower ground within the connection route option. Loss of irreplaceable habitat would result in No Net Loss being unachievable. Where habitats of high distinctiveness are lost, replacement must be of equivalent value to meet No Net Loss. Removal of coniferous plantation within Connection Route Option LL7-FA is likely to present an opportunity to enhance biodiversity value within the route, by replacement with habitats of higher distinctiveness value. However, It should be noted that removal of woodland habitat creates difficulty in achieving No Net Loss due to the time taken for replacement woodland and/or scrub to achieve suitable structure and condition and for the replacement biodiversity value to be realised. An **Amber** rating has therefore been applied due to the potential loss of Annex 1 associated with this connection route option, as well as the presence of habitats that are classed as irreplaceable habitat under BNG Guidance.	
Ornithology	**Connection Route Option LL7-FA** Connection Route Option LL7-FA predominantly passes across low-elevation moorland with several narrow watercourses and rocky outcrops and through plantation forestry, as well as passing parallel to Loch Lundie. Ornithological constraints are focussed on the qualifying species of the West Inverness-Shire Lochs SPA (Black-throated Diver and Common Scoter), of which Loch Lundie is a part of, as well as Red-throated Diver. Potential species breeding on the open moorland and within the forestry, and those species which use the moorland, forest or the river for hunting purposes could include protected (Schedule 1) species such as Merlin (*Falco columbarius*), Short-eared Owl (*Asio flammeus*), Osprey (Pandion haliaetus), Goshawk (Accipiter gentilis) and Crossbill (*Loxia curvirostra*), although several woodland species are Red and Amber List species of conservation concern including, but not limited to, Song Thrush (Turdus philomelos), Spotted Flycatcher (*Muscicapa striata*), Tree Pipit (*Anthus trivialis*), Lesser Redpoll (*Acanthis cabaret*), Meadow Pipit (*Anthus pratensis*) and Willow Warbler (*Phylloscopus trochilus*). Connection Route Option LL7-FA could compromise the conservation status of population(s) of Schedule 1 bird species or Red or Amber listed if breeding or hunting within the route. Standard bird surveys will need to be undertaken to update the baseline and inform the route selection, and appropriate mitigation measures should be implemented to minimise any disturbance / collision risk to protected species along this connection route option. An **Amber** rating has been applied to this connection route option.	A
Hydrology / Geology	**Connection Route Option LL7-FA** Connection Route Option LL7-FA lies entirely within the River Oich catchment, specifically the nested catchments of four tributaries; the River Garry to the south, Aldernaig Burn and Allt Leth-bheinne in the centre and Invervigar Burn to the north. Published mapping shows the southern extent of Connection Route Option LL7-FA is absent of any peat soils of conservation value while the northern extent is underlain by areas of Class 2 (nationally important carbon-rich soils, deep peat and priority peatland habitat that are potentially high conservation value and restoration potential) near Loch Lundie and the upper tributaries of the Invervigar Burn and Class 5 (carbon-rich and deep peat that include areas of bare soil but with no peatland habitat recorded) within the forested area near Lochan Doire Cadha. Small, isolated areas of Class 1 (nationally important carbon-rich soils, deep peat and priority peatland habitat that are potentially high conservation value) are also noted near Loch Lundie. The depth and condition of peat will need to be considered as part of any further assessment of this connection route option so that potential impacts can be minimised and mitigated where required. If the peat is deep and not degraded this poses a development constraint. Superficial cover within Connection Route Option LL7-FA, where present, is dominated by hummocky glacial deposits of diamicton, sand and gravel with isolated areas of peat in the low gradient areas. Alluvium of gravel, sand, silt and clay is associated along the channel of the	A

	Allt a'Bhainne (which is part of the larger Aldernaig Burn catchment). The north western extent of the connection route option is underlain by the Tarvie Psammite Formation while the south eastern extent is underlain by the West Highland Granite Gneiss Intrusion. The centre of Connection Route Option LL7-FA is located within the Aldernaig catchment. The entire Aldernaig Burn catchment has been designated a DWPA, Scottish Water abstract from Aldernaig Burn to supply their Invergarry WTW. The location of Scottish Water infrastructure would need to be confirmed to ensure the DWPA or Scottish Water infrastructures is not impaired. SEPA floodplain mapping shows that the Medium (0.5% annual exceedance probability of flooding / 1 in 200 yr) likelihood of flooding floodplain extent is associated with the Allt a'Bhainne and Aldernaig Burn. Whilst not a development constraint, due regard will need to be made to flood risk during the design, construction and operational phase of this connection route option. Particular attention will be required at proposed watercourse crossings, where floodplains will also be crossed. Given the presence of priority peatland and DWPA, an **Amber** rating has been applied to this connection route Option.	
Cultural Heritage		
Topics	**Potential Constraints**	**RAG Rating**
Designations	**Connection Route Option LL7-FA** There are no designated heritage assets within the connection route option LL7-FA corridor. A **Green** rating has therefore been applied to Connection Route Option LL7-FA.	G
Cultural Heritage Assets	**Connection Route Option LL7-FA** There would be a potential direct impact on one non-designated heritage asset. MHG28404 is an HER site of low sensitivity. No other potential direct or setting effects on non-designated cultural heritage assets are anticipated. A **Green** rating has therefore been applied to Connection Route Option LL7-FA.	G
People		
Topics	**Potential Constraints**	**RAG Rating**
Proximity to Dwellings	**Connection Route Option LL7-FA** There are a few scattered properties and part of the Faichemard Farm Caravan and Camping site near the southern section of Connection Route Option LL7-FA, at Faichem. It is anticipated that a suitable separation buffer (anticipated to be a minimum of 170 m based on a preliminary noise assessment) from the OHL route could be applied to all properties within the route option. A **Green** Rating has therefore been applied to this connection route option.	G
Landscape and Visual		
Topics	**Potential Constraints**	**RAG Rating**
Designations	**Connection Route Option LL7-FA** Connection Route Option LL7-FA would not affect any designated or otherwise protected landscapes. The RAG Rating is therefore **Green** for this connection route option.	G

Landscape Character	**Connection Route Option LL7-FA** Connection Route Option LL7-FA would directly affect LCT 237 (Rocky Moorland – Lochaber. The southern part of the connection route may also directly affect a small area of LCT 235 (Broad Forested Strath). Both these LCTs are considered to have a Medium (or locally Low where existing OHLs are present) sensitivity to development of this type. If this connection route option was selected, it is assumed that the existing Fort Augustus to Fort William OHL and the existing Invergarry Tee OHL, would be rerouted from the point where it currently crosses the Fort Augustus to Skye OHL, across the landscape to the south of Loch Lundie), to connect into the new Loch Lundie Substation at Site Option LL7. This would therefore lead to up to four parallel OHLs across this part of the landscape. The cumulative effects of these developments would increase the width of OHL corridor to the south of the loch with a higher potential to affect the more sensitive landscapes closer to the loch and a greater potential for OHL infrastructure to become a more prominent and character defining feature of the landscape. However, it is anticipated that the Fort Augustus to Fort William OHL would be dismantled to the north of the existing T point (to the east and north of Loch Lundie). Connection Route Option LL7-FA would therefore comprise an effective like-for-like replacement through the landscapes to the east and north of Loch Lundie. The allocated **Amber** rating has been applied due to the potential for cumulative effects on the landscape area to the south of Loch Lundie for this connection route option.	A
Visual	**Connection Route Option LL7-FA** Connection Route Option LL7-FA would lead to visual effects on users of a Core Path which passes to the east of Loch Lundie, particularly on the approach to the point where the route option would cross over the core path to the south of Loch Lundie. If Connection Route Option LL7-FA was selected, it is assumed that the existing Fort Augustus to Fort William OHL and the existing Invergarry Tee OHL, would be rerouted into the new substation at Site Option LL7, from the point where it currently crosses the Fort Augustus to Skye OHL, across the landscape to the south of Loch Lundie, to connect into the new Loch Lundie Substation at Site Option LL7, and would be dismantled to the north of where it currently crosses the Fort Augustus to Skye OHL (to the east and north of Loch Lundie). This would therefore lead to an effective like-for-like replacement in easterly views and running parallel to the Core Path. However, this option would lead to up to three additional routes crossing the landscape to the south of Loch Lundie and therefore crossing the Core Path. Although existing OHLs already feature in these views, this would lead to an increased visual presence of OHL infrastructure in southern and south-westerly views with likely greater cumulative effects Connection Route Option LL7-FA. The allocated **Amber** rating has been applied due to the potential for cumulative visual effects from the increased number of OHLs to the south of Loch Lundie, which would affect southerly and westerly views from the Core Path.	A
Land Use		
Topics	**Potential Constraints**	**RAG Rating**
Agriculture	**Connection Route Option LL7-FA** Connection Route Option LL7-FA passes through large areas of coniferous plantation. Connection Route Option LL7-FA would only affect lower quality agricultural land, graded as Agricultural Land Capability (ALC) 3b and below. Most of the on land within Connection Route Option LL7-FA is only capable of supporting rough grazing (ALC 6.2 and 6.3). A **Green** rating has therefore been applied to Connection Route Option LL7-FA.	G
Forestry	**Connection Route Option LL7-FA**	G

	Connection Route Option LL7-FA consists of less than 50% commercial forestry plantation the remaining ground being open ground. There is potential to avoid the woodland plantations completely and in this respect this route option is allocated a **Green** RAG rating. Should the new route encroach onto the conifer plantations the rating would change to **Amber**. It should also be noted that a recent woodland creation scheme has been planted between the existing OHL and Loch Lundie. The relatively small AWI and NWSS areas within this route option are avoidable. Within this connection route option it is possible to avoid commercial plantations and any designated woodland and is therefore allocated a **Green** rating.	
Recreation	**<u>Connection Route Option LL7-FA</u>** Part of the Faichemard Farm Caravan and Camping site is located within the north eastern extent of Connection Route Option LL7-FA. It is anticipated direct impacts on this site could be avoided by micrositing the OHL infrastructure within the connection route option, however the OHL may lead to visual effects for residents at the caravan and camping site, including cumulative visual effects with existing grid infrastructure in the surrounding area, including the rerouted Fort Augustus to Fort William OHL and the existing Invergarry Tee OHL. The existing access track which passes to the east of Loch Lundie is classified as a Core Path (by THC) and a Scottish Hill Track (by Scottish Rights of Way and Access Society (SCOTWAYS)). It is anticipated direct impacts on the existing access track could be avoided by rerouting the access track of micrositing the OHL infrastructure within the connection route option. However, an OHL within this connection route option may lead to visual effects on users of the Core Path / Scottish Hill Track. As noted in the 'Landscape and Visual – Visual' section above, Connection Route Option LL7-FA would lead to visual effects on users of a Core Path which passes to the east of Loch Lundie, particularly on the approach to the point where the connection route option would cross over the core path to the south of Loch Lundie. Although existing OHLs are already visible from this Core Path, as the Proposed Development and the rerouting of the existing Fort Augustus to Fort William OHL would lead to potential cumulative visual effects with the potential for the creation of a greater dominance of OHL infrastructure in this area. An **Amber** RAG rating has been applied due to the potential visual effects on recreational users around Loch Lundie. <u>Commercial Highland Sports</u> Connection Route Option LL7-FA is largely located within an area of open moorland land owned by Aberchalder Estate. The estate is managed for sporting activities, including red deer stalking and trout and salmon fishing, as well as other recreational activities such as highland safaris. Loch Lundie is used for brown trout fishing. Stag and hind stalking activities take place in September and October on the estate. The eastern extent of Connection Route Option LL7-FA passes through an area of coniferous plantation woodland owned by Forestry and Land Scotland (FLS), which would not be used for commercial highland sport. Connection Route Option LL7-FA may interact with areas used for commercial highland sports on Aberchalder Estate in the Loch Lundie area. This route therefore has some potential to compromise the commercial viability of highland sports within the estate, particularly during the construction phase. An **Amber** rating has therefore been applied to this connection route option. An **Amber** RAG rating has been applied to this connection route option due to the potential visual effects on recreational users around Loch Lundie, and the potential impacts on the commercial viability of highland sports on Aberchalder Estate.	A
Planning		
Topics	**Potential Constraints**	**RAG Rating**

Policy	**Connection Route Option LL7-FA** Connection Route Option LL7-FA would be brought forward in full compliance with national, regional or local planning policy. A **Green** RAG rating has been applied to this connection route option.	G
Proposals	**Connection Route Option LL7-FA** Connection Route Option LL7-FA may interact with the construction or dismantling of other SSEN Transmission OHL proposals around Loch Lundie. No other proposals that are wither consented or known to the planning system have been identified within Connection Route Option LL7-FA. A **Green** RAG rating has been applied to this connection route option.	G

Table 2: Connection Route Option for the 400 KV / 132 KV Loch Lundie Substation Site Option LL5 (See Figures 7.10b and 7.11b)

Description:

This table provides a RAG assessment of the Connection Route Option between the Loch Lundie Substation Site Option LL5 and the Preferred Route Options identified between the Coire Glas Switching Station Search Area and the Loch Lundie Substation Search Area (Route Option CG-LL1) and between the Loch Lundie Substation Search Area and the existing Fort Augustus Substation (Connection Route Option LL5-FA2) within the Loch Lundie Substation Search Area.

Although it is anticipated that the existing Fort Augustus to Skye overhead line (OHL), the Fort Augustus to Skye T OHL and the Quoich to Aberchalder OHL will be replaced by the proposed Skye Reinforcement Project and dismantled, this assessment has been undertaken using the existing baseline. Existing and planned grid infrastructure is illustrated in Figure 7.11a. It also assumes that the existing Fort Augustus – Fort William OHL would be rationalised and dismantled to the north of the new Loch Lundie substation location (at Site Option LL5).

Connection Route Option CG-LL5

From the south, Connection Route Option CG-LL5 would enter the south western section of the Loch Lundie Substation Search Area (where it connects to Preferred Route Option CG-LL1 which is assessed separately in Appendix 8.1), in an elevated area of open moorland to the south west of Loch Lundie and to the north east of the forestry at Munerigie Wood. Loch Lundie forms the most westerly extent of the West Inverness-shire SPA and SSSI. After entering the Loch Lundie Substation Search Area, Connection Route Option CG-LL5 would travel in an easterly direction through an area of open moorland to the south of Loch Lundie for approximately 1.5 km, where it would cross the Allt a Bhainne, the Aldernaid Burn and the existing access track on Aberchalder, which is also a Core Path. In this area, it is also anticipated that Connection Route Option CG-LL5 would also run parallel to the existing Fort Augustus to Skye OHL and the Quoich to Aberchalder OHL. Some areas of the woodland to the north of Faichem would also extend into Connection Route Option CG-LL5. Connection Route Option CG-LL5 would connect to Site Option LL5 in the area of commercial forestry to the north of Invergarry, to the east of where the existing Fort Augustus to Fort William OHL and the existing Fort Augustus to Skye OHL cross each other to the south-east of Loch Lundie,

Connection Route Option LL5-FA

From Site Option LL5, Connection Route Option LL5-FA would travel in a north north-easterly direction for approximately 2.5 km, where it would connect to the Preferred Route LL-FA2, which is assessed separately in Appendix 9.1). In this area Connection Route Option LL5-FA would be travel along the eastern bank of Loch Lundie to the west and the area of commercial forestry to the north of Invergarry to the east. The existing access track on Aberchalder, which is also a Core Path, runs parallel to the eastern bank of Loch Lundie and would be located immediately west of Option LL5-FA. As well as the commercial forestry to the north of Invergarry, the Connection Route Option LL5-FA would also cross over small areas of woodland to the north of Loch Lundie and several cross several small watercourses, including tributaries of the Lochan Doire Cadha to the east and tributaries of the Invervigar Burn to the north.

Review of Environmental Constraints:

Natural Heritage

Topics	Potential Constraints	RAG Rating
Designations	**Connection Route Option CG-LL5** Connection Route Option CG-LL5 would not be located within any designated RAMSAR, SSSI, SPA, SAC, NNR or other regionally, nationally, or internationally designated sites. There is no woodland listed within the AWI within CG-LL5. Within 1 km of Connection Route Option CG-LL5 lies the West Inverness-shire Lochs SSSI and SPA, approximately 300 m to the north and west. The West Inverness-shire Lochs SSSI and SPA comprises eight freshwater upland lochs (specifically Loch Lundie with respect to CG-LL5) and has been designated as they support nationally important numbers of breeding black-throated divers (*Gavia arctica*) and common scoters (*Melanitta nigra*). Part of Route Option LL5-FA is located within the River Garry and Aldernaig Burn catchment which lies downstream of Loch Garry and Loch Lundie respectively, as such the West Inverness-shire SSSI and SPA is not in hydrological connection to this connection route option.	G

	Subject to control measures and good practice it is unlikely that works associated with construction would compromise the qualifying interests of the West Inverness-shire Lochs SSSI and SPA. A **Green** rating has therefore been applied to Connection Route Option CG-LL5.	
	<u>Connection Route Option LL5-FA</u> Connection Route Option LL5-FA would not be located within any designated RAMSAR, SSSI, SPA, SAC, NNR or other regionally, nationally, or internationally designated sites. There is no woodland listed within the AWI within Connection Route Option LL5-FA. Within 1 km of Connection Route Option LL5-FA lies the West Inverness-shire Lochs SSSI and SPA, approximately 400 m to the west. The West Inverness-shire Lochs SSSI and SPA comprises eight freshwater upland lochs (specifically Loch Lundie with respect to Connection Route Option LL5-FA) and has been designated as they support nationally important numbers of breeding black-throated divers (*Gavia arctica*) and common scoters (*Melanitta nigra*). Connection Route Option LL5-FA is partially located within the Aldernaig Burn catchment, part of which drains to Loch Lundie. Subject to control measures and good practice it is unlikely that works associated with construction would compromise the qualifying interests of the West Inverness-shire Lochs SSSI and SPA. A **Green** rating has therefore been applied to Connection Route Option LL5-FA.	G
Protected Species	**<u>Connection Route Option CG-LL5</u>** Initial walkover surveys undertaken in August 2021 did not record the presence of protected species in the vicinity of Connection Route Option CG-LL5. Abundant woodland, and woodland edge habitat, provides suitable habitat for badger (*Meles meles*), red squirrel (*Sciurus vulgaris*), pine marten (*Martes mates*) and bat species. Riparian zones provide suitable habitat for otter (*Lutra lutra*). Loss of small areas of habitat associated with substation infrastructure is therefore unlikely to significantly reduce habitat suitability or availability of the wider area. Potential for impacts on protected species could be further reduced or eliminated by undertaking pre-construction surveys and adopting appropriate mitigation. Therefore, there is considered to be low potential for Connection Route Option CG-LL5 to compromise the conservation status of, or for the site to be constrained by, the presence of protected species. A **Green** rating has therefore been applied to Connection Route Option CG-LL5.	G
	<u>Connection Route Option LL5-FA</u> Initial walkover surveys undertaken in August 2021 did not record the presence of protected species in the vicinity of Connection Route Option LL5-FA. Abundant woodland, and woodland edge habitat, provides suitable habitat for badger (*Meles meles*), red squirrel (*Sciurus vulgaris*), pine marten (*Martes mates*) and bat species. Riparian zones provide suitable habitat for otter (*Lutra lutra*). Loss of small areas of habitat associated with substation infrastructure is therefore unlikely to significantly reduce habitat suitability or availability of the wider area. Potential for impacts on protected species could be further reduced or eliminated by undertaking pre-construction surveys and adopting appropriate mitigation. Therefore, there is considered to be low potential for Connection Route Option LL5-FA to compromise the conservation status of, or for the site to be constrained by, the presence of protected species. A **Green** rating has therefore been applied to Connection Route Option LL5-FA.	G

