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9. FORESTRY

9.1 Executive Summary

9.1.1 The Proposed Development requires the removal of woodland for the safe and resilient construction and operation of a new 132 kV single circuit overhead line and underground cable (UGC) through woodland and forestry (the Proposed Development). These areas consist of a variety of woodland types and age classes. Ancient Woodlands Inventory (Scotland) (AWI) and the Native Woodland Survey of Scotland (NWSS) are present for most of the alignment as well as areas of commercial conifer. Design has mitigated woodland loss and has avoided areas of sensitivity where practical and will further aim to reduce the woodland loss in detailed design.

9.1.2 In total some 55.98 ha of woodland removal is required.

9.2 Introduction

9.2.1 This Chapter is an appraisal of the forestry and woodlands in the location of the Proposed Development. It is anticipated that approximately 3 km from the on-site substation and the last 2 km of the connection into Fort Augustus substation would be by UGC.

9.2.2 The appraisal has been prepared by Neil McKay MICFor, Director of Neil McKay Forestry Consultant Limited, a professional member of the Institute of Chartered Foresters (ICF) since 1994 with more than 30 years forestry practice both in the public and private sectors throughout Scotland. Neil McKay has ten years' experience of producing environmental reports for renewable energy and infrastructure developments across Scotland. The appraisal has been carried out in line with ICF code of conduct and relevant standards and guidance.

9.3 Scope of Appraisal

9.3.1 This appraisal considers the likely impacts of the Proposed Development on forestry and woodlands. This includes an appraisal of the sensitivity of the forest areas and a determination of the likely level of impact upon them that would arise from the Proposed Development, with particular emphasis on forest and woodland structure and management.

9.3.2 The appraisal is based on the requirement to form an Operational Corridor (OC) while recognising the potential impact over broader forest environment from the Proposed Development. This Chapter appraises the OC only and does not address the overall Forest Plans or Land Management Plans present for the individual forest management areas detailed below. Any felling undertaken outwith the OC would be solely under the control of the land owner, and SSEN Transmission would not have any influence or control over such. Consequently, the appraisal is limited to consideration of the effects of the Proposed Development on the present forest and woodland composition.

9.3.3 The woodlands considered in this Chapter fall under two ownerships and management regimes. On behalf of the Scottish Government, Forestry and Land Scotland manage forests within the Glen Moriston and Fort Augustus Land Management Plan areas. Glenmoriston Estate owns and manages the areas of their Bhlairidh, Inverwick and Glenmoriston forests.

9.4 Consultation

9.4.1 A Screening Request for the Proposed Development was submitted in November 2021 and the Scottish Government issued its response on 9 March 2022. The Screening process is described in Chapter 1 of this EA report. **Table 9-1** sets out the comments received from consultees in relation to forestry and the actions taken to address them within this appraisal.

Table 9-1 Consultee responses

Consultee	Summary Response	Comment / Action Taken
Scottish Forestry (SF)	The Scottish Government's Control of Woodland Removal Policy includes a strong presumption in favour of protecting Scotland's woodland resources.	The Proposed Development addresses this through minimising the woodland removal both through careful route selection and by defining the OC on a case by case basis.
	Woodland removal to accommodate development should be allowed only where it would achieve significant and clearly defined additional public benefits, and compensatory planting proposals design to mitigate impact of any proposal permanent should form part of the development proposals.	The OHL grid connection meets the acceptability criteria given in Annex C of the policy, as the proposed change in land use would contribute significantly to helping Scotland mitigate or adapt to climate change by facilitating appropriate development of renewable energy projects.
	All 5 routes described in consultation document (October 2020) have potential to significantly impact on forest environment, both in terms of woodland loss and impact on future forest management. From SF's perspective, Route 3 is the preferred one, as it would involve relatively smaller area of woodland removal than the other proposed routes. It also appears to have lesser potential to impact on woodlands listed on Native Woodland Survey of Scotland.	This Chapter acknowledges the woodland loss and impact on the forest environment. The detailed design will attempt to reduce the woodland removal by reducing the width of the OC if the safety and resilience of the line can be secured.
	CoWRP requires compensatory planting corresponding with the area of permanent woodland loss associated with the development. The Developer needs to be aware that compensatory planting plan might be subject to the Forestry Environmental Impact Assessment (Scotland) Regulations 2017.	SSEN Transmission recognises the requirement for compensatory planting and has made arrangements to fulfil this obligation. The requirements of the