Habitats	**Connection Route Option CG-LL5** Initial walkover surveys undertaken in August 2021 indicate that the connection route option passes through large areas of blanket mire and wet heath vegetation across open ground, and through a stand of conifer plantation, between CG1 and LL5. Annex 1 Large pockets of blanket mire habitat exist on flatter plateaus and depressions on moorland areas. Wet heaths dominate other open moorland. Both habitats are identified as Annex 1 habitats. The sensitive habitats identified present modest constraints which could be further reduced or eliminated by micrositing infrastructure and/or adopting appropriate mitigation. Therefore, there is considered to be moderate potential for Connection Route Option CG-LL5 to compromise the conservation status of, or for the connection route option to be constrained by, Annex 1 habitats. GWDTE Groundwater Dependent Terrestrial Ecosystems) Wet heath are considered to be moderately dependent on groundwater in certain circumstances. The majority of wet heaths within Connection Route Option CG-LL5 are considered to be principally associated with ombrotrophic mires and as such not generally dependent on groundwater. Therefore, GWDTE are not considered extensive within the connection route option corridor, limited to surrounds of small hydrological pathways. Loss of GWDTE could therefore be minimised by micrositing of infrastructure, and there is low potential for Connection Route Option CG-LL5 to compromise the integrity of GWDTE. Biodiversity In BNG guidance, blanket mires are considered to be irreplaceable habitat. Large areas of blanket mire are present within the connection route option corridor. Habitats of high distinctiveness within the corridor also include wet heath and small patches of grassland present on open ground on lower ground within the connection route option corridor. Loss of irreplaceable habitat would result in No Net Loss being unachievable. Where habitats of high distinctiveness are lost, replacement must be of equivalent value to meet No Net Loss. Removal of coniferous plantation within Connection Route Option CG-LL5 is likely to present an opportunity to enhance biodiversity value within the route, by replacement with habitats of higher distinctiveness value. However, It should be noted that removal of woodland habitat creates difficulty in achieving No Net Loss due to the time taken for replacement woodland and/or scrub to achieve suitable structure and condition and for the replacement biodiversity value to be realised. An **Amber** rating has therefore been applied due to the potential loss of Annex 1 associated with this connection route option, as well as the presence of habitats that are classed as irreplaceable habitat under BNG Guidance.	A
	Connection Route Option LL5-FA Initial walkover surveys undertaken in August 2021 indicate that the connection route option corridor passes through a stand of conifer plantation, with pockets of blanket mire and wet heath vegetation both within and on the fringe of the plantation area to the north of Invergarry. Annex 1 Larger pockets of blanket mire habitat exist on flatter plateaus and depressions on moorland areas. Wet heaths dominate other open moorland. Both habitats are identified as Annex 1 habitats. The sensitive habitats identified present modest constraints which could be further reduced or eliminated by micrositing infrastructure and/or adopting appropriate mitigation. Therefore, there is considered to be	A

	moderate potential for Connection Route Option LL5-FA to compromise the conservation status of, or for the connection route option to be constrained by, Annex 1 habitats. GWDTE Wet heath are considered to be moderately dependent on groundwater in certain circumstances. The majority of wet heaths within Connection Route Option LL5-FA are considered to be principally associated with ombrotrophic mires and as such not generally dependent on groundwater. Therefore, GWDTE are not considered extensive within the connection route option corridor, limited to surrounds of small hydrological pathways. Loss of GWDTE could therefore be minimised by micrositing of infrastructure, and there is low potential for Connection Route Option LL5-FA to compromise the integrity of GWDTE. Biodiversity In BNG guidance, blanket mires are considered to be irreplaceable habitat. Large areas of blanket mire are present within the connection route option corridor. Habitats of high distinctiveness within the connection route option corridor also include wet heath. Loss of irreplaceable habitat would result in No Net Loss being unachievable. Where habitats of high distinctiveness are lost, replacement must be of equivalent value to meet No Net Loss. Removal of coniferous plantation within Connection Route Option LL5-FA is likely to present an opportunity to enhance biodiversity value within the connection route option, by replacement with habitats of higher distinctiveness value. However, it should be noted that removal of woodland habitat creates difficulty in achieving No Net Loss due to the time taken for replacement woodland and/or scrub to achieve suitable structure and condition and for the replacement biodiversity value to be realised. An **Amber** rating has therefore been applied due to the potential loss of Annex 1 associated with this connection route option, as well as the presence of habitats that are classed as irreplaceable habitat under BNG Guidance.	
Ornithology	**Connection Route Option CG-LL5** Ornithological constraints are focussed on the qualifying species of the West Inverness-Shire Lochs SPA (Black-throated Diver and Common Scoter), of which Loch Lundie is a part of, as well as Red-throated Diver. Potential species breeding on the open moorland and within the forestry, and those species which use the moorland, forest or the river for hunting purposes could include protected (Schedule 1) species such as Merlin (Falco columbarius), Short-eared Owl (*Asio flammeus*), Osprey (*Pandion haliaetus*), Goshawk (*Accipiter gentilis*) and Crossbill (*Loxia curvirostra*), although several woodland species are Red and Amber List species of conservation concern including, but not limited to, Song Thrush (Turdus philomelos), Spotted Flycatcher (*Muscicapa striata*), Tree Pipit (*Anthus trivialis*), Lesser Redpoll (*Acanthis cabaret*), Meadow Pipit (*Anthus pratensis*) and Willow Warbler (*Phylloscopus trochilus*). Connection Route Option CG-LL5 could compromise the conservation status of population(s) of Schedule 1 bird species or Red or Amber listed if breeding or hunting within the connection route option. Standard bird surveys will need to be undertaken to update the baseline and inform the route selection, and appropriate mitigation measures should be implemented to minimise any disturbance / collision risk to protected species along this route. Therefore, an **Amber** rating has been applied to Connection Route Option CG-LL5.	A
	Connection Route Option LL5-FA Ornithological constraints are focussed on the qualifying species of the West Inverness-Shire Lochs SPA (Black-throated Diver and Common Scoter), of which Loch Lundie is a part of, as well as Red-throated Diver.Potential species breeding on the open moorland and within the	A

	forestry, and those species which use the moorland, forest or the river for hunting purposes could include protected (Schedule 1) species such as Merlin (*Falco columbarius*), Short-eared Owl (*Asio flammeus*), Osprey (*Pandion haliaetus*), Goshawk (*Accipiter gentilis*) and Crossbill (*Loxia curvirostra*), although several woodland species are Red and Amber List species of conservation concern including, but not limited to, Song Thrush (*Turdus philomelos*), Spotted Flycatcher (*Muscicapa striata*), Tree Pipit (*Anthus trivialis*), Lesser Redpoll (*Acanthis cabaret*), Meadow Pipit (*Anthus pratensis)* and Willow Warbler (*Phylloscopus trochilus*). Connection Route Option LL5-FA could compromise the conservation status of population(s) of Schedule 1 bird species or Red or Amber listed if breeding or hunting within the connection route Option. Standard bird surveys will need to be undertaken to update the baseline and inform the route selection, and appropriate mitigation measures should be implemented to minimise any disturbance / collision risk to protected species along this route. Therefore, an **Amber** rating has been applied to Connection Route Option LL5-FA.	
Hydrology / Geology	**<u>Connection Route Option CG-LL5</u>** Connection Route Option CG-LL5 lies entirely within the River Oich catchment, specifically the nested catchments of three tributaries; the River Garry to the west, Aldernaig Burn in the centre and Allt Leth-bheinne to the north. Published mapping shows the majority of Connection Route Option CG-LL5 is absent of any peat soils of conservation value while the northern extent is underlain by an area of Class 5 (carbon-rich and deep peat that include areas of bare soil but with no peatland habitat recorded) within the forested area near Lochan Doire Cadha and areas of Class 2 (nationally important carbon-rich soils, deep peat and priority peatland habitat that are potentially high conservation value and restoration potential) and Class 1 (nationally important carbon-rich soils, deep peat and priority peatland habitat that are potentially high conservation value) are near Loch Lundie and immediately south of this forested area. The depth and condition of peat will need to be considered as part of any further assessment of this connection route option in order that potential impacts can be minimised and mitigated where required. If the peat is deep and not degraded this poses a development constraint. Superficial cover within Connection Route Option CG-LL5, where present, is dominated by hummocky glacial deposits of diamicton, sand and gravel with isolated areas of peat in the low gradient areas. Alluvium of gravel, sand, silt and clay is associated along the channel of the River Garry. The northern and west extent of the connection route option is underlain by the Tarvie Psammite Formation while the southern and eastern extent is underlain by the West Highland Granite Gneiss Intrusion. The centre of Connection Route Option CG-LL5 is located within the Aldernaig catchment. The entire Aldernaig Burn catchment has been designated a DWPA, Scottish Water abstract from Aldernaig Burn to supply their Invergarry WTW. The location of Scottish Water infrastructure would need to be confirmed to ensure the DWPA or Scottish Water infrastructures is not impaired. SEPA floodplain mapping shows that the Medium (0.5% annual exceedance probability of flooding / 1 in 200 yr) likelihood of flooding floodplain extent is associated with the Allt a'Bhainne (a tributary of the Aldernaig Burn), Aldernaig Burn and River Garry. Whilst not a development constraint, due regard will need to be made to flood risk during the design, construction and operational phase of this connection route option. Particular attention will be required at proposed watercourse crossings, where floodplains will also be crossed. Given the presence of DWPA, an **Amber** rating has been applied to to Connection Route Option CG-LL5.	A
	<u>Connection Route Option LL5-FA</u> Route Option LL5-FA lies entirely within the River Oich catchment, specifically the nested catchments of three tributaries; Aldernaig Burn to the west and south, Allt Leth-bheinne in the centre and Invervigar Burn to the north. Published mapping shows the Route Option LL5-FA is underlain by areas of Class 2 (nationally important carbon-rich soils, deep peat and priority peatland habitat that are potentially high conservation value and restoration potential) near Loch Lundie and the upper tributaries	A

	of the Invervigar Burn and Class 5 (carbon-rich and deep peat that include areas of bare soil but with no peatland habitat recorded) within the forested area near Lochan Doire Cadha. Small, isolated areas of Class 1 (nationally important carbon-rich soils, deep peat and priority peatland habitat that are potentially high conservation value) are also noted near Loch Lundie. The depth and condition of peat will need to be considered as part of any further assessment of this connection route option in order that potential impacts can be minimised and mitigated where required. If the peat is deep and not degraded this poses a development constraint. Superficial cover within Connection Route Option LL5-FA, where present, is dominated by hummocky glacial deposits of diamicton, sand and gravel with isolated areas of peat in the low gradient areas. The northwestern extent of the connection route option is underlain by the Tarvie Psammite Formation while the south eastern extent is underlain by the West Highland Granite Gneiss Intrusion. The southern and western extent of Connection Route Option LL5-FA is located within the Aldernaig Burn catchment. The entire Aldernaig Burn catchment has been designated a DWPA, Scottish Water abstract from Aldernaig Burn to supply their Invergarry WTW. However, the connection route option allows for the Aldernaig Burn catchment to be avoided and therefore reduce potential risk to the DWPA. The location of Scottish Water infrastructure would need to be confirmed to ensure the DWPA or Scottish Water infrastructure is not impaired. As the development footprint is very small in area compared to the extent of the DWPA it is considered unlikely that the presence of the DWPA will pose a significant development constraint. SEPA floodplain mapping shows that the Medium (0.5% annual exceedance probability of flooding / 1 in 200 yr) likelihood of flooding floodplain extent is associated with the Allt a'Bhainne and Aldernaig Burn. Whilst not a development constraint, due regard will need to be made to flood risk during the design, construction and operational phase of this connection route option. Particular attention will be required at proposed watercourse crossings, where floodplains will also be crossed. Given the presence of priority peatland, and potential interaction with the DWPA, an **Amber** rating has been applied to Connection Route Option LL5-FA.	

Cultural Heritage		
Topics	**Potential Constraints**	**RAG Rating**
Designations	**Connection Route Option CG-LL5** There are no designated heritage assets within the Connection Route Option CG-LL5. A **Green** RAG rating has therefore been applied to Connection Route Option CG-LL5.	G
	Connection Route Option LL5-FA There are no designated heritage assets within the Connection Route Option LL5-FA. A **Green** RAG rating has therefore been applied to Connection Route Option LL5-FA.	G
Cultural Heritage Assets	**Connection Route Option CG-LL5** There are no non-designated heritage assets within the Connection Route Option CG-LL5. A **Green** RAG rating has therefore been applied to Connection Route Option CG-LL5.	G

	Connection Route Option LL5-FA There are no non-designated heritage assets within the Connection Route Option LL5-FA. A **Green** RAG rating has therefore been applied to Connection Route Option LL5-FA.	G
People		
Topics	**Potential Constraints**	**RAG Rating**
Proximity to Dwellings	**Connection Route Option CG-LL5** There are a few scattered properties and part of the Faichemard Farm Caravan and Camping site within the southern section of Connection Route Option CG-LL5, at Faichem. It may be possible to apply a suitable separation buffer (anticipated to be a minimum of 170 m based on a preliminary noise assessment) between the OHL route and the properties within the connection route option. An **Amber** Rating has therefore been applied to Connection Route Option CG-LL5.	A
	Connection Route Option LL5-FA There are no properties within or within 200 m of Connection Route Option LL5-FA. A **Green** Rating has therefore been applied to Connection Route Option LL5-FA.	G
Landscape and Visual		
Topics	**Potential Constraints**	**RAG Rating**
Designations	**Connection Route Option CG-LL5** Connection Route Option CG-LL5 would not affect any designated or otherwise protected landscapes. The RAG Rating is therefore **Green** for Connection Route Option CG-LL5.	G
	Connection Route Option LL5-FA Connection Route Option LL5-FA would not affect any designated or otherwise protected landscapes. The RAG Rating is therefore **Green** for Connection Route Option LL5-FA.	G
Landscape Character	**Connection Route Option CG-LL5** Connection Route Option CG-LL5 would directly affect LCT 237 (Rocky Moorland – Lochaber) and LCT 235 (Broad Forested Strath). Both these LCTs are considered to have a Medium (or locally Low where existing OHLs are present) sensitivity to development of this type. There would be some potential for cumulative effects with other existing OHLs in this area, to the south of Loch Lundie, where Connection Route Option CG-LL5 would follow the existing Quoich to Aberchalder OHL. Whilst this reduces the sensitivity of the landscapes involved slightly, it would lead to potential for cumulative impacts and would increase the influence of OHL development. The allocated **Amber** rating for Connection Route Option CG-LL5 has been applied due to the potential for cumulative effects in the area around the southern bank of Loch Lundie.	A

	Connection Route Option LL5-FA Connection Route Option LL5-FA would directly affect LCT 237 (Rocky Moorland – Lochaber), which is considered to have a Medium (or locally Low where existing OHLs are present) sensitivity to development of this type. There would be some potential for cumulative effects with other existing OHLs in this area, to the east of Loch Lundie. However, if site option LL5 were selected, it is anticipated that the existing Fort Augustus – Fort William steel lattice OHL would be removed between the new substation and Fort Augustus Substation, and therefore Connection Route Option LL5-FA would result in an effective like-for-like replacement with minimal landscape effect. A **Green** RAG rating has therefore been allocated to Connection Route Option LL5-FA.	G
Visual	**Connection Route Option CG-LL5** Connection Route Option CG-LL5 would lead to visual effects on users of a Core Path which passes to the east of Loch Lundie, particularly on the approach to the point where the route option would cross over the core path to the south of Loch Lundie. Although existing OHLs are already visible from this Core Path, Connection Route Option CG-LL5 would lead to potential cumulative visual effects with the potential for the creation of a greater characterisation of OHL infrastructure in this area. The allocated **Amber** rating has been applied to Connection Route Option CG-LL5 due to the potential for cumulative visual effects in the area around the southern bank of Loch Lundie.	A
	Connection Route Option LL5-FA Connection Route Option LL5-FA would be potentially visible in easterly views from a Core Path which passes to the east of Loch Lundie. However, if substation Site Option LL5 were selected, it is anticipated that the existing Fort Augustus – Fort William steel lattice OHL would be removed from between the new substation and Fort Augustus Substation and therefore, this option would lead to an effective like-for-like replacement of this OHL in views experienced from this route. It is therefore anticipated that the visual effects on users of the Core Path would be minimal. A **Green** RAG rating has therefore been allocated to Connection Route Option LL5-FA.	G
Land Use		
Topics	**Potential Constraints**	**RAG Rating**
Agriculture	**Connection Route Option CG-LL5** Connection Route Option LL7-FA would only affect lower quality agricultural land, graded as Agricultural Land Capability (ALC) 3b and below. Most of the on land within Connection Route Option CG-LL5 is only capable of supporting rough grazing (ALC 6.2 and 6.3). A **Green** rating has therefore been applied to Connection Route Option CG-LL5	G
	Connection Route Option LL5-FA Connection Route Option LL5-FA would only affect lower quality agricultural land, graded as Agricultural Land Capability (ALC) 3b and below. Most of the on land within Connection Route Option LL5-FA is only capable of supporting rough grazing (ALC 6.2 and 6.3). A **Green** rating has therefore been applied to Connection Route Option LL5-FA.	G
Forestry	**Connection Route Option CG-LL5** Connection Route Option CG-LL5 includes sections of commercial coniferous plantations, predominantly to the east but also including the western extremity. Should this connection route option require felling of the edges of these plantations there would be some implications	A

	to the commercial forest operations and an **Amber** rating is applied. Should the route avoid all the forestry plantations then the rating would be **Green**. The areas of AWI and NWSS are avoidable and are in this scenario do not impact the RAG rating. Assuming the plantations will require some felling an **Amber** rating is allocated to Connection Route Option CG-LL5.	
	Connection Route Option LL5-FA Connection Route Option LL5-FA includes approximately 50% commercial coniferous forestry plantation contained within the southern portion. There are areas of AWI and NWSS upland birchwood in the northern edges of the connection route option. There is opportunity to minimise the felling to the plantation edge and avoid the native woodlands and accordingly this is allocated an **Amber** RAG rating for Connection Route Option LL5-FA.	A
Recreation	**Connection Route Option CG-LL5** Part of the Faichemard Farm Caravan and Camping site is located within the north eastern extent of Connection Route Option CG-LL5. It is anticipated direct impacts on this site could be avoided by micrositing the OHL infrastructure within the connection route option, however the OHL may lead to visual effects for residents at the caravan and camping site, including cumulative visual effects with existing grid infrastructure in the surrounding area. The existing access track which passes to the east of Loch Lundie is classified as a Core Path (by THC) and a Scottish Hill Track (by SCOTWAYS). It is anticipated direct impacts on the existing access track could be avoided by rerouting the access track of micrositing the OHL infrastructure within the connection route option. However, an OHL within this connection route may lead to visual effects on users of the Core Path / Scottish Hill Track. As noted in the 'Landscape and Visual – Visual' section above, Connection Route Option CG-LL5 would lead to visual effects on users of a Core Path which passes to the east of Loch Lundie, particularly on the approach to the point where the route option would cross over the core path to the south of Loch Lundie. Although existing OHLs are already visible from this Core Path, Connection Route Option CG-LL5 would lead to potential cumulative visual effects with the potential for the creation of a greater dominance of OHL infrastructure in this area. An **Amber** RAG rating has been applied to Connection Route Option CG-LL5 due to the potential visual effects on recreational users around Loch Lundie. Commercial Highland Sports To the south of Loch Lundie, Connection Route Option CG-LL5, is located within an area of open moorland land owned by Aberchalder Estate. The estate is managed for sporting activities, including red deer stalking and trout and salmon fishing, as well as other recreational activities such as highland safaris. Loch Lundie is used for brown trout fishing. Stag and hind stalking activities take place in September and October on the estate. The eastern extent of Connection Route Option CG-LL5 passes through an area of coniferous plantation woodland owned by FLS, which would not be used for commercial highland sport. Connection Route Option CG-LL5 may interact with areas used for commercial highland sports on Aberchalder Estate in the Loch Lundie area. This connection route option therefore has some potential to compromise the commercial viability of highland sports within the estate, particularly during the construction phase. An **Amber** rating has therefore been applied to Connection Route Option CG-LL5.	A

	An **Amber** RAG rating has been applied due to the potential visual effects on recreational users around Loch Lundie, and the potential impacts on the commercial viability of highland sports on Aberchalder Estate.	
	Connection Route Option LL5-FA The existing access track which passes to the east of Loch Lundie is classified as a Core Path (by THC) and a Scottish Hill Track (by SCOTWAYS). It is anticipated direct impacts on the existing access track could be avoided by rerouting the access track of micrositing the OHL infrastructure within the route option. However, an OHL within this route may lead to visual effects on users of the Core Path / Scottish Hill Track. As noted in the 'Landscape and Visual – Visual' section above, Connection Route Option LL5-FA would lead to visual effects on users of a Core Path which passes to the east of Loch Lundie. Although existing OHLs are already visible from this route, the Proposed Development would lead to potential cumulative effects with the potential for the creation of a greater dominance of OHL infrastructure in this area. However, if site option LL5 were selected, it is anticipated that the Connection Route Option LL5-FA could replace this existing Fort Augustus – Fort William steel lattice OHL along the eastern side of Loch Lundie. It is therefore anticipated that the cumulative visual effects on users of the core path along the eastern bank of Loch Lundie would be minimal. A **Green** RAG rating has been applied due to the potential visual effects on recreational users around Loch Lundie. Commercial Highland Sports To the west, Connection Route Option LL5-FA is located within an area of open moorland land owned by Aberchalder Estate. The estate is managed for sporting activities, including red deer stalking and trout and salmon fishing, as well as other recreational activities such as highland safaris. Loch Lundie is used for brown trout fishing. Stag and hind stalking activities take place in September and October on the estate. To the east, Connection Route Option LL5-FA passes through an area of coniferous plantation woodland owned by FLS, which would not be used for commercial highland sport. Connection Route Option LL5-FA may interact with areas used for commercial highland sports on Aberchalder Estate in the Loch Lundie area. Therefore, this route has some potential to compromise the commercial viability of highland sports within the estate, particularly during the construction phase, of the OHL is routed to the west of the forestry area. However, as it is anticipated that the Connection Route Option LL5-FA would replace this existing Fort Augustus – Fort William steel lattice OHL along the eastern side of Loch Lundie these impacts would be minimal. Alternatively, the OHL could be routed through the forestry to the east. A **Green** rating has therefore been applied. An overall **Green** RAG rating has been applied to Connection Route Option LL5-FA.	G
Planning		
Topics	**Potential Constraints**	**RAG Rating**
Policy	**Connection Route Option CG-LL5** Connection Route Option CG-LL5 would be brought forward in full compliance with national, regional or local planning policy. A **Green** RAG rating has been applied to Connection Route Option CG-LL5.	G
	Connection Route Option LL5-FA Connection Route Option LL5-FA would be brought forward in full compliance with national, regional or local planning policy. A **Green** RAG rating has been applied to Connection Route Option LL5-FA.	G

Proposals	**Connection Route Option CG-LL5** Connection Route Option CG-LL5 may interact with the construction or dismantling of SSEN Transmission OHL proposals. No other proposals that are either consented or known to the planning system have been identified within Connection Route Option CG-LL5. A **Green** RAG rating has been applied to Connection Route Option CG-LL5.	G
	Connection Route Option LL5-FA Route Option LL5-FA (Part A may interact with the construction or dismantling of SSEN Transmission OHL proposals. No other proposals that are wither consented or known to the planning system have been identified within Connection Route Option LL5-FA. A **Green** RAG rating has been applied to Connection Route Option LL5-FA.	G

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APPENDIX 10.2: ROUTE OPTIONS: 400 KV / 132 KV LOCH LUNDIE SUBSTATION CONNECTION ROUTE SELECTION - RAG SUMMARY TABLE

Appendix 10.2: Evaluation Criteria During Routing Process - Route Connection Options			Route Connection Options		
			Substation Site Option LL7	Substation Site Option LL5	
			Connection Route LL7 - FA	Connection Route CG - LL5	Connection Route LL5 - FA
Environmental / Consenting	Natural Heritage	Designations	Lower Impact	Lower Impact	Lower Impact
		Protected Species	Lower Impact	Lower Impact	Lower Impact
		Habitats	Moderate Impact	Moderate Impact	Moderate Impact
		Ornithology	Moderate Impact	Moderate Impact	Moderate Impact
		Hydrology / Geology / Hydrogeology	Moderate Impact	Moderate Impact	Moderate Impact
	Cultural Heritage	Designations	Lower Impact	Lower Impact	Lower Impact
		Cultural Heritage Assets	Lower Impact	Lower Impact	Lower Impact
	People	Proximity to Dwellings	Lower Impact	Moderate Impact	Lower Impact
	Landscape & Visual	Designations	Lower Impact	Lower Impact	Lower Impact
		Landscape Character	Moderate Impact	Moderate Impact	Lower Impact
		Visual	Moderate Impact	Moderate Impact	Lower Impact
	Land Use	Agriculture	Lower Impact	Lower Impact	Lower Impact
		Forestry	Lower Impact	Moderate Impact	Moderate Impact
		Recreation	Moderate Impact	Moderate Impact	Lower Impact
	Planning	Policy	Lower Impact	Lower Impact	Lower Impact
		Proposals	Lower Impact	Lower Impact	Lower Impact
Engineering	Infrastructure Crossings	Major Crossings	No Preference	No Preference	No Preference
		Road Crossings	No Preference	No Preference	No Preference
	Environmental Design	Elevation	No Preference	No Preference	No Preference
		Atmospheric Pollution	No Preference	No Preference	No Preference

		Contaminated Land	No Preference	No Preference	No Preference
		Flooding	No Preference	No Preference	No Preference
	Construction / Maintenance	Access	No Preference	No Preference	No Preference
		Angle Towers	No Preference	No Preference	No Preference
	Ground Conditions	Terrain	No Preference	No Preference	No Preference
		Peat	No Preference	No Preference	No Preference
	Proximity	Clearance Distance	No Preference	No Preference	No Preference
		Windfarms	No Preference	No Preference	No Preference
		Communication Masts	No Preference	No Preference	No Preference
		Urban Environments	No Preference	No Preference	No Preference
		Metallic Pipelines	No Preference	No Preference	No Preference
Cost	**Capital**	Construction	No Preference	No Preference	No Preference
		Diversions	No Preference	No Preference	No Preference
		Public Road Improvements	No Preference	No Preference	No Preference
		Tree Felling	No Preference	No Preference	No Preference
		Land Assembly	No Preference	No Preference	No Preference
		Consent Mitigations	No Preference	No Preference	No Preference
	Operational	Inspections	No Preference	No Preference	No Preference
		Maintenance	No Preference	No Preference	No Preference

APPENDIX 12.1 – ENVIRONMENTAL APPRAISAL OF ALIGNMENT OPTIONS: 400 KV COIRE GLAS SWITCHING STATION PREFERRED SITE – 400 KV / 132 KV LOCH LUNDIE SUBSTATION PREFERRED SITE

Environmental Appraisal

The Baseline Alignment between the Preferred Site of the 400 kV Coire Glas Switching Station (Site Option CG1) the Preferred Site of the 400 kV / 132 kV Loch Lundie Substation (Site Option LL5) has been assessed against the environmental categories in SSEN Transmission plc's guidance[1],using the methodology summarised in Appendix 3.1 (See Table 1). The Alignment Variations identified have then been assessed against the same environmental criteria as the Baseline Alignment and a conclusion has been provided on whether or not the Variation Alignment is preferred to the Baseline Alignment for each environmental criteria (See Tables 2 and 3). An Overall summary and alignment preference has also been provided for each Variation Alignment.

Table 1: 400 kV Coire Glas Switching Station – 400 kV / 132 kV Loch Lundie Substation: Baseline Alignment (See Figures 11.1 – 11.9)

Description:
The Baseline Alignment represents the Preferred Alignment between the Preferred Site of the new 400 kV Coire Glas Switching Station and the Preferred Site of the new 400 kV / 132 kV Loch Lundie Substation from an engineering perspective. It forms the 'base' alignment from which all other options are deviated. The Baseline Alignment would connect to the northern side of the new 400 kV Coire Glas Switching Station. From the switching station, the Baseline Alignment would travel directly through the forestry at White Bridge for approximately 2 km, crossing several forestry tracks, including the main haul road which is classified as a Scottish Hill Track and is often used by hillwalkers ascending the summit of Ben Tee. The Baseline Alignment would travel to the west of properties at Glenluie, which are located in a clearing within the forestry. The Baseline Alignment would then cross the River Garry and the A87. After crossing the A87, the Baseline Alignment would travel through another area of forestry at Munerigie Wood for approximately 0.6 km, before crossing the minor road between Faichem and Munerigie, to reach an elevated area of open moorland to the south-west of Loch Lundie. There are several rural properties and

[1] Referenced in: SSEN (March 2018), Procedures for Routeing Overhead Lines of 132kV and above

outbuildings scattered along the minor road between Faichem and Munerigie. Loch Lundie forms the most westerly extent of the West Inverness-shire Special Protected Area (SPA) and Site of Special Scientific Interest (SSSI).

The Baseline Alignment would then travel in a general easterly direction to the south of Loch Lundie for approximately 2 km, to connect into the Preferred Site of the western side of the new 400 kV / 132 kV Loch Lundie Substation, which would be located on the edge of the commercial forestry to the north of Invergarry. In this open moorland area, the Baseline Alignment would cross the Allt a Bhainne, the Aldernaid Burn and the existing access track on Aberchalder, which is classified as a Core Path and Scottish Hill Track. The existing Fort Augustus to Skye OHL and the Quoich to Aberchalder OHL are also currently located within this area of open moorland to the south of Loch Lundie. Although is anticipated that the Fort Augustus to Skye T OHL will be replaced by the proposed Skye Reinforcement Project and dismantled, this assessment has been undertaken using the existing baseline. Existing and planned grid infrastructure are illustrated on Figure 11.7.

Review of Environmental Constraints:

Natural Heritage

Topics	**Potential Constraints**
Designations	No designated RAMSAR, Special Site of Scientific Interest (SSSI), Special Protection Area (SPA), Special Area of Conservation (SAC), National Nature Reserve (NNR) or other regionally, nationally, or internationally designated sites are crossed by the Baseline Alignment. Within 1 km of the Baseline Alignment lies two SSSI and one SPA site. The West Inverness-shire Lochs SSSI and SPA comprises eight freshwater upland lochs and has been designated as they support internationally important numbers of breeding black-throated divers (*Gavia arctica*), an Annex 1 species and also for supporting a population of international importance of the migratory species common scoter (*Melanitta nigra*). Loch Garry and Loch Lundie are both component lochs of the SSSI and SPA and lie approximately 380 m and 200 m from the Baseline Alignment respectively. Garry Falls SSSI lies where the River Garry emerges from Loch Garry. The site encompasses upland mixed ash woodland and supports a rich assemblage of bryophyte interest. Woodland qualifying features are associated with cliffs and block scree slopes, and comprise native broadleaved species with a rich understorey of bryophytes associated with deadwood. The bryophyte assemblage is also considered of significance including two nationally scarce species, *Ulota calvescens* and *Cephalozia catenulate.* The Baseline Alignment avoids the Garry Falls SSSI by approximately 90 m. The Baseline Alignment travels through approximately 1.3 km of woodland at White Bridge which is included in the Ancient Woodland Inventory (AWI) of semi-natural origin (2a). Within this woodland, the Native Woodland Survey of Scotland (NWSS) identifies areas of native woodland, nearly-native woodland, open land habitat and plantations on ancient woodland sites (PAWS). The majority of woodland type which is passed through by the Baseline Alignment at White Bridge is PAWS, however, close to the Coire Glas Switching Station, the Baseline Alignment passes through areas of Caledonian pinewood regeneration zones.
Protected Species	Initial walkover surveys undertaken in August 2021 highlighted the presence of pine marten (*Martes martes*) in areas of forestry south of the River Garry. Abundant woodland, and woodland edge habitat, provide suitable habitat for badger (*Meles meles*), red squirrel (*Sciurus vulgaris*), pine marten (*Martes martes*) and bat species. Riparian zones provide suitable habitat for otter (*Lutra lutra*). Loss of small areas of habitat associated with overhead line infrastructure is therefore unlikely to significantly reduce habitat suitability or availability of the wider area. Potential for impacts on protected species could be further reduced or eliminated by undertaking pre-construction surveys and adopting appropriate mitigation.
Habitats	Initial walkover surveys undertaken in August 2021 indicate that the Baseline Alignment passes through large areas of coniferous plantation. Many coupes within the plantation are stocked with mature Scot's pine (*Pinus sylvestris*). Along track sides and riparian corridors, including the River Garry, semi-natural mixed and broadleaved woodland is also present. These are commonly represented by *Birch Betula spp*. woodlands. More open areas in the woodlands are dominated by Bracken (*Pteridium aquilinum*) and modified heath communities, with patchy areas of regenerating woodland. Open moorland is crossed

	between Munerigie Wood and the site of the proposed Loch Lundie Substation where wet heath habitat is extensive with smaller areas of blanket mire and acid flush habitat. Annex 1 The Baseline Alignment passes through approximately 1.3 km of woodland at White Bridge included in the Ancient Woodland Inventory (AWI). Areas of semi-natural woodland and Scot's pine plantation are identified on the AWI of semi-natural origin (2a). Loss of woodland, including AWI woodland (also see 'Land use – Forestry' section below), is considered probable from routeing infrastructure through the Baseline Alignment. Wet heath habitats are extensive along with smaller areas of blanket mire in the area of open moorland as the Baseline Alignment passes between Munerigie Wood and the site of the proposed Loch Lundie Substation. Both wet heath and blanket mire are Annex 1 habitats. GWDTE (Groundwater Dependent Terrestrial Ecosystems) GWDTE are found within the Baseline Alignment. Within the coniferous plantation at White Bridge, GWDTE are not considered extensive along as they are largely limited to the surrounds of small hydrological pathways. Within the woodland areas, loss of GWDTE could be minimised by micrositing of infrastructure. Wet heath habitats are crossed by the Baseline Alignment as it passes between Munerigie Wood and the site of the proposed Loch Lundie Substation. Wet heath habitats are considered to be moderately dependent on groundwater. Wet heath is extensive within the area of open moorland crossed by the Baseline Alignment and is unlikely to be completely avoidable. Acid flush habitats are also present within proximity to the Baseline Alignment and are considered to be highly dependent on groundwater. Impacts to GWDTE of higher dependency could be avoided by micro-siting infrastructure to avoid acid flush habitats. Biodiversity The LOD of the Baseline Alignment between the Preferred 400 kV Coire Glas Switching Station Site and the Preferred 400 kV/ 132 kV Loch Lundie Substation Site and the existing Fort Augustus Substation would contain 712.23 Biodiversity Units (BU) at 7.44 BU/ Hectare. In Biodiversity Net Gain (BNG) guidance, semi-natural ancient woodlands and blanket bog habitat are considered to be irreplaceable habitat. There is extensive semi-natural woodland crossed by the Baseline Alignment, where felling would be required. Loss of irreplaceable habitat would result in No Net Loss being unachievable. Habitats of high distinctiveness within the corridor also include wet heaths and acid flush in open ground. Where habitats of high distinctiveness are lost, replacement must be of equivalent value to meet No Net Loss. Removal of coniferous plantation is likely to present an opportunity to enhance biodiversity value within the route, by replacement with habitats of higher distinctiveness value. However, it should be noted that removal of woodland habitat creates difficulty in achieving No Net Loss due to the time taken for replacement woodland and/or scrub to achieve suitable structure and condition and for the replacement biodiversity value to be realised.
Ornithology	Ornithological constraints are focussed on those species breeding within the forestry, and those species which use the forest or the river for hunting purposes. Potential protected species are likely to be limited to Goshawk (*Accipiter gentilis*) (with presence/absence confirmed during breeding surveys) and Crossbill (*Loxia curvirostra*) (which have already been recorded as present in this area), although several woodland species are Red and Amber List species of conservation concern including, but not limited to, Song Thrush (*Turdus philomelos*), Spotted Flycatcher (*Muscicapa striata*), Tree Pipit (Anthus trivialis), Lesser Redpoll (*Acanthis cabaret*) (confirmed as present), Meadow Pipit (*Anthus pratensis*) (confirmed as present) and Willow Warbler (*Phylloscopus trochilus*). Baseline Alignment Coire Glas – Loch Lundie could compromise the conservation status of population(s) of Schedule 1 bird species or Red or Amber listed if breeding or hunting within the route. Standard bird surveys will continue to be undertaken to update the baseline and inform the route assessment, and appropriate mitigation measures should be implemented to minimise any disturbance / collision risk to protected species along this route.
Hydrology / Geology	The Baseline Alignment is located within the surface water catchment of the River Garry, specifically within two tributaries of the river and the river itself; the Allt na Cailliche to the south, the River Garry within the centre and the Aldernaig Burn to the north. The Baseline Alignment option would cross (perpendicularly) three tributaries of the River Garry, including two crossings over the Allt Coire Bo Chailein (a tributary of the Allt na Cailliche), Aldernaig Burn and the Allt a'Bhainne (a tributary of the Aldernaig Burn), and the river itself.

	The entire Aldernaig Burn catchment has been designated as a Drinking Water Protected Area (DWPA), whereby water is abstracted by SSE and THC from the burn approximately 500 m downstream of the Baseline Alignment. Subject to appropriate mitigation measures to control pollution events during construction and operation phase of the alignment, it is considered unlikely that the presence of the DWPA will pose a significant development constraint. SEPA published floodplain mapping shows a floodplain associated with the River Garry and its larger tributaries, however flood extents are largely confined to the watercourse channels. Whilst not a development constraint, due regard will need to be made to flood risk during the design, construction, and operational phase of the alignment. Particular attention will be required at the proposed watercourse crossings, where the floodplains will also be crossed. The alignment generally overlies the Tarvie Psammite Formation which comprises psammites. A small section of the northern extent of the alignment overlies the West Highland Granite Gneiss Intrusion which comprises granite and gneissose. The bedrock is overlain partially by superficial deposits of hummocky glacial deposits (diamicton, sand and gravels) and alluvium (clay, silt, sand and gravel) near the larger watercourses including the River Garry. A small area of peat is noted to the south-west of the Allt a'Bhainne. Neither the superficial or bedrock geology are rare and do not pose a development constraint. Published priority peatland mapping suggests that the Baseline Alignment is not located within Class 1 or 2 priority peatland. The southern extent of alignment is underlain by Class 4 peatland (areas unlikely to be associated with peatland habitats or include carbon-rich soils) while the northern extent is generally absent of peat soils of conservation value. Site specific peat probing has been completed along the majority of the alignment option. Within 100m of the proposed alignment, a peat depth of between 0 and 5.6m was recorded; approximately 88% of peat probes recorded depths <1m deep. Areas of deeper peat are noted to the south-west of the Allt a'Bhainne and near the south-western corner of the 400kV / 132 kV Loch Lundie Substation. The presence of peat is not considered a development constraint subject to micrositting to avoid areas of deeper peat.
Cultural Heritage	
Topics	**Potential Constraints**
Designations	There are no designated heritage assets within the Baseline Alignment Limits of Deviation (LOD). No potential direct or settings effects on designated heritage assets are anticipated. There is one Category C Listed Buliding (Suspension Footbridge, Falls Of Garry, Invergarry) of low sensitivity within 500 m of the Baseline Alignment LOD. No potential direct or setting effects are anticipated.
Cultural Heritage Assets	There are no non-designated heritage assets, listed in the HER, within the Baseline Alignment LOD. No potential direct effects are anticipated.
People	
Topics	**Potential Constraints**
Proximity to Dwellings	As the Baseline Alignment passes through the forestry at White Bridge in would pass within 300 m of the properties at Glenluie. If the Baseline Alignment was to be microsited within the LOD in the vicinity of Glenluie, then care would be required to ensure that this did not result in potential noise and visual amenity issues. As the Baseline Alignment exits the northern extent of Munerigie Wood, it would pass within 150 m to the north and west of a small cluster of properties scattered along the minor road between Faichem and Munerigie, which could lead to noise and visual amenity issues at these properties. A suitable separation buffer (anticipated to be a minimum of 170 m based on preliminary noise modelling) from the OHL route would need to be applied to these properties to ensure that the OHL did not result in potential noise and visual amenity issues at these properties. Micrositing of the Baseline Alignment within the LOD may be required. However, micositing options to the north may be restricted by existing and/or planned grid infrastructure, including the proposed Skye Reinforcement Project.
Landscape and Visual	
Topics	**Potential Constraints**

Designations	The Baseline Alignment would not affect any designated landscapes.
Landscape Character	The Baseline Alignment would pass through LCT 235 (Broad Forested Strath) and LCT 237 (Rocky Moorland – Lochaber). Both these LCTs are considered to have a Medium (or locally Low where existing OHLs are present) sensitivity to development of this type. The Baseline Alignment would lead to a wayleave being established through areas of Caledonian Pine Woodland, which is a valued feature of the landscape in White Bridge forest and is also likely to affect other aresa of native and ancient woodland. Wayleaves would form a visible cut through areas of forest to north and south of the A87 affecting the enclosed and intimate woodland character and towers would form new prominent features crossing Glen Garry and on side slopes to north and south. There is potential for the tall towers proposed to skyline and for incrased cumlulative effects with existing OHL within the Invergarry area.
Visual	The Baseline Alignment would lead to likely visual effects for the Faichemard Farm Caravan and Camping Site, although the properties at Glenluie may not be affected. Visual effects would also be likely for recrational users as the alignment crosses the River Garry, where rafting and white water canoeing is popular, and the A87. Visual effects could be significant for users of the Core Path / Scottish Hill Track which runs along the eastern banks of Loch Lundie. Although existing OHLs are already visible from this route, the Proposed Development would lead to potential cumulative effects with the potential for the creation of a greater dominance of OHL infrastructure in this area.
Land Use	
Topics	**Potential Constraints**
Agriculture	The Baseline Alignment would only affect lower quality agricultural land, graded as Agricultural Land Capability (ALC) 3b and below.
Forestry	The Baseline Alignment includes mid rotation, upland commercial conifers, mainly Sitka spruce and Lodgepole pine. Scots pine and birch are present. Where the Baseline Alignment connects to the northern side of the new 400 kV Coire Glas Switching Station, the conifer planting is interspaced with a high percentage of open ground. Cutting a new alignment through this woodland may result in some localised windthrow. However, due to the fragmented nature of the crop this could be mitigated with small additional management felling. Munerigie Wood is a denser woodland and a new alignment here may result in windblow or more extensive management felling. Solely on the commercial woodlands an Amber rating is applicable. Beyond Munerigie Wood most forestry is avoided. The area between the new Coire Glas Switching Station and almost to White Bridge is all recorded in the Caledonian Pinewood Inventory classed as Glen Garry Caledonian Pinewood Buffer Zone. Within this zone are areas of Caledonian Pinewood Regeneration Zone. The Baseline Alignment to White Bridge passes through areas listed within Native Woodland Survey of Scotland (NWSS) as plantation on Ancient Woodland sites (PAWS). The native woodland types include Native pinewood, and upland birchwood. Furthermore, areas identified within the Ancient Woodland Inventory (AWI) include Ancient of semi-natural origin, as identified from the 1860 maps (ASNO 1860). The mapped areas cross the full width of LOD of the Baseline Alignment.
Recreation	<u>Recreation</u> Immediately after exiting the Coire Glas Switching Station Site, the Baseline Alignment would cross the main haul road within the forestry at White Bridge, which is classified as a Scottish Hills Track. It is anticipated direct impacts on the existing access track could be avoided by rerouting the haul road or micrositing the alignment within the LOD. However, visual effects would be likely for users of this recreational route. The Baseline Alignment would cross the recreational area around White Bridge. This area is popular location for canoeists, due to scheduled water releases from the Dam at White Bridge. There are also Core Paths and other locally used forest and woodland paths in this forest area around the River Garry. It is

	anticipated that the OHL alignment could be microsited to avoid direct impacts on the recreational amenity value of this recreational area. However, as noted in the 'Landscape and Visual – Visual' section above, visual effects would be likely for recreational users as the alignment crosses the River Garry, and the A87. The Faichemard Farm Caravan and Camping Site is located within the south-east of the Baseline Alignment where it crosses the minor road between Faichem and Munerigie. As noted in the 'Landscape and Visual – Visual' section above, the Baseline Alignment would lead to likely visual effects for residents at Faichamard. The Baseline Alignment would cross the Core Path / Scottish Hill Track which passes to the east of Loch Lundie at a location to the south-east of Loch Lundie. It is anticipated direct impacts on the existing access track could be avoided by rerouting the access track or micrositing the alignment within the LOD. However, as noted in the 'Landscape and Visual – Visual' section above, visual effects would be likely for users of this recreational route. Although existing OHLs are already visible from this route, the Proposed Development would lead to potential cumulative effects with the potential for the creation of a greater dominance of OHL infrastructure in this area. <u>Commercial Highland Sports</u> The Baseline Alignment is largely located within an area of coniferous plantation woodland at White Bridge and Munerigie Wood, both owned by Forestry and Land Scotland (FLS). These woodland areas are not used for commercial highland sport. The area to the south of Loch Lundie is land owned by Aberchalder Estate. The estate is managed for sporting activities, including red deer stalking and trout and salmon fishing, as well as other recreational activities such as highland safaris. Loch Lundie is also used by the estate for brown trout fishing. Stag and hind stalking activities take place in September and October on the estate. The Baseline Alignment may interact with areas used for commercial highland sports on Aberchalder Estate in the Loch Lundie area. This alignment therefore has some potential to compromise the commercial viability of highland sports within the estate, particularly during the construction phase.
Planning	
Topics	**Potential Constraints**
Policy	The Baseline Alignment would be brought forward in full compliance with national, regional, or local planning policy.
Proposals	Within the forestry at White Bridge the Baseline Alignment may interact with the construction of the access track for the consented Coire Glas Pumped Storage Scheme. However, the Coire Glas Grid Connection Project is required for the operation of Coire Glas Pumped Storage Scheme. An application has been submitted for the erection of a house at the Blar an Eas Salt Store at White Bridge (Ref: 21/02045/FUL). The Baseline Alignment would pass within 250 m of the proposed location for these cabins in the area between the River Garry and the A87. In the area to the south of Loch Lundie, the Baseline Alignment may interact with the construction or dismantling of other grid infrastructure within this area around Loch Lundie, depending on the timing of these projects. However, all these projects and proposals are being developed by SSEN Transmission. No other proposals, either consented or known to the planning system, that would interact with the Baseline Alignment have been identified at this stage.

Table 2: 400 kV Coire Glas Switching Station – 400 kV / 132 kV Loch Lundie Substation - CG-LL Alignment Variation 1 (See Figures 11.1 – 11.9)

Description:		
CG-LL Alignment Variation 1 is similar to the Baseline Alignment, except from the northern side of the 400 kV Coire Glas Switching Station it would briefly travel in a westerly direction for approximately 0.2 km, where it would cross a minor watercourse and the main forestry haul road, which is classified as a Scottish Hill Track. The variation would then change direction to a north-westerly direction through the forestry at White Bridge for approximately 1 km, where it would travel to the west of the properties at Glenluie before rejoining the Baseline Alignment at NGR 227378, 801216.		
Review of Environmental Constraints:		
Natural Heritage		
Topics	**Potential Constraints**	**Preferred Alignment**
Designations	As Baseline Alignment	No Preference
Protected Species	As Baseline Alignment	No Preference
Habitats	As Baseline Alignment, except the LOD of an OHL route between the Preferred Coire Glas Switching Station Site and the Preferred 400 kV/132 kV Loch Lundie Substation Site that contained CG-LL Alignment Variation 1 (but otherwise would follow the route of the Baseline Alignment) would contain 687.31 Biodiversity Units (BU) at 7.56 BU/ Hectare.	No Preference
Ornithology	As Baseline Alignment	No Preference
Hydrology / Geology	As Baseline Alignment	No Preference
Cultural Heritage		
Topics	**Potential Constraints**	**Preferred Alignment**
Designations	There are no designated heritage assets within the CG-LL Alignment Variation 1 LOD. No potential direct effects on designated heritage assets are anticipated. There are no designated heritage assets within 500 m of the CG-LL Alignment Variation 1 LOD. No potential settings effects on designated heritage assets are anticipated.	No Preference
Cultural Heritage Assets	There are no non-designated heritage assets, listed in the HER, within the CG-LL Alignment Variation 1 LOD. No potential direct effects are anticipated.	No Preference

People		
Topics	**Potential Constraints**	**Preferred Alignment**
Proximity to Dwellings	CG-LL Alignment Variation 1 would be located slightly closer proximity to the properties at Glenluie that the Baseline Alignment. If the variation were to be microsited within the LOD in the vicinity of Glenluie, then care would be required to ensure that this did not result in potential noise and visual amenity issues at these properties. Micrositing of CG-LL Alignment Variation 1 within the LOD may be required.	CG-LL Variation 1 would be slightly less preferable, as it would be located slightly closer to properties at Glenluie.
Landscape and Visual		
Topics	**Potential Constraints**	**Preferred Alignment**
Designations	The Baseline Alignment would not affect any designated landscapes.	No Preference
Landscape Character	The Baseline Alignment would pass through LCT 235 (Broad Forested Strath) and LCT 237 (Rocky Moorland – Lochaber). Both these LCTs are considered to have a Medium (or locally Low where existing OHLs are present) sensitivity to development of this type. The Baseline Alignment would lead to a wayleave being established through areas of forest. It is understood that this variation is intended to avoid areas of identified Caledonian Forest near to the switching station site. However, this variation would require a new wayleave through woodland and forest including areas of Caledonian Pine Forest and areas of native and ancient woodland. Wayleaves would form a visible cut through areas of forest to north and south of the A87 affecting the enclosed and intimate woodland character and towers would form new prominent features crossing Glen Garry and on side slopes to north and south. There is potential for the tall towers proposed to skyline and for incrased cumlulative effects with existing overhead lines within the Invergarry area.	CG-LL Variation 1 would be slightly preferable as impacts on Caledonian Pine Forest, which is a valued feature of the landscape within the forestry at White Bridge, would be reduced compared to the Baseline Alignment. However, this variation would still require a new wayleave through woodland and forest, including areas of Caledonian Forest, native and ancient woodland.
Visual	The Baseline Alignment would lead to likely visual effects for the Faichemard Farm Caravan and Camping Site, although the properties at Glenluie may not be affected. Visual effects would also be likely for recrational users as the alignment crosses the River Garry, where rafting and white water canoeing is popular, and the A87. Visual effects could be significant for users of the Core Path / Scottish Hill Track which runs along the eastern banks of Loch Lundie. Although existing OHLs are already visible from this route, the Proposed Development would lead to potential cumulative effects with the potential for the creation of a greater dominance of OHL infrastructure in this area.	No Preference
Land Use		
Topics	**Potential Constraints**	**Preferred Alignment**
Agriculture	As the Baseline Alignment.	No Preference

Forestry	CG-LL Alignment Variation 1 initially extends to the west of the switching station and then runs parallel to the Baseline Alignment through the forestry at White Bridge. The purpose of this variation is to minimise impacts on classified areas of Caledonian Pine Forest. However, CG-LL Alignment Variation 1 does not completely avoid the Caledonian Pine Forest and would still be routed through the Caledonian Pine Regeneration Zone in the areas surrounding the switching station locations. A site visit confirmed that regeneration of Caledonian Pine has been successful in this area. CG-LL Alignment Variation 1 avoids an area of woodland listed on the AWO as ASNO 1860 but would enter an area of woodland recorded on the NWSS as upland birchwood.	CG-LL Variation 1 would be slightly preferable as impacts on Caledonian Pine Forest would be reduced compared to the Baseline Alignment. However, loss of Caledonian Pine Forest would still be required to accommodate the wayleave for CG-LL Alignment Variation 1
Recreation	As the Baseline Alignment.	No Preference
Planning		
Topics	**Potential Constraints**	**Preferred Alignment**
Policy	As the Baseline Alignment.	No Preference
Proposals	As the Baseline Alignment.	No Preference
Summary		**Overall Preferred Alignment**
Overall CG-LL Alignment Variation 1 is preferred to the Baseline Alignment, as impacts on Caledonian Pine Forest would be reduced compared to the Baseline Alignment. This would also have benefits in relation to Landscape Character. Although the variation would be located in slightly closer proximity to properties at Glenluie, it is anticipated that potential noise and visual amenity issues at these properties could be avoided by micrositing the OHL within the LOD.		CG-LL Alignment Variation 1 is preferred to the Baseline Alignment.

Table 3: 400 kV Coire Glas Switching Station – 400 kV / 132 kV Loch Lundie Substation -: CG-LL Alignment Variation 2 (See Figures 11.1 – 11.9)

Description:		
CG-LL Alignment Variation 2 would diverge from the Baseline Alignment within the forestry at White Bridge, at a location to the north of Glenluie (NGR227413, 801248). The variation would travel in an east-north-easterly direction for approximately 0.7 km, crossing the River Garry and several recreational routes, including a Core Path. CG-LL Alignment Variation 2 would then change direction and travel in a north-easterly direction for approximately 0.6 km, crossing the A87 before travelling through Munerigie Wood. The variation would then change direction again and travel in an east-north-easterly direction for approximately 0.1 km, where it would re-join the Baseline Alignment at the edge of Munerigie Wood, near the location where the Baseline Alignment crosses an access track between Faichem and Munerigie.		
Review of Environmental Constraints:		
Natural Heritage		
Topics	**Potential Constraints**	**Preferred Alignment**
Designations	As Baseline Alignment, but CG-LL Alignment Variation 2 is located approximately 80 m closer to Garry Falls SSSI than the Baseline Alignment. CG-LL Alignment Variation 2 is downstream of the SSSI and due to the nature of the Proposed Development and the qualifying features of the SSSI, is unlikely to increase the potential impacts on the SSSI compared to the Baseline Alignment. This Alignment is also closer to Loch Garry, a component loch of West Inverness-shire Lochs SPA, which lies approximately 310 m to the north-west, compared to 380 m from the Baseline Alignment.	CG-LL Alignment Variation 2 is slightly less preferred as it is located within closer proximity to the Garry Falls SSSI and the West Inverness-shire Lochs SPA / SSSI than the Baseline Alignment.
Protected Species	As Baseline Alignment.	No Preference
Habitats	As Baseline Alignment, except the LOD of an OHL route between the Preferred Coire Glas Switching Station Site and the Preferred 400 kV/132 kV Loch Lundie Substation Site that contained CG-LL Alignment Variation 2 (but otherwise would follow the route of the Baseline Alignment) would contain 686.80 BU at 7.6 BU/ Hectare. CG-LL Alignment Variation 2 would also avoid the felling / removal of two mature oak trees along the banks of the western banks of the River Garry, close to the public recreational footpath.	CG-LL Alignment Variation 2 is slightly preferred as it would avoid felling/removal of two mature oak trees.
Ornithology	As Baseline Alignment.	No Preference
Hydrology / Geology	As Baseline Alignment, except CG-LL Alignment Variation 2 would not be routed parallel to a minor tributary of the River Garry located within the Forestry at White Bridge.	CG-LL Alignment Variation 2 is slightly preferred as it would avoid the OHL alignment being routed parallel to a minor watercourse.
Cultural Heritage		
Topics	**Potential Constraints**	**Preferred Alignment**

Designations	As Baseline Aligment.	No Preference
Cultural Heritage Assets	As Baseline Aligment.	No Preference
People		
Topics	Potential Constraints	
Proximity to Dwellings	CG-LL Alignment Variation 2 would pass within 150 m to the north of properties scattered along the minor road between Faichem and Munerigie and could lead to noise and visual amenity issues at these properties. A suitable separation buffer (anticipated to be a minimum of 170 m based on preliminary noise modelling) from the OHL route would need to be applied to these properties to ensure that the OHL did not result in potential noise and visual amenity issues at these properties. Micrositing of CG-LL Alignment Variation 2 within the LOD may be required. However, micositing options to the north may be restricted by existing and/or planned grid infrastructure, including the proposed Skye Reinforcement Project. However, these issues are likely to be lesser than the Baseline Alignment as the OHL would only pass within 150 m to the north of properties rather than to the north and west. Alignment Variation 2 would therefore be the preferred option in relation to proximity to dwellings.	CG-LL Alignment Variation 2 preferred as it is anticipated that noise and visual amenity issues would be reduced at properties near Faichem. Although CG-LL Alignment Variation 2 would be located in slightly closer proximity to the consented staff cabins at the Blar an Eas Salt Store, it is anticipated that potential noise and visual amenity issues at these cabins could be avoided by micrositing the OHL within the LOD.
Landscape and Visual		
Topics	**Potential Constraints**	**Preferred Alignment**
Designations	As Baseline Alignment	No Preference
Landscape Character	As Baseline Alignment, CG-LL Alignment Variation 2 would fit better with the character of the forestry at White Bridge as it would better utilise a natural forestry clearing within the Forestry at White Bridge than the Baseline Alignment and would result in the removal of fewer trees in this area.	CG-LL Alignment Variation 2 slightly preferred as this variation would fit better with the character of the forestry at White Bridge.
Visual	As Baseline Alignment	No Preference
Land Use		
Topics	**Potential Constraints**	**Preferred Alignment**

Agriculture	As the Baseline Alignment.	No Preference
Forestry	CG-LL Alignment Variation 2 would have a slightly longer length of OHL within Munerigie Wood than the Baseline Alignment (810 m against 670 m) and therefore would have a slightly greater impact on the commercial viability of this area of commercial woodland. CG-LL Alignment Variation 2 would also intersect the tip of area of woodland listed on the AWI as ASNO 1860 in Munerigie Wood that is avoided by the Baseline Alignment, although it may be possible to avoid this area of woodland through micrositing. However, CG-LL Alignment 2 would better utilise a natural forestry clearing within the Forestry at White Bridge, on the approach to the western bank of the River Garry than the Baseline Alignment, would result in the removal of a reduced number of trees in this areas as a result.	No Preference (on balance)
Recreation	As the Baseline Alignment.	No Preference
Planning		
Topics	Potential Constraints	
Policy	As the Baseline Alignment.	No Preference
Proposals	As the Baseline Alignment.	No Preference
Summary		**Overall Preferred Alignment**
Overall CG-LL Alignment Variation 2 is preferred to the Baseline Alignment, as potential noise and visual amenity impacts on properties along the minor road between Faichem and Munerigie would be reduced. Although the variation would pass within closer proximity to the consented staff cabins at the Blar an Eas Salt Store than the Baseline Alignment, it is anticipated that potential noise and visual amenity issues at these cabins could be avoided by micrositing the OHL within the LOD. CG-LL Alignment Variation 2 would also pass through an area of woodland listed on the AWI that is avoided by the Baseline Alignment but it is anticipated that this area of woodland could be avoided by micrositing the variation within the LOD. CG-LL Variation 2 would better utilise a natural forestry clearing within the Forestry at White Bridge and would result in the removal of fewer trees in this area as a result and would mean that the variation would fit better with the character of the forestry.		CG-LL Alignment Variation 2 is preferred to the Baseline Alignment.

APPENDIX 12.2 – COST APPRAISAL OF ROUTE OPTIONS: 400 KV COIRE GLAS SWITCHING STATION PREFERRED SITE - 400 KV / 132 KV LOCH LUNDIE SUBSTATION PREFERRED SITE

1.1 Economic Assessment

1.1.1 The Baseline Alignment and each Alignment Variation between the 400 kV Coire Glas Switching Station and the 400 kV /132 KV Loch Lundie Substation has been assigned a red-green-amber (RAG) colour ranking using the cost appraisal methodology described in Appendix 3.1 to reflect the relative economic impact of each. In the economic assessment route options would usually be assessed against the criteria SSEN Transmission plc's guidance[1] as set out below and a resultant comparative cost assessment would be prepared for each economic topic.

Table 1: Economic Topic Areas Considered

Economic	
Capital	Construction
	Diversions
	Public Road Improvements
	Felling
	Land Assembly
	Consent Mitigations
Operational	Inspections
	Maintenance

1.1.2 However, due to the nature and extent of this project, it was deemed unnecessary to assess all of the criteria, as differentials between each option proposed for elements such as: Public Road Improvements; Land Assembly; Consent Mitigations; Diversions of Existing Utilities; and Operational Requirements, would be negligible. Felling costs would be subject to a final negotiated fee with relevant landowners (rather than an assumed rate per km) as the extent of tree felling would depend on factors such as the requirement to fell wind firm edges and woodland management plans. As such the below cost comparisons reflect the differential in construction costs per option only.

1.1.3 **Table 2: Economic RAG Criteria**

Economic Colour Coded RAG Rating		
Performance	**Comparative Appraisal**	
Most Preferred  Least Preferred	Lower Impact	< 120% of least Cost Option
	Moderate Impact	120% - 140% of least Cost Option
	Higher Impact	> 140% of least Cost Option

1.1.4 The site selection exercise for the Coire Glas Grid Connection Project concluded that Site Option CG1 was the Preferred Site for the 400 kV Coire Glas Switching Station and Site Option LL5 was the Preferred Site for the

[1] SSEN (March 2018), Procedures for Routeing Overhead Lines of 132kV and above

400 kV /132 KV Loch Lundie Substation. Therefore, the economic assessment assumes that an OHL development within each of the route options would commence at Site Option CG1 and end at Site Option LL5.

1.1.5 In this assessment all proposed Alignment Variation were assessed against the Cost Option (the Baseline Alignment), as illustrated in Table 3.

1.2 Table 3: Economic RAG Assessment

Alignment Variation	RAG Rating
CG-LL 1	< 120% of least Cost Option
CG-LL 2	< 120% of least Cost Option

1.3 Conclusion

In this section the proposed Alignment Variations are the same length as the Cost Option and as such there is no difference in cost and no preference drawn from the economic assessment.

APPENDIX 13.1 – ENVIRONMENTAL APPRAISAL OF ALIGNMENT OPTIONS: 400 KV / 132 KV LOCH LUNDIE SUBSTATION PREFFERRED SITE – FORT AUGUSTUS SUBSTATION

Environmental Appraisal

The Baseline Alignment between the Preferred Site of the 400 kV / 132 kV Loch Lundie Substation (Site Option LL5) and the existing Fort Augustus Substation has been assessed against the environmental categories in SSEN Transmission plc's guidance[1],using the methodology summarised in Appendix 3.1 (See Table 1). The Alignment Variations identified have then been assessed against the same environmental criteria as the Baseline Alignment and a conclusion has been provided on whether or not the Variation Alignment is preferred to the Baseline Alignment for each environmental criteria (See Tables 2 - 6). An Overall summary and alignment preference has also been provided for each Variation Alignment.

Table 1: 400 kV / 132 kV Loch Lundie Substation – Fort Augustus Substation - Baseline Alignment (See Figures 11.1 – 11.9)

Description:
The Baseline Alignment represents the Preferred Alignment between the Preferred Site of the new 132 kV 400 kV Loch Lundie Substation and the existing Fort Augustus Substation from an engineering perspective. It forms the 'base' alignment from which all other options are deviated. It is anticipated that the Baseline Alignment would run parallel to the eastern side of the existing Fort Augustus to Fort William overhead line (OHL) and the Fort Augustus to Skye T OHL. The existing Fort Augustus to Skye OHL and the Quoich to Aberchalder OHL are also currently located within this area of open moorland to the south of Loch Lundie. Although is anticipated that the Fort Augustus to Skye T OHL, the Fort Augustus to Skye OHL and the Quoich to Aberchalder OHL will all be replaced by the proposed new Skye Reinforcement Project and dismantled, this assessment has been undertaken using the existing baseline. It is also assumed that the Fort Augustus to Fort William OHL will be rationalised to the north of the new 400 kV Loch Lundie Substation site (Site Option LL5) and dismantled. Existing and planned grid infrastructure is illustrated on Figure 11.7 The Baseline Alignment would connect to the eastern side of the new 400 kV / 132 kV Loch Lundie Substation. From the substation, the Baseline Alignment would travel in a north-north-easterly direction for approximately 2.4 km and would straddle the boundary between the western edge of the forestry to the north of Invergarry and the area of moorland to the east of Loch Lundie. To the north of the forestry at Invergarry, the Baseline Alignment would continue through the area of open moorland to the north-east of Loch Lundie, where it would change

[1] Referenced in: SSEN (March 2018), Procedures for Routeing Overhead Lines of 132kV and above

direction to a north-easterly direction for approximately 4 km. After changing direction, the Baseline Alignment would cross the existing estate access track and the Allt Dail a Chuirn / Invervidar Burn near Dail a Chuirn, before entering the forestry at Inchnacardoch Forest.

The Baseline Alignment would travel through the forestry at Inchnacardoch Forest for approximately 3.4 km, broadly following the wayleave of the existing Fort Augustus to Fort William OHL. Within the forestry the Baseline Alignment would cross several existing forestry tracks and minor watercourses. The Baseline Alignment would exit the forestry near the settlement of Auchterawe. At this location the Baseline Alignment would diverge from the route of the existing Fort Augustus to Fort William OHL and travel for a further 0.5 km in an east-north-east direction, where it would pass within 200 m of a property at Auchterawe and would also pass over the Forestry and Lands (FLS) Carpark and Picnic Area at Torr Dhuin. At this location the Baseline Alignment would also pass to the north of the Torr Dhuin Fort, which is designated as a Scheduled Monument (SM794).

The Baseline Alignment would then change direction to travel through part of the FLS forestry area to the east of Auchterawe in a north-easterly direction for approximately 0.9km. Through this area of forestry, the Baseline Alignment would run parallel to an existing access track through the forestry which is used for recreational purposes. In this area the Baseline Alignment would pass within 200 m of another property at Auchterawe.

On the approach to the existing Fort Augustus Substation, the Baseline Alignment would change direction to a north-north-westerly direction for the final 0.2 km of the alignment, to connect to the south-western corner of the substation. The Baseline Alignment would also cross a minor watercourse in this area.

Review of Environmental Constraints:	
Natural Heritage	
Topics	**Potential Constraints**
Designations	No designated RAMSAR, Special Site of Scientific Interest (SSSI), Special Protection Area (SPA), Special Area of Conservation (SAC), National Nature Reserve (NNR) or other regionally, nationally, or internationally designated sites would be crossed by the Baseline Alignment. There would be two SSSI and one SPA site within 1 km of the Baseline Alignment. The West Inverness-shire Lochs SSSI and SPA comprises eight freshwater upland lochs and has been designated as they support internationally important numbers of breeding black-throated divers (*Gavia arctica*), an Annex 1 species and also for supporting a population of international importance of the migratory species common scoter (*Melanitta nigra*). Loch Lundie is a component loch of the SSSI and SPA and lies approximately 160 m from the Baseline Alignment at its closest point.
Protected Species	Initial walkover surveys undertaken in August 2021 highlighted the presence of pine marten in areas of forestry north of Invergarry. Abundant woodland, and woodland edge habitat, provides suitable habitat for badger (*Meles meles*), red squirrel (*Sciurus vulgaris*), pine marten (*Martes martes*) and bat species. Loch Lundie and riparian zones associated with watercourses provide suitable habitat for otter (*Lutra lutra*), particularly along the banks of the Invervigar Burn and its tributaries. Wet heath and mire habitats provide suitable habitat for water vole (*Arvicola amphibius*). Loss of small areas of habitat associated with overhead line infrastructure is therefore unlikely to significantly reduce habitat suitability or availability of the wider area. Potential for impacts on protected species could be further reduced or eliminated by undertaking pre-construction surveys and adopting appropriate mitigation.
Habitats	Initial walkover surveys undertaken in August 2021 indicate that the Baseline Alignment would pass through large areas of coniferous plantation. Many coupes within the plantation are stocked with mature Sitka spruce *Picea sitchensis* and Lodgepole pine *Pinus contorta*. Along track sides and riparian corridors, including the Invervigar Burn, semi-natural mixed and broadleaved woodland is also present. These are commonly represented by Birch *Betula spp.* woodlands. More open areas in the woodlands are dominated by Bracken *Pteridium aquilinum* and modified heath communities. Open ground crossed by the route between and adjacent to forestry plantations is dominated by wet heath and blanket mire communities, with smaller areas of dry heath and semi-improved grassland. Annex 1

	Wet heaths are extensive in the area of open moorland between Loch Lundie and the forestry plantation north of Invergarry and also extends north from there until reaching Inchnacardoch Forest. Areas of blanket mire habitat exist on flatter plateaus and depressions in moorland areas. Both habitats are identified as Annex 1 habitats. Smaller patches of dry heath, also an Annex 1 habitat, is present on drier knolls within the open moorland areas. Several areas of semi-natural woodland are crossed by the Baseline Alignment between the north side of Loch Lundie and through the woodland to the Fort Augustus Substation that are identified on the Ancient Woodland Inventory (AWI) of semi-natural origin (1a and 2a). Loss of woodland, including AWI woodland, is considered probable from routeing infrastructure through the Baseline Alignment. <u>GWDTE (Groundwater Dependent Terrestrial Ecosystems)</u> GWDTE are found within the Baseline Alignment. To the west of the plantation forest north of Invergarry, wet heath is extensive. The Baseline Alignment would broadly follow the wayleave of the existing Fort Augustus to Fort William OHL which is dominated by marshy grassland as it passes through Inchnacardoch Forest. Both wet heath and marshy grassland are habitats of moderate groundwater dependency. <u>Biodiversity</u> The LOD of the Baseline Alignment between the Preferred 400 kV/132 kV Loch Lundie Substation Site and the existing Fort Augustus Substation contains 2237.84 Biodiversity Units (BU) at 9.51 BU/ Hectare. In Biodiversity Net Gain (BNG) guidance, blanket mires and semi-natural ancient woodland are considered to be irreplaceable habitat. Small areas of blanket mire and extensive areas of semi-natural ancient woodland are present within the Baseline Alignment. Loss of irreplaceable habitat would result in No Net Loss being unachievable. Habitats of high distinctiveness within the route also include wet heath and small patches of dry heath. Where habitats of high distinctiveness are lost, replacement must be of equivalent value to meet No Net Loss. Removal of coniferous plantation is likely to present an opportunity to enhance biodiversity value within the route, by replacement with habitats of higher distinctiveness value. It should be noted however that removal of woodland habitat creates difficulty in achieving No Net Loss due to the time taken for replacement woodland and/or scrub to achieve suitable structure and condition and for the replacement biodiversity value to be realised.
Ornithology	Ornithological constraints are focussed on the qualifying species of the West Inverness-Shire Lochs SPA (Black-throated Diver and Common Scoter), of which Loch Lundie is a part of, as well as Red-throated Diver. Surveys during the breeding season, and consultation with key stakeholders (NatureScot, RSPB) will establish presence or absence. Black Grouse is also present around Loch Lundie. Further surveys from mid-March-mid May will determine the lekking site(s). Potential species breeding on the open moorland and within the forestry, and those species which use the moorland, forest or the river for hunting purposes could include protected (Schedule 1) species such as Merlin (*Falco columbarius*), Short-eared Owl (*Asio flammeus*), Osprey (Pandion haliaetus), Goshawk (Accipiter gentilis) and Crossbill (*Loxia curvirostra*), although several woodland species are Red and Amber List species of conservation concern including, but not limited to, Song Thrush (Turdus philomelos), Spotted Flycatcher (*Muscicapa striata*), Tree Pipit (*Anthus trivialis*), Lesser Redpoll (*Acanthis cabaret*), Meadow Pipit (*Anthus pratensis*) and Willow Warbler (*Phylloscopus trochilus*). The Baseline Alignment could compromise the conservation status of population(s) of Schedule 1 bird species or Red or Amber listed if breeding or hunting within the route. Standard bird surveys will continue to be undertaken to update the baseline and inform the route assessment, and appropriate mitigation measures should be implemented to minimise any disturbance / collision risk to protected species along this route.
Hydrology / Geology	The Baseline Alignment is located entirely within the surface water catchment of the River Oich, specifically the catchments of the Aldernaig Burn, Allt Leth-bheinne, Invervigar Burn, Allt na Graidhe and Auchterawe Burn. The Baseline Alignment would cross (perpendicularly) several tributaries of the River Oich. There is a section of the Baseline Alignment that would run near the channel of an unnamed tributary of the Invervigar Burn, to the north-east of Loch Lundie, micrositting may be required to move the alignment away from the watercourse channel, to enable construction and mitigate any potential effects. The entire Aldernaig Burn catchment has been designated as a Drinking Water Protected Area (DWPA). The Baseline Alignment extends only marginally into the Aldernaig Burn catchment and therefore only occupies a very small area compared to the extent of the DWPA. Subject to appropriate mitigation measures, it is considered unlikely that the presence of the DWPA will pose a significant development constraint. SEPA published floodplain mapping shows a floodplain associated with the River Oich and its larger tributaries. Flood extents are largely confined to the watercourse channels, however, larger extents are noted near the Allt Dail a'Chuirn (a tributary of the Invervigar Burn) and between the Allt na Graidhe and the

	Auchterawe Burn, including the south of the existing Fort Augustus Substation. The Baseline Alignment would generally avoid these areas of out of channel flooding, however, due regard will need to be made to flood risk during the design, construction, and operational phase of the alignment. The Baseline Alignment would overlay the Tarvie Psammite Formation (psammites) to the south and the West Highland Granite Gneiss Intrusion (granite and gneissose) to the north. The alignment would be largely absent of superficial deposits, except for glaciofluvial deposits (gravel, sand, silt and boulders) located near the existing Fort Augustus Substation. Small areas of hummocky glacial deposits, peat and alluvial fan deposits are also noted along the alignment. Neither the superficial or bedrock geology are rare and do not pose a development constraint. Published priority peatland mapping suggests that approximately 3 km of the southern extent of the Baseline Alignment would be located within Class 2 priority peatland (nationally important carbon-rich soils, deep peat and priority peatland habitat) whilst the northern extent is located within Class 5 (not considered a peatland habitat but peat soils may be recorded). Site specific peat probing has been undertaken along the Baseline Alignment. Within 100 m of the Baseline Alignment. Peat depths of between 0 m and 5.1 m were recorded, with approximately 86% of the peat probes recording depths <1 m. Areas of deeper peat are noted west of proposed location of the new Loch Lundie 400kV Substation and localised areas east of Loch Lundie.
Cultural Heritage	
Topics	**Potential Constraints**
Designations	There are no designated heritage assets within the Baseline Alignment or associated Limit of Deviation (LOD). No potential direct effects on designated heritage assets. There are four Scheduled Monuments (Torr Dhuin, fort (SM 794) and three parts of the Caledonian Canal (SM 6496, SM 6497 and SM 5291)) of high sensitivity within 500m of the Baseline Alignment. There would be a potential for setting effects on each these Scheduled Monuments from the Baseline Alignment. At its closest point the Baseline Alignment would be approximately 160 m Torr Dhuin, fort Scheduled Monument.
Cultural Heritage Assets	There are no non-designated heritage assets, listed in the HER, within the Baseline Alignment or associated LOD. No potential direct effects anticipated.
People	
Topics	**Potential Constraints**
Proximity to Dwellings	There are no dwellings within close proximity of the Baseline Alignment, except on the approach to the existing Fort Augustus Substation, scattered along the Auchterawe Road. As the Baseline Alignment would diverge from the route of the existing Fort Augustus to Fort William OHL at Torr Dhuin and would approach the existing Fort Augustus Substation from the FLS forestry to the east of Auchterawe, the Baseline Alignment avoids most of the dwellings within Auchterawe. However, the towers would be visible from nearby houses. Keeping a fringe of trees between the Baseline Alignment and the open ground at Auchterawe would help to soften the view from properties in this area. The Baseline Alignment would pass within 200 m of a property near the point where it would diverge from the route of the existing Fort Augustus to Fort William OHL at Torr Dhuin and another property located to the west / north-west of the forestry to the east of Auchterawe Road. As a suitable noise buffer (anticipated to be a minimum of 170 m based on a preliminary noise assessment) needs to be applied to all properties within the vicinity of a 400 kV OHL, if the Baseline Alignment were to be microsited within the LOD, then this could lead to potential noise and visual amenity issues at these properties.
Landscape and Visual	
Topics	**Potential Constraints**
Designations	The Baseline Alignment would not affect any landscape designations.

Landscape Character	The Baseline Alignment would directly affect LCT 237 (Rocky Moorland – Lochaber) and LCT 225 (Broad Steep-Sided Glen). Both of these LCT are considered to have some sensitivity to development of this type, but this would be lowered by the presence of existing grid infastructure in the area surrounding Loch Lundie. The Baseline Alignment would mostly follow the alignment of the existing Fort Augustus to Fort William OHL so would not look unexceptional, although if the towers are larger they may be more prominent, especially near Auchterawe and rounding Torr Dhuin Fort, where towers would be on high ground and more likely skyline than existing towers, which could create a greater interruption of the relationship between the settled Auchterawe landscape, the setting of the forest, and the role of the fort as a landmark. Retaining a fringe of trees between the OHL and the open ground at Auchterawe would help reduce the influence on this more sensitive landscape.
Visual	From the proposed Loch Lundie Substation, the Baseline Alignment would follow the Core Path to the east of Loch Lundie for around 3 – 4 km. There would be a visual effect on users of this Core Path, as well as others located between Loch Lundie and Auchterawe, particularly the woodland walks around Torr Dhuin fort. The towers would be elevated going round the fort and visible from nearby houses. Keeping a fringe of trees between the OHL and open ground at Auchterawe would help to soften the view from properties in this area.
Land Use	
Topics	**Potential Constraints**
Agriculture	The Baseline Alignment would only affect lower quality agricultural land, graded as Agricultural Land Capability (ALC) 3b and below.
Forestry	From the new 400 kV Loch Lundie Substation, the Baseline Alignment would follow the western edge of the commercial forestry plantation to the north of Invergarry, of mid rotation Sitka spruce and Lodgepole pine. The close proximity to the plantation may result in felling of the plantation edge within the Limit of Deviation (LOD), felling this edge may result in windthrow within the plantation or management felling to a wind firm edge. It is noted that the Land Management Plan for this Drynachan woodland suggests early felling these areas of forestry due to areas affected by the forest disease Dothistroma needle blight (DNB). Within this plantation there are no woodland designations effected by the LOD. On entering Inchnacarrdoch Forest the Baseline Alignment initially follows the northern edge of commercial conifer plantations which would require felling within the LOD. This alignment further enters the main plantation south of Torr Dhuin and continues within a Scots pine conifer plantation until entry to the Fort Augustus Substation. The Baseline Alignment would require felling a new corridor through semi mature plantation which may result in subsequent windthrow or management felling to windfirm edges. The Baseline Alignment encounters areas of Native Woodland Inventory of Scotland (NWSS), classified as Plantations on Ancient Woodland Sites (PAWS) and Ancient Woodland Inventory (AWI) Ancient of semi-natural origin from 1860 maps ANSO 186. From Torr Dhuin to Fort Augustus Substation NWSS are classified as native pinewood.
Recreation	<u>Recreational Routes</u> From the proposed Loch Lundie Substation, the Baseline Alignment would follow the Core Path to the east of Loch Lundie for around 3 – 4 km as it extends northwards towards Inchnacardoch Forest. It is anticipated direct impacts on this access track could be avoided by micrositing the alignment within the LOD or by rerouteing the access track. However, the Baseline Alignment may lead to visual effects on users of the Core Path / Scottish Hill Track. Although existing OHLs are already visible from this route, a new OHL at this location would lead to potential cumulative effects for user of the Core Path / Scottish Hill Track, with the potential for the creation of a greater dominance of OHL infrastructure in this area. There are also several other woodland Core Paths within Inchnacardoch Forest, including a circular route leading to the Torr Dhuin Fort, which the Baseline Alignment would cross intermittently. The Baseline Alignment would also cross NCR 78 and the FLS Car park and Picnic Area at Torr Dhuin. On the approach to the existing Fort Augustus Substation the Baseline Alignment would run parallel to the western side of a recreational footpath with the FLS forestry to the east of Auchterawe. Again, it is anticipated that direct impacts on these recreational routes/areas could be avoided by mircositing the Baseline Alignment within the LOD

	or by rerouting sections of the footpaths/cycle paths. However, as noted in the 'Landscape and Visual – Visual' section above, there would likely be visual effect on users of the Core Paths between Loch Lundie and Auchterawe, particularly the woodland walks around Torr Dhuin fort where the towers would be elevated. Commercial Highland Sports The Baseline Alignment is largely located within areas of commercial forestry owned by FLS. These woodland areas would not be used for commercial highland sport. The area to the east and north-east of Loch Lundie is land owned by Aberchalder Estate. The estate is managed for sporting activities, including red deer stalking and trout and salmon fishing, as well as other recreational activities such as highland safaris. Loch Lundie is also used by the estate for brown trout fishing. Stag and hind stalking activities take place in September and October on the estate. The Baseline Alignment may interact with areas used for commercial highland sports on Aberchalder Estate in the Loch Lundie area. This alignment therefore has some potential to compromise the commercial viability of highland sports within the estate, particularly during the construction phase.
Planning	
Topics	**Potential Constraints**
Policy	The Baseline Alignment would be brought forward in full compliance with national, regional, or local planning policy.
Proposals	The Baseline Alignment may interact with the construction or dismantling of other grid infrastructure within this area, depending on the timing of these projects. However, all these projects and proposals are being developed by SSEN Transmission. Landscape mitigation works have been consented around the existing Fort Augustus Substation. The Proposed Alignment into the Fort Augustus Substation taken forward should be designed / microsited to avoid impacts on this consented landscape mitigation as far as possible, particularly on the northern and western sides of the substation, where views of the existing substation may be visible to users of Auchterawe Road and from properties. In March 2021, consent was granted for a battery energy storage project (Ref: 20/04565/FUL) located near the south-western corner of the fields to the east of Auchterawe Road. A 33 kV underground cable is proposed to connect the consented battery energy storage project to the existing Fort Augustus Substation. The Baseline Alignment follows the alignment proposed it is not anticipated that is would interact with the battery energy storage project or the associated grid connection. However, if the Baseline Alignment were to be microsited any further north / north-west of the alignment proposed, then it would be located within 100 m of the battery energy storage project. No other proposals, either consented or known to the planning system, that would interact with the Baseline Alignment have been identified at this stage.

Table 2: 400 kV / 132 kV Loch Lundie Substation – Fort Augustus Substation - LL-FA Alignment Variation 1 (See Figures 11.1 – 11.9)

Description:		
LL-FA Alignment Variation 1 is similar to the Baseline Alignment, except it would follow the exact route of the existing Fort Augustus to Fort William OHL between the new 400 kV Loch Lundie Substation and the point where the Baseline Alignment diverges from the route of the existing OHL near the Torr Dhuin Carpark and Picnic area, where it would connect to the Baseline Alignment. The feasibility of this alignment option would be dependent on whether the existing Fort Augustus to Fort William OHL could be decommissioned and dismantled prior to construction commencing on the Coire Glas Grid Connection Project, which at this stage is uncertain.		
Review of Environmental Constraints:		
Natural Heritage		
Topics	**Potential Constraints**	**Preferred Alignment**
Designations	As Baseline Alignment, except LL-FA Alignment Variation 1 is located approximately 70 m closer to Loch Lundie, a component loch of the West Inverness-shire Lochs SSSI and SPA.	LL-FA Alignment Variation 1 is slightly less preferred as located in closer proximity to the West Inverness-shire Lochs SPA/SSSI
Protected Species	As Baseline Alignment, except LL-FA Alignment Variation 1 is located approximately 70 m closer to Loch Lundie, where signs of otter were previously found during initial walkover surveys in August 2021. Variation is also approximately 90 m further north of the Invervigar, increasing the distance from riparian habitat suitable for otter and water vole.	No Preference (on balance)
Habitats	As Baseline Alignment, except the LOD of OHL route between the Preferred 400 kV/132 kV Loch Lundie Substation Site and the existing Fort Augustus Substation that contained LL-FA Alignment Variation 1 (but otherwise would follow the route of the Baseline Alignment) would contain 2567.51 BU at 11.88 BU/ Hectare LL-FA Alignment Variation 1 would also traverse habitats already disturbed during the installation of the existing Fort Augustus to Fort William OHL which would be preferrable to installing infrastructure on undisturbed habitats. LL-FA Alignment Variation 1 would also reduce the requirement for additional felling along the route as it will travel through the wayleave already created for the existing OHL.	LL-FA Alignment Variation 1 is preferred as the route would traverse habitats already disturbed during the installation of the existing 132 kV OHL and less felling would be required.
Ornithology	As Baseline Alignment but this variation woudl be located closer to Loch Lundie.	LL-FA Alignment Variation 1 is slightly less preferred as located in closer proximity to the West Inverness-shire Lochs SPA/SSSI
Hydrology / Geology	As Baseline Alignment with minor changes noted below: • LL-FA Alignment Variation 1 would extend slightly further into the mapped floodplain associated with the Allt Dail a'Chuirn (a tributary of the Invervigar Burn) • Site specific peat probing along LL-FA Alignment Variation 1 indicates marginally deeper peat along the alignment in comparison with the Baseline Alignment, with 82% of the peat probes recorded within 100 m of the variation with depths <1 m deep.	LL-FA Alignment Variation 1 is slightly less preferred as variation would extend slightly further into the Allt Dail a'Chuirn floodplain would be located within at area of marginally deeper peat than the Baseline Alignment
Cultural Heritage		

Topics	Potential Constraints	Preferred Alignment
Designations	As Baseline Alignment.	No Preference
Cultural Heritage Assets	There is one non-designated heritage asset (Achadh-nan-darach farmstead), listed in the HER, within the Alignment Variation 1 LOD. The farm buildings lie outside the LOD, but the field system extends across most of the LOD. There is also one recorded artefact find-spot (a trough quern of Neolithic to Late Bronze Age date) within Alignment Variation 1 LOD. There would be a potential direct effect on the field system associated with the farmstead anticipated from Alignment Variation 1.	Slightly less preferred as there is one non-designated heritage asset within the LL-FA Alignment Variation 1 LOD.
People		
Topics	**Potential Constraints**	**Preferred Alignment**
Proximity to Dwellings	As Baseline Alignment.	No Preference
Landscape and Visual		
Topics	**Potential Constraints**	**Preferred Alignment**
Designations	As Baseline Alignment.	No Preference
Landscape Character	As Baseline Alignment.	No Preference
Visual	As Baseline Alignment.	No Preference
Land Use		
Topics	**Potential Constraints**	**Preferred Alignment**
Agriculture	As Baseline Alignment.	No Preference
Forestry	Alignment Variation 1 would avoid most of the woodlands encountered by the Baseline Alignment. However, where this variation would enter the woodland, it would also encounter the same woodland classification as the Baseline Alignment, including areas of woodland listed on the NWSS PAWS and AWI listed as ANSO 1860.	LL-FA Alignment Variation 1 is preferred as less forestry and woodland impacted overall.
Recreation	As Baseline Alignment.	No Preference
Planning		
Topics	**Potential Constraints**	**Preferred Alignment**

Policy	As Baseline Alignment.	No Preference
Proposals	As Baseline Alignment.	No Preference
Summary		**Overall Preferred Alignment**
An advantage of LL-FA Alignment Variation 1 is that this variation would traverse habitats already disturbed during the installation of the existing 132 kV Fort Augustus to Fort William OHL which would be preferable to installing infrastructure on undisturbed habitats. It would also reduce the requirement for additional felling along the route as it will travel through the wayleave already created for the existing 132 kV OHL. However, LL-FA Alignment Variation 1 would bring the new 400 kV OHL closer to Loch Lundie, which is a component loch of the West Inverness-shire Lochs SPA/SSSI and where signs of otter were previously found during initial walkover surveys in August 2021. Due to the greater tower size required for the new 400 kV OHL the wayleave for the existing wayleave for the 132 kV Fort Augustus to Fort William OHL would likely need to be widened and where this variation would enter the woodland, it would also encounter the same woodland classification as the Baseline Alignment.		No Overall Preference

Table 3: 400 kV / 132 kV Loch Lundie Substation – Fort Augustus Substation - Alignment Variation 2 (See Figures 11.1 – 11.9)

Description:		
LL-FA Alignment Variation 2 would connect to the north-eastern corner of the new 400 kV Loch Lundie Substation (Option 2) within the forestry to the north of Invergarry. The variation would travel through the forestry in a north-easterly direction for approximately 0.8 km before changing direction to a north-north-easterly direction within a clearing in the forestry. The variation would continue through the forestry for approximately 0.6 km. After exiting the northern extent of the forestry at Invergarry, Alignment Variation 2 continue to travel in the same direction for a further 1.3 km, where it would connect to the Baseline Alignment within the area of open moorland to the north-east of Loch Lundie.		
Review of Environmental Constraints:		
Natural Heritage		
Topics	**Potential Constraints**	**Preferred Alignment**
Designations	As Baseline Alignment, but LL-FA Alignment Variation 2 avoids Loch Lundie, a component loch of the West Inverness-shire Lochs SSSI and SPA by 500 m.	LL-FA Alignment Variation 2 preferred as variation is located 500 m from the West Inverness-shire Lochs SPA/SSSI.
Protected Species	As Baseline Alignment, but LL-FA Alignment Variation 2 avoids passing within 500 m of Loch Lundie, which would avoid potential constraints from otter known to be present around the loch. This variation would pass through an open area of habitat near Doire Mor, within the plantation forestry to the north of Invergarry. Within this open habitat, pine marten presence was found near several rocky outcrops which may provide shelters for the species. Potential for impacts on pine marten could be reduced or eliminated by undertaking pre-construction surveys and adopting appropriate mitigation.	No Preference (on balance)
Habitats	As the Baseline Alignment, the LOD of OHL route between the Preferred 400 kV/132 kV Loch Lundie Substation Site and the existing Fort Augustus Substation that contained LL-FA Alignment Variation 2 (but otherwise would follow the route of the Baseline Alignment) would contain 2197.46 BU at 9.63 BU/ Hectare LL-FA Alignment Variation 2 also avoids the open moorland habitat west of the plantation forestry north of Invergarry by routing through the plantation. This would avoid the extensive area of wet heath habitat with blanket mire, reducing impacts to Annex 1 and GWDTE habitats.	LL-FA Alignment Variation 2 preferred as potential impacts on Annex 1 and GWDTE habitats reduced.
Ornithology	As Baseline Alignment but this variation would located further away from Loch Lundie.	LL-FA Alignment Variation 2 preferred as variation is located 500 m from the West Inverness-shire Lochs SPA/SSSI.
Hydrology / Geology	As Baseline Alignment with minor changes noted below: • Four additional watercourse crossings would be required within the southern extent of the route, including two crossings over minor tributaries of the Allt Leth-bheinne and two crossings over a minor tributary of the Invervigar Burn. • Approximately 1.3 km of the southern extent of the variation would be located within Class 5 peatland rather than Class 2 peatland. No site specific peat probing is available for this alignment option at the time of reporting.	LL-FA Alignment Variation 2 preferred as potential impacts on Class 2 Priority Peatland reduced, although four additional minor watercourse crossings would be required
Cultural Heritage		
Topics	**Potential Constraints**	**Preferred Alignment**

Designations	There are no designated heritage assets within, or within 500 m Alignment Variation 2 LOD. No potential No potential direct or setting effects on designated heritage assets are anticipated from Alignment Variation 2.	No Preference
Cultural Heritage Assets	There are no non-designated heritage assets, listed in the HER, within the Baseline Alignment LOD. No potential direct effects anticipated from Alignment Variation 2.	No Preference
People		
Topics	**Potential Constraints**	**Preferred Alignment**
Proximity to Dwellings	As Baseline Alignment.	No Preference
Landscape and Visual		
Topics	**Potential Constraints**	**Preferred Alignment**
Designations	As Baseline Alignment.	No Preference
Landscape Character	LL-FA Alignment Variation 2 would have a lesser effect on the landscape around Loch Lundie compared to the Baseline Alignment and would therefore be slightly preferred for landscape character, but would be otherwise the same as the Baseline Alignment.	LL-FA Alignment Variation 2 slightly preferred as variation would have a lesser effect on the landscape around Loch Lundie compared to the Baseline Alignment
Visual	LL-FA Alignment Variation 2 would have a lesser effect on Core Path users around Loch Lundie compared to the Baseline Alignment, which would be a localised improvement but would be otherwise the same as the Baseline Alignment, with the most noticeable visual effects around Auchterawe.	LL-FA Alignment Variation 2 slightly preferred as variation would have a lesser effect on Core Path users around Loch Lundie compared to the Baseline Alignment
Land Use		
Topics	**Potential Constraints**	**Preferred Alignment**
Agriculture	As Baseline Alignment.	No Preference
Forestry	LL-FA Alignment Variation 2 connects the new Loch Lundie Substation at the north-eastern corner and a new corridor would be required to be felled through the Drynachan coniferous plantation to the North of Invergarry. The broken nature of the woodlands and taking advantage of an open area reduces the potential area of woodland loss. There are no woodland designations within the LOD of this variation.	LL-FA Alignment Variation 2 preferred as variation takes advantage of an open area of woodland within the commercial forestry, reducing the potential area of woodland loss and removes the

		requirement for management felling to a wind firm edge associated with the Baseline Alignment.
Recreation	As Baseline Alignment, except as noted in 'Landscape and Visual Above', Alignment Variation 2 would have a lesser effect on Core Path users around Loch Lundie compared to the Baseline Alignment which would be a localised improvement. This variation would therefore be preferred from a Recreational Perspective.	LL-FA Alignment Variation 2 slightly preferred as variation would have a lesser effect on Core Path users around Loch Lundie compared to the Baseline Alignment
Planning		
Topics	**Potential Constraints**	**Preferred Alignment**
Policy	As Baseline Alignment.	No Preference
Proposals	As Baseline Alignment.	No Preference
Summary		**Overall Preferred Alignment**
LL-FA Alignment Variation 2 is preferred to the Baseline Alignment as it would take advantage of the broken nature of the woodlands and open area within the forestry to the north of Invergarry, reducing the potential area of woodland loss within this area of commercial forestry. In addition, the Baseline Alignment would likely require felling of the plantation edge, which may result in windthrow within the plantation or management felling to a wind firm edge. LL-FA Alignment Variation 2 would largely avoid the need to fell the plantation edge, further reducing the potential area of woodland loss. By being routed through the plantation forestry rather than the open moorland surrounding Loch Lundie, LL-FA Alignment Variation 2 would also have reduced impacts on Class 2 Priority Peatlands, Annex 1 habitats and GWDTE. LL-FA Alignment Variation 2 would also have benefits in relation to landscape and visual effects, as it would lesser effect on the landscape around Loch Lundie and users of the Core Path along the eastern banks of Loch Lundie compared to the Baseline Alignment.		LL-FA Alignment Variation 2 preferred to the Baseline Alignment

Table 4: 400 kV / 132 kV Loch Lundie Substation – Fort Augustus Substation - Alignment Variation 3/3a/3b

Description:		
Alignment Variation 3 LL-FA Alignment Variation 3 would diverge from the Baseline Alignment within the forestry at Inchnacardoch Forest at OS Grid Reference: 33724, 806435. The variation would travel through the forestry in an east-north-easterly direction for approximately 1.3 km to reach the banks of the River Oich, which forms part of the Caledonian Canal, near Kytra Loch. As Alignment Variation 3 travels through the forestry, it would cross several existing forestry tracks and recreational routes, including National Cycle Route (NCR) 78. The Great Glen Way footpath and the Caledonian Canal are also located immediately east of the River Oich at this point. Alignment Variation 3 would then change direction to a north-easterly direction for approximately 0.5 km, running parallel to the eastern bank of the River Oich towards the FLS forestry area to the east of Auchterawe. In this area the variation would pass the elevated Torr Dhuin Fort, which is designated as a Scheduled Monument (SM794) to the west. There is a popular recreational footpath to the Torr Dhuin fort which is signposted from the FLS Carpark and Picnic Area at Torr Dhuin. Alignment Variation 3 diverges into Alignment Variation 3a and 3b at a location to the south-east of the FLS Carpark and Picnic Area. Alignment Variation 3a LL-FA Alignment Variation 3a represents a scenario where Alignment Variation 3 would connect back into the Baseline Alignment. From Alignment Variation 3, Alignment Variation 3a would change direction to a north-north-easterly direction for 0.4 km to rejoin the Baseline Alignment within the FLS forestry area to the east of Auchterawe. Alignment Variation 3b LL-FA Alignment Variation 3b represents a scenario where Alignment Variation 3 would connect into Alignment Variation 5. From Alignment Variation 3, Alignment Variation 3b would continue in a north-easterly direction for 0.2 km to join Alignment Variation 5 within the FLS forestry area to the east of Auchterawe.		
Review of Environmental Constraints:		
Natural Heritage		
Topics	**Potential Constraints**	**Preferred Alignment**
Designations	Alignment Variation 3 As Baseline Alignment Alignment Variation 3a As with LL-FA Alignment Variation 3 Alignment Variation 3b As with LL-FA Alignment Variation 3	No Preference
Protected Species	Alignment Variation 3 As Baseline Alignment, but LL-FA Variation 3 travels along the banks of the River Oich, which will increase the potential for constraints from otter. Alignment Variation 3a	LL-FA Alignment Variations 3/3a/3b all slightly less preferable due to increased potential to be constrained by

	As with LL-FA Alignment Variation 3 Alignment Variation 3b As with LL-FA Alignment Variation 3, but travels along the banks of the River Oich for a greater distance than LL-FA Alignment Variation 3a.	the presence of otter, particularly along Alignment Variation 3b.
Habitats	Alignment Variation 3 As Baseline Alignment, but LL-FA Variation 3 would travel through additional riparian habitat along the banks of the River Oich. However, LL-FA Variation 3 would travel through a reduced area of semi-natural woodland listed on the AWI than the Baseline Alignment. Alignment Variation 3a As with LL-FA Alignment Variation 3. The LOD of OHL route between the Preferred 400 kV/132 kV Loch Lundie Substation Site and the existing Fort Augustus Substation that contained both LL-FA Alignment Variations 3 and 3a (but otherwise would follow the route of the Baseline Alignment) would contain 2436.87 BU at 10.52 BU/ Hectare. Alignment Variation 3b As with LL-FA Alignment Variation 3 but this variation would travel through riparian habitat along the banks of the River Oich for a greater distance than Alignment Variation 3a. The LOD of OHL route between the Preferred 400 kV/132 kV Loch Lundie Substation Site and the existing Fort Augustus Substation that contained both LL-FA Alignment Variations 3 and 3b (but otherwise would follow the route of the Baseline Alignment) would contain 2480.33 BU at 10.6 BU/ Hectare.	No Preference (no balance) LL-FA Alignment Variation 3b slightly less preferable to LL-FA Alignment Variation 3a as it extends along a greater area of riparian habitat along the banks of the River Oich.
Ornithology	Alignment Variation 3 Potential species breeding within the forestry plantations, and those species which use the forest or the river for hunting purposes could include protected (Schedule 1) species such as Goshawk (*Accipiter gentilis*) and Crossbill (*Loxia curvirostra*), although several woodland species are Red and Amber List species of conservation concern including, but not limited to, Song Thrush (Turdus philomelos), Spotted Flycatcher (*Muscicapa striata*), Tree Pipit (*Anthus trivialis*), Lesser Redpoll (*Acanthis cabaret*), Meadow Pipit (*Anthus pratensis*) and Willow Warbler (*Phylloscopus trochilus*). LL – FA Alignment Variation 3 could compromise the conservation status of population(s) of Schedule 1 bird species or Red or Amber listed if breeding or hunting within the route. Standard bird surveys will continue to be undertaken to update the baseline and inform the route assessment, and appropriate mitigation measures should be implemented to minimise any disturbance / collision risk to protected species along this route. Alignment Variation 3a As Alignment Variation 3. Alignment Variation 3b As Alignment Variation 3.	No Preference
Hydrology / Geology	Alignment Variation 3 As Baseline Alignment but Alignment Variation 3 would divert closer to the River Oich and is likely to be within or immediately upstream of the mapped floodplain for approximately 500 m where the route runs parallel to the eastern bank of the river. No site specific peat probing	LL-FA Alignment Variation 3 less preferred due to close proximity to the River Oich.

	is available for this alignment option at the time of reporting, however the alignment option is not shown to be located within an area designated as priority peatland. Alignment Variation 3a As Alignment Variation 3 but after crossing over the River Oich the alignment option diverts away from floodplain associated with the river. Alignment Variation 3b As Alignment Variation 3 but continues for another 100 m within the mapped floodplain associated within the River Oich.	LL-FA Alignment Variation 3b slightly less preferable to LL-FA Alignment Variation 3a as it extends along a greater area the banks of the River Oich.
Cultural Heritage		
Topics	**Potential Constraints**	**Preferred Alignment**
Designations	Alignment Variation 3 LL-FA Alignment Variation 3 would pass to the southern side of the Torr Dhuin SM rather than the northern side and pass between the Torr Dhuin SM and the Caledonian Canal. However, this variation would still cross within close proximity to, and have potential for setting effects on, the same designated heritage as the Baseline Alignment. Larger OHL infrastructure, such as angle towers would also likely be required for an alignment variation to the south of Torr Dhuin compared to the corresponding section of the Baseline Alignment which would be much straighter. Larger angle tower may lead to increased settings effects on the designated Cultural Heritage assets in the surrounding area. Alignment Variation 3a As LL-FA Alignment Variation 3 Alignment Variation 3b As LL-FA Alignment Variation 3	Alignment Variations 3 less preferred, as variation would likely require larger OHL infrastructure, such as angle towers, compared to the corresponding section of the Baseline Alignment, which may lead to increased settings effects on Cultural Heritage designations. LL-FA Alignment Variation 3 would also pass in between the Torr Dhuin SM and the Caledonian Canal.
Cultural Heritage Assets	Alignment Variation 3 As Baseline Alignment Alignment Variation 3a There is one recorded artefact find-spot (a trough quern of Neolithic to Late Bronze Age date) within Alignment Variation 3a LOD. No potential direct effects anticipated. Alignment Variation 3b As Baseline Alignment	No Preference
People		

Topics	Potential Constraints	Preferred Alignment
Proximity to Dwellings	Alignment Variation 3 LL-FA Alignment Variation 3 would avoid the property near Torr Dhuin (located near where the Baseline Alignment would diverge from the route of the existing Fort Augustus to Fort William OHL). There would therefore be no potential noise issues at this property if this variation was selected as part of the Proposed Alignment. Visual amenity effects from this property would also be greatly reduced and limited to distant views of the towers. Alignment Variation 3a As LL-FA Alignment Variation 3. Variation Alignement 3a would rejoin the Baseline Alignment within the FLS forestry to the east of Auchterawe, therefore the towers associated with this variation would still be prominent from nearby houses along Auchterawe road and there would be potential noise issues for the property located to the west / north-west of the forestry to the east of Auchterawe Alignment Variation 3b If LL-FA Alignment Variation 3b and Alignment Variation 5 were selected as part of the Proposed Alignment, the alignment would not pass within 200 m of the property located to the west / north-west of the forestry to the east of Auchterawe Road. There would therefore be no potential noise issues associated with the alignment is these variations were selected as part of the Proposed Alignment. This variation may be slightly preferable to Alignment Variation 3a because towers would be further from properties at Auchterawe and there would be a greater opportunity to retain a forest buffer between the these visual receptors and the OHL.	Alignment Variations 3 preferred as variation avoids potential visual amenity and noise impacts on the property at Torr Dhuin. LL-FA Alignment Variation 3b would be preferable to LL-FA Alignment Variation 3a as it would also avoid potential visual amenity and noise impacts on the property at located to the west / north-west of the forestry to the east of Auchterawe.
Landscape and Visual		
Topics	Potential Constraints	
Designations	Alignment Variation 3 As Baseline Alignment Alignment Variation 3a As Baseline Alignment Alignment Variation 3b As Baseline Alignment	No Preference
Landscape Character	Alignment Variation 3 LL-FA Alignment Variation 3 varies from the Baseline Alignment at Torr Dhuin Fort. This would have a greater impact on landscapes surrounding the Caledonian Canal at Kytra Lock and would affect the connection between these landscapes and the fort as a landmark, as well as the forest context to the rear. Alignment Variation 3a As LL-FA Alignment 3 with same issues as the Baseline Alignment passing through the fringe of forest near Auchterawe. Alignment Variation 3b	Alignment Variations 3 less preferred to Baseline Alignment as this variation would have a greater impact on landscapes surrounding the Caledonian Canal at Kytra Lock. LL-FA Alignment Variation 3b would be preferable to LL-FA Alignment Variation 3a as it would allow a greater proportion of forest to be

	As LL-FA Alignment 3, however LL-FA Alignment Variation 3b is slightly preferable to LL-FA Alignment Variation 3a because it would allow a greater proportion of forest to be retained between the sensitive landscapes at Auchterawe which would form a greater buffer.	retained between the OHL and the sensitive landscapes at Auchterawe.
Visual	Alignment Variation 3 As Alignment 3 only varies from the Baseline Alignment at Torr Dhuin Fort. This variation would have a greater impact on visual receptors, including those using the Caledonian Canal, Great Glen Way and on properties at Coiltry and Kytra Lock. As Alignment 3 would also interrupt the views from these areas to Torr Dhun Fort and would also continue to affect woodland walks around Torr Dhuin Fort. Alignment Variation 3a As Alignment 3 with the same issues as Baseline Alignment passing through the fringe of forest near Auchterawe. Alignment Variation 3b As Alignment 3b is slightly preferable to 3a because towers would be further from properties at Auchterawe and there would be a greater opportunity to retain a forest buffer between these visual receptors and the OHL.	Alignment Variations 3 less preferred to Baseline Alignment as this variation would have a greater impact visual receptors, including those using the Caledonian Canal, Great Glen Way and on properties at Coiltry and Kytra Lock. LL-FA Alignment Variation 3b would be preferable to LL-FA Alignment Variation 3a as it would be further from properties and would allow a greater proportion of forest to be retained between the OHL and the sensitive landscapes at Auchterawe.
Land Use		
Topics	**Potential Constraints**	**Preferred Alignment**
Agriculture	Alignment Variation 3 As Baseline Alignment. Alignment Variation 3a As Baseline Alignment. Alignment Variation 3b As Baseline Alignment.	No Preference
Forestry	Alignment Variation 3 LL-FA Alignment Variation 3 would be routed through a mixture of semi mature commercial conifer plantation, recently felled plantation (to be replanted) and takes advantage of open space within woodlands. This variation would cross PAWS areas, which are also listed on the AWI as ASNO 1860. Closer to western bank of the River Oich, LL-FA Alignment Variation 3 would require felling some NWSS upland mixed ashwood. Alignment Variation 3a	Alignment Variations 3 slightly less preferred as there would be less opportunities to utilise the existing wayleave for the 132 kV Fort Augustus – Fort William OHL compared to the Baseline Alignment.

	LL-FA Alignment Variation 3a would require felling a new corridor through some mixed conifer and broadleaf woodlands. The southern end of this variation is NWSS upland birchwood and the northern section NWSS native pinewood. Alignment Variation 3b As LL-FA Alignment Variation 3a, although slightly shorter in length.	LL-FA Alignment Variation 3b would be slightly preferable to LL-FA Alignment Variation 3a as slightly shorter in length so would have a lesser overall impact on forestry and woodland.
Recreation	Alignment Variation 3 As the Baseline Alignment, except LL-FA Alignment Variation 3 would also have visual effects on recreational receptors using the Caledonian Canal and Great Glen Way footpath. This variation would also interrupt the views of the Torr Dhun Fort from these recreational routes, as well as from the woodland walks, including Core Paths. This variation is therefore less preferred than the Baseline Alignment in relation to Recreation. Alignment Variation 3a As LL-FA Alignment Variation 3. Alignment Variation 3b As LL-FA Alignment Variation 3.	Alignment Variations 3 less preferred to Baseline Alignment as this variation would have a greater impact visual receptors, including those using the Caledonian Canal, Great Glen Way and on properties at Coiltry and Kytra Lock.
Planning		
Topics	**Potential Constraints**	**Preferred Alignment**
Policy	Alignment Variation 3 As Baseline Alignment. Alignment Variation 3a As Baseline Alignment. Alignment Variation 3b As Baseline Alignment.	No Preference
Proposals	Alignment Variation 3 As Baseline Alignment. Alignment Variation 3a As Baseline Alignment. Alignment Variation 3b If Alignment Variation 3b and Alignment Variation 5 were selected as part of the Proposed Alignment, the alignment would not pass within 200 m of the consented battery energy storage project (Ref 20/04565/FUL) and there would be no potential interaction with this consented development. These variations would therefore be preferred than the Baseline Alignment in relation to Proposal.	Preferred if LL-FA Alignment Variations 3 and 3b are selected as variations would avoid potential interaction with the consented battery energy storage project and associated infrastructure at Auchterawe.

		No preference if LL-FA Alignment Variations 3 and 3a are selected.
Summary		**Overall Preferred Alignment**
LL-FA Alignment Variation 3/3a/3b would avoid potential visual amenity and noise impacts on the property at Torr Dhuin and potentially the property located to the west / north-west of the forestry to the east of Auchterawe if LL-FA Alignment Variation 3b was selected. However, this variation would have a greater impact on landscapes surrounding the Caledonian Canal at Kytra Lock than the Baseline Alignment and would affect the connection between these landscapes and the fort as a landmark, as well as the forest context to the rear. It would also have a greater impact on sensitive visual receptors, including those using the Caledonian Canal, Great Glen Way and on properties at Coiltry and Kytra Lock. LL-FA Alignment Variation 3/3a/3b also would likely require larger OHL infrastructure, such as angle towers, compared to the corresponding section of the Baseline Alignment, which may lead to greater landscape and visual impacts, as well as greater settings effects on Cultural Heritage designations in the surrounding area. As LL-FA Alignment Variation 3/3a/3b would be located within close proximity to the River Oich it also has as a greater potential to be constrained by the presence of otter and sensitive riparian habitats and is likely to be within or immediately upstream of the mapped floodplain for at least 500 m of the alignment. Furthermore, LL-FA Alignment Variation 3/3a/3b would be diverted away from the existing wayleave of for the 132 kV Fort Augustus – Fort William OHL compared to the Baseline Alignment, which could increase the requirement for felling, although the alignment does take advantage of open space within woodlands and would travel through a reduced area of semi-natural woodland listed on the AWI than the Baseline Alignment. Overall, the Baseline Alignment is considered to be the Preferred Alignment from an environmental perspective due to the potential adverse landscape and visual associated with LL-FA Alignment Variation 3/3a/3b, as well as the potential for the variation to be constrained by the presence of otter and sensitive riparian habitats.		Baseline Alignment preferred

Table 5: 400 kV / 132 kV Loch Lundie Substation – Fort Augustus Substation - Alignment Variation 4/4a/4b (See Figures 11.1 – 11.9)

Description:		
Alignment Variation 4 LL-FA Alignment Variation 4 would diverge from the Baseline Alignment within the forestry at Inchnacardoch Forest at OS Grid Reference 234261, 806873. The variation would travel through the forestry to the north-east of Torr Dhuin in an east-north-easterly direction for approximately 0.8 km, exiting the forestry near the FLS Car Park and Picnic Area. Alignment Variation 4 would cross several existing forestry tracks and recreational routes, including the circular Core Path leading the Torr Dhuin Fort and a minor watercourse. Alignment Variation 4a LL-FA Alignment Variation 4a represents a scenario where Alignment Variation 4 would connect back into the Baseline Alignment. Alignment Variation 4a would rejoin the Baseline Alignment at OS Grid Reference 235064, 807214, located 0.06 km to the north-east of Alignment Variation 4, at a location near the FLS Car Park and Picnic Area. Alignment Variation 4b LL-FA Alignment Variation 4b represents a scenario where Alignment Variation 4 would connect into Alignment Variation 5. From Alignment Variation 4, Alignment Variation 4b would continue in an east-north-easterly direction for a further 0.3 km, to join Alignment Variation 5 within the FLS forestry area to the east of Auchterawe.		
Review of Environmental Constraints:		
Natural Heritage		
Topics	**Potential Constraints**	**Preferred Alignment**
Designations	Alignment Variation 4 As Baseline Alignment Alignment Variation 4a As with LL-FA Alignment Variation 4 Alignment Variation 4b As with LL-FA Alignment Variation 4	No Preference
Protected Species	Alignment Variation 4 As Baseline Alignment Alignment Variation 4a As with LL-FA Alignment Variation 4 Alignment Variation 4b As with LL-FA Alignment Variation 4	No Preference

Habitats	Alignment Variation 4 As Baseline Alignment Alignment Variation 4a As with LL-FA Alignment Variation 4. The LOD of OHL route between the Preferred 400 kV/132 kV Loch Lundie Substation Site and the existing Fort Augustus Substation that contained both LL-FA Alignment Variations 4 and 4a (but otherwise would follow the route of the Baseline Alignment) would contain 2437.79 BU at 10.6 BU/ Hectare. Alignment Variation 4b As with LL-FA Alignment Variation 4. The LOD of OHL route between the Preferred 400 kV/132 kV Loch Lundie Substation Site and the existing Fort Augustus Substation that contained both LL-FA Alignment Variations 4 and 4b (but otherwise would follow the route of the Baseline Alignment) would contain 2507.75 BU at 10.64 BU/ Hectare.	No Preference
Ornithology	Alignment Variation 4 As LL-FA Alignment Variation 3 Alignment Variation 4a As LL-FA Alignment Variation 3 Alignment Variation 4b As LL-FA Alignment Variation 3	No Preference
Hydrology / Geology	Alignment Variation 4 Lies with the same surface water catchment and on the same geology as the Baseline Alignment. As Baseline Alignment. Alignment Variation 4a As LL-FA Alignment Variation 4 Alignment Variation 4b As LL-FA Alignment Variation 3 and 4	No Preference
Cultural Heritage		
Topics	**Potential Constraints**	**Preferred Alignment**

Designations	Alignment Variation 4 As Baseline Alignment except the towers would be located within 90 m of the Torr Dhuin, fort (SM 794) and would also cross higher ground near Auchterawe, leading to a greater potential settings effect on this Scheduled Monument. However, LL-FA Alignment Variation 4 is a straighter alignment and may remove the requirement for larger OHL infrastructure such as angle towers compared to the Baseline Alignment, which could provide a benefit to in relation to the settings effects on the Torr Dhuin, fort Scheduled Monument. Alignment Variation 4a As Baseline Alignment Alignment Variation 4b As Baseline Alignment	LL-FA Alignment Variation 4/4A/4B is less preferred as variation would have a greater potential settings effect on the Torr Dhuin, fort (SM 794) due to proximity and elevated postion of towers to this Scheduled Monument.
Cultural Heritage Assets	Alignment Variation 4 As Baseline Alignment Alignment Variation 4a As Baseline Alignment Alignment Variation 4b As Baseline Alignment	No Preference
People		
Topics	**Potential Constraints**	**Preferred Alignment**
Proximity to Dwellings	Alignment Variation 4 LL-FA Alignment Variation 4 would be located approximately 260 m from the property near Torr Dhuin (located near where the Baseline Alignment would diverge from the route of the existing Fort Augustus to Fort William OHL). The potential for noise and visual amenity impacts at this property would therefore be reduced compared to the Baseline Alignment which is located approximately 180 m from the property near Torr Dhuin. A suitable noise buffer (anticipated to be a minimum of 170 m based on a preliminary noise assessment) would still need to be applied to all properties within the vicinity of a 400 kV OHL. Alignment Variation 4a LL-FA Variation Alignement 4a would rejoin the Baseline Alignment within the FLS forestry to the east of Auchterawe, therefore the towers associated with this variation would still be prominent from nearby houses along Auchterawe Road and there would be potential noise and visual amenity issues for the property located to the west / north-west of the forestry to the east of Auchterawe Alignment Variation 4b If both LL-FA Alignment Variation 4b and LL-FA Alignment Variation 5 were selected as part of the Proposed Alignment, then the OHL would not pass within 200 m of the property located to the west / north-west of the forestry to the east of Auchterawe Road. As a suitable noise buffer between the 400 kV OHL and properties is anticipated to be a minimum of 170 m (based on a preliminary noise assessment) it is	LL-FA Alignment Variation 4/4a/4b is preferred as variation would reduce the potential for visual amenity and noise impacts on the property located near Torr Dhuin. LL-FA Alignment Variation 4b would be preferable to LL-FA Alignment Variation 4a as it would also reduce potential noise impacts on the property located to the west / north-west of the forestry to the east of Auchterawe.

	unlikely there would be any noise issues in relation to this property as a result of the OHL development if this variation were taken forward as part of the Proposed Alignment. LL-FA Alignment Variation 4b may also be slightly preferable to Alignment Variation 4a because towers would be further from properties along Auchterawe Road and there would be a greater opportunity to retain a forest buffer between the these visual receptors and the OHL development.	
Landscape and Visual		
Topics	**Potential Constraints**	**Preferred Alignment**
Designations	Aignment Variation 4 As Baseline Alignment Alignment Variation 4a As Baseline Alignment Alignment Variation 4b As Baseline Alignment	No Preference
Landscape Character	Alignment Variation 4 As Baseline Alignment except the towers would cross higher ground near Torr Dhuin and would therefore be potentially more prominent in the setting of the more sensitive landscapes around Auchterawe with greater potential to affect the role of Torr Dhuin Fort as a landmark. Alignment Variation 4a As the Baseline Alignment apart from near Torr Dhuin, where it may be more prominent in the setting of the landscapes around Auchterawe. Alignment Variation 4b If both LL-FA Alignment Variation 4b and LL-FA Alignment Variation 5 were selected as part of the Proposed Alignment this would be slightly preferable to LL-FA Alignment Variation 4b because it would allow a greater proportion of forestry to be retained between the OHL development and the sensitive landscapes at Auchterawe, which would form a greater buffer.	LL-FA Alignment Variation 4/4a/4b would be less preferred as the towers would cross higher ground near Torr Dhuin and would therefore be potentially more prominent in the setting of the more sensitive landscapes around Auchterawe. LL-FA Alignment Variation 4b would be preferable to LL-FA Alignment Variation 4a as it would allow a greater proportion of forestry to be retained between the OHL development and the sensitive landscapes at Auchterawe.
Visual	Alignment Variation 4 As Baseline Alignment except the towers would cross higher ground near Auchterawe and may be more prominent from some properties at Auchterawe and recreational routes around Torr Duin fort, although views of this variation may be further from other properties.	LL-FA Alignment Variation 4/4a/4b would be less preferred as the towers would cross higher ground near Torr

	Alignment Variation 4a As the Baseline Alignment apart from near Torr Dhuin where it may be more prominent in views around Auchterawe, as described under LL-FA Alignment Variation 4. Alignment Variation 4b As the Baseline Alignment except this variation would be potentially more prominent in views crossing high ground near Torr Dhuin fort as described under LL-FA Alignment Variation 4. However, this variation would be marginally preferable than LL-FA Alignment Variation 4a as it would be further from properties passing to the east of Auchterawe and there would be a greater opportunity to retain a forest buffer between these visual receptors and the OHL development.	Dhuin and may therefore be more prominent from some properties at Auchterawe and recreational routes around Torr Duin fort, although views of this variation may be further from other properties. LL-FA Alignment Variation 4b would be preferable to LL-FA Alignment Variation 4a as it would be further from properties passing to the east of Auchterawe and would allow a greater proportion of forestry to be retained between the OHL development and the sensitive landscapes at Auchterawe.
Land Use		
Topics	**Potential Constraints**	**Preferred Alignment**
Agriculture	Alignment Variation 4 As Baseline Alignment Alignment Variation 4a As Baseline Alignment Alignment Variation 4b As Baseline Alignment	No Preference
Forestry	Variation Alignment 4 LL-FA Alignment Variation 4 is routed through a through similar area of woodland as that Baseline Alignment, which is listed on the AWI as ASNO 1860 and is recorded on the NWSS as PAWS but over a slightly greater distance. Variation Alignment 4a LL-FA Alignment Variation 4a is routed through an area of woodland recorded on the NWSS as mature upland birchwood. Variation Alignment 4b	No Preference as variation would travel through similar areas of woodland as the Baseline Alignment, albeit over a slightly greater distance.

	LL-FA Alignment Variation 4b is routed through an area of woodland recorded on the NWSS as mature birchwood with open ground before entering an area of woodland recorded on the NWSS as mature native pinewood.	
Recreation	Alignment Variation 4 As Baseline Alignment except the towers would cross higher ground near Auchterawe and may be more prominent from recreational routes around Torr Duin fort, including Core Paths. Alignment Variation 4a As LL-FA Alignment Variation 4. Alignment Variation 4b As LL-FA Alignment Variation 4.	LL-FA Alignment Variation 4/4a/4b would be less preferable the towers would cross higher ground near Auchterawe than the Baseline Alignment and may be more prominent from recreational routes around Torr Duin fort.
Planning		
Topics	**Potential Constraints**	**Preferred Alignment**
Policy	Alignment Variation 4 As Baseline Alignment Alignment Variation 4a As Baseline Alignment Alignment Variation 4b As Baseline Alignment	No Preference
Proposals	Alignment Variation 4 As Baseline Alignment Alignment Variation 4a As Baseline Alignment Alignment Variation 4b If LL-FA Alignment Variation 4b and LL-FA Alignment Variation 5 were selected as part of the Proposed Alignment, the alignment would not pass within 200 m of the consented battery energy storage project (Ref 20/04565/FUL) and there would be no potential interaction with this consented development.	Preferred if LL-FA Alignment Variations 4 and 4b are selected as variations would avoid potential interaction with the consented battery energy storage project at Auchterawe. No preference if LL-FA Alignment Variations 4 and 4a are selected.
Summary		**Overall Preferred Alignment**

LL-FA Alignment Variation 4 would be located approximately 260 m from the property near Torr Dhuin, compared the Baseline Alignment which would be located approximately 180 m from this property. FA Alignment Variation 4 is therefore the preferred option in relation to proximity to dwellings as the potential for noise and visual amenity impacts at this property would therefore be reduced compared to the Baseline Alignment. However, FA Alignment Variation 4 would be located within 90 m of the Torr Dhuin, fort Scheduled Monument (SM 794) compared to the Baseline Alignment which would be located approximately 160 m from this Scheduled Monument. Alignment Variation 4 would also cross higher ground near Auchterawe, leading to a greater potential settings effect on this Scheduled Monument. Although it should be noted that LL-FA Alignment Variation 4 is a straighter alignment than the Baseline Alignment and may remove the requirement for larger OHL infrastructure such as angle towers, which could provide a benefit to in relation to the settings effects on the Torr Dhuin, fort Scheduled Monument. The higher elevation of the towers associated with LL-FA Alignment Variation 4 would also be potentially more prominent in the setting of the more sensitive landscapes around Auchterawe, as well as from some properties at Auchterawe and recreational routes around Torr Duin fort, although views of this variation may be further from other properties. FA Alignment Variation 4b is generally preferred over FA Alignment Variation 4a as it would be further from properties at Auchterawe and would allow a greater proportion of forestry to be retained between the OHL development and the sensitive landscapes and other visual receptors at Auchterawe. LL-FA Alignment Variation 4b would also avoid interaction with the consented battery energy storage project at Auchterawe.	No Preferred Alignment identified. Further noise modelling is required to identify an optimum solution between Baseline Alignment and LL-FA Alignment Variation 4/4a/4b, which minimises both noise impacts on the property at Torr Dhuin and settings impacts on the Torr Dhuin, fort (SM 794). LL-FA Alignment Variation 4b would be preferable to LL-FA Alignment Variation 4a, as it would be further from properties at Auchterawe and would allow a greater proportion of forestry to be retained between the OHL development and the sensitive landscapes and other receptors at Auchterawe.

Table 6: 400 kV / 132 kV Loch Lundie Substation – Fort Augustus Substation - Alignment Variation 5 (See Figures 11.1 – 11.9)

Description:		
Alignment Variation 5 Alignment Variation 5 would diverge from the Baseline Alignment near the FLS Carpark and Picnic and continue in an east-north-easterly direction for a further 0.2 km, before changing direction, to a north-easterly direction as it enters the FLS forestry area to the east of Auchterawe. Alignment Variation 5 would then continue through this area of forestry for approximately 0.7 km, crossing a FLS forestry access track (which is also used as a recreational route) twice, before changing direction again to north-north-westerly direction, to approach the south-western corner of the existing Fort Augustus Substation.		
Review of Environmental Constraints:		
Natural Heritage		
Topics	**Potential Constraints**	**Preferred Alignment**
Designations	As Baseline Alignment	No Preference
Protected Species	As Baseline Alignment	No Preference
Habitats	As Baseline Alignment, except the LOD of OHL route between the Preferred 400 kV/132 kV Loch Lundie Substation Site and the existing Fort Augustus Substation that contained LL-FA Alignment Variation 5 (but otherwise would follow the route of the Baseline Alignment) would contain 2483.19 BU at 10.64 BU/ Hectare	No Preference
Ornithology	Potential species breeding within the forestry plantations, and those species which use the forest or the river for hunting purposes could include protected (Schedule 1) species such as Goshawk and Crossbill, although several woodland species are Red and Amber List species of conservation concern including, but not limited to, Song Thrush, Spotted Flycatcher, Tree Pipit, Lesser, Meadow Pipit and Willow Warbler. LL – FA Alignment Variation 5 could compromise the conservation status of population(s) of Schedule 1 bird species or Red or Amber listed if breeding or hunting within the route. Standard bird surveys will continue to be undertaken to update the baseline and inform the route assessment and appropriate mitigation measures should be implemented to minimise any disturbance / collision risk to protected species along this route.	No Preference
Hydrology / Geology	As Baseline Alignment. It is noted no site-specific peat probing for this variation is available at the time of reporting, however, the variation is not located within an area that is designated as priority peatland.	No Preference (subject to peat probing)
Cultural Heritage		

Topics	Potential Constraints	Preferred Alignment
Designations	As Baseline Alignment	No Preference
Cultural Heritage Assets	There are no non-designated heritage assets, listed in the HER, within Alignment Variation 5 LOD. No direct effects anticipated.	No Preference
People		
Topics	Potential Constraints	
Proximity to Dwellings	Alignment Variation 5 would not pass within 200 m of the property located to the west / north-west of the forestry to the east of Auchterawe Road. As a suitable noise buffer between the 400 kV OHL and properties is anticipated to be a minimum of 170 m (based on a preliminary noise assessment), it is unlikely there would be any noise issues in relation to this property as a result of the OHL development if this variation were taken forward as part of the Proposed Alignment. Alignment Variation 5 may be slightly preferable to the Baseline Alignment because towers would be further from properties at Auchterawe and there would be a greater opportunity to retain a forest buffer between the these visual receptors and the OHL development.	LL-FA Alignment Variation 5 preferred as variation would reduce potential visual amenity and noise impacts on the property located to the west / north-west of the forestry to the east of Auchterawe. LL-FA Alignment Variation 5 would also be located further away properties along Auchterawe Road and would provide a greater opportunity to retain a forest buffer.
Landscape and Visual		
Topics	**Potential Constraints**	**Preferred Alignment**
Designations	As Baseline Alignment.	No Preference
Landscape Character	This alignment would join into either the Baseline Alignment or LL-FA Alignment Variation 3/3a. In both cases the potential effects would be similar these other alignments but with a slight localised improvement near Auchterawe because LL-FA Alignment Variation 5 would allow a greater proportion of forest to be retained between the sensitive landscapes at Auchterawe, which would form a greater buffer.	LL-FA Alignment Variation 5 slightly preferred as variation would provide a greater opportunity to retain a forest buffer between the OHL development and the sensitive landscapes at Auchterawe.

Visual	This alignment would join into either the Baseline Alignment or LL-FA Alignment Variation 3/3a. In both cases the potential effects would be similar these other alignments but with a slight localised improvement near Auchterawe because LL-FA Alignment Variation 5 would allow a greater proportion of forest to be retained between the sensitive visual receptors at Auchterawe, which would form a greater buffer.	LL-FA Alignment Variation 5 slightly preferred as variation would provide a greater opportunity to retain a forest buffer between the OHL development and the sensitive visual receptors at Auchterawe.
Land Use		
Topics	**Potential Constraints**	**Preferred Alignment**
Agriculture	As Baseline Alignment.	No Preference
Forestry	LL-FA Alignment Variation 5 is similar to the Baseline Alignment but takes advantage of occupying open ground within the woodlands and therefore reducing the total area of woodland loss required. This variation would still be routed through the same areas of woodland recorded on the NWSS as native pinewood as the Baseline Alignment.	LL-FA Alignment Variation 5 preferred as the variation takes advantage of occupying open ground within the woodlands and therefore reducing the total area of woodland loss required and removes the requirement for management felling to a wind firm edge associated with the Baseline Alignment.
Recreation	As Baseline Alignment, except from the FLS Car Park and picnic area at Torr Dhuin, LL-FA Alignment Variation 5 would run parallel to the eastern side of the recreational footpath with the FLS forestry to the east of Auchterawe. The proposed OHL would cross this footpath twice within this area of forestry. It is anticipated that direct impacts on this recreational route could be avoided by mircositing the Baseline Alignment within the LOD or by rerouting sections of the footpath.	No Preference
Planning		
Topics	**Potential Constraints**	**Preferred Alignment**
Policy	As Baseline Alignment.	No Preference
Proposals	Alignment Variation 5 would not pass within 200 m of the consented battery energy storage project (Ref 20/04565/FUL) and would therefore not interact with this consented development.	LL-FA Alignment Variation 5 preferred as variation would avoid potential interaction

		with the consented battery energy storage project and associated infrastructure at Auchterawe.
Summary		**Overall Preferred Alignment**
No potential visual amenity or noise issues associated with the alignment are anticipated at the property located to the west / north-west of the forestry to the east of Auchterawe Road. FA Alignment Variation 5 would also be located further from other properties at Auchterawe and would allow a greater proportion of forestry to be retained between the OHL development and the sensitive landscapes and other visual receptors at Auchterawe. LL-FA Alignment Variation 5 would also avoid interaction with the consented battery energy storage project. FA Alignment Variation 5takes advantage of occupying open ground within the forestry to the east of Auchterawe and therefore reduces the total area of woodland loss required compared to the Baseline Alignment. In addition, the Baseline Alignment would likely require felling of the plantation edge, which may result in windthrow within the plantation or management felling to a wind firm edge. LL-FA Alignment Variation 5 would largely avoid the need to fell the plantation edge, further reducing the potential area of woodland loss.		LL-FA Alignment Variation 5 preferred to the Baseline Alignment

APPENDIX 13.2 – COST APPRAISAL OF ROUTE OPTIONS: 400 KV / 132 KV LOCH LUNDIE SUBSTATION PREFERRED SITE – FORT AUGUSTUS SUBSTATION

1.1 Economic Assessment

1.1.1 The Baseline Alignment and each Alignment Variation between the 400 kV / 132 kV Loch Lundie Substation and the existing Fort Augustus Substation, has been assigned a red-green-amber (RAG) colour ranking using the cost appraisal methodology described in Appendix 3.1 to reflect the relative economic impact of each. In the economic assessment route options would usually be assessed against the criteria SSEN Transmission plc's guidance[1] as set out below and a resultant comparative cost assessment would be prepared for each economic topic.

Table 1: Economic Topic Areas Considered

Economic	
Capital	Construction
	Diversions
	Public Road Improvements
	Felling
	Land Assembly
	Consent Mitigations
Operational	Inspections
	Maintenance

1.1.2 However, due to the nature and extent of this project, it was deemed unnecessary to assess all of the criteria, as differentials between each option proposed for elements such as: Public Road Improvements; Land Assembly; Consent Mitigations; Diversions of Existing Utilities; and Operational Requirements, would be negligible. Felling costs would be subject to a final negotiated fee with relevant landowners (rather than an assumed rate per km) as the extent of tree felling would depend on factors such as the requirement to fell wind firm edges and woodland management plans. As such the below cost comparisons reflect the differential in construction costs per option only.

1.1.3 **Table 2: Economic RAG Criteria**

Economic Colour Coded RAG Rating		
Performance	**Comparative Appraisal**	
Most Preferred  Least Preferred	Lower Impact	< 120% of least Cost Option
	Moderate Impact	120% - 140% of least Cost Option
	Higher Impact	> 140% of least Cost Option

1.1.4 The site selection exercise for the Coire Glas Grid Connection Project concluded that Site Option LL5 was the Preferred Site for the 400 kV / 132 kV Loch Lundie Substation. Therefore, the economic assessment assumes

[1] SSEN (March 2018), Procedures for Routeing Overhead Lines of 132kV and above

that an OHL development within each of the route options would commence at Site Option LL5 and end at the existing Fort Augustus Substation.

1.1.5 In this assessment all proposed Alignment Variation were assessed against the Cost Option (the Baseline Alignment), as illustrated in Table 3.

1.2 Table 3: Economic RAG Assessment

Alignment Variation	RAG Rating
LL-FA 1	< 120% of least Cost Option
LL-FA 2	< 120% of least Cost Option
LL-FA 3/3A	< 120% of least Cost Option
LL-FA 3/3B	< 120% of least Cost Option
LL-FA 4/4A	< 120% of least Cost Option
LL-FA1 4/4B	< 120% of least Cost Option
LL-FA 5	< 120% of least Cost Option

1.2.1 All proposed Alignment Variation are within 120% of the Cost Option (the Baseline Alignment). Further, the Alignment Variations proposed are on a sectional basis with an option being compared to a specific section of the overall Cost Option and as such does not allow for any ranking, as all variations are within <120 % of the least cost option within the RAG criteria.

1.2.2 Whilst all proposed Alignment Variations assessed against the appropriate section of the Cost Option have a green RAG status there are differences between the costs within the percentage parameters and as such a preference for each can be drawn as shown in Table 4 below:

1.3 Table 4: Economic Preferred Cost Option

Alignment Variation	Alignment Variation Cost against Cost Option (%)	Preference
LL-FA 1	103	Cost Option Preferred
LL-FA 2	100	No Preference
LL-FA 3/3A	118	Cost Option Preferred
LL-FA 3/3B	112	Preferred to Alignment Variation LL-FA 3/3A, however overall, the Cost Option is Preferred
LL-FA 4/4A	115	Cost Option Preferred
LL-FA1 4/4B	115	Cost Option Preferred
LL-FA 5	100	No Preference

1.4 Conclusion

From a cost perspective, the Baseline Alignment is the overall Preferred Alignment between the 400 kV / 132 kV Loch Lundie Substation and the Fort Augustus Substation, as it represents the Least Cost Option. However, if Alignment Variation LL-FA 2 or LL-FA 5 were to be taken forward, there would be no difference in cost when compared to the Baseline Alignment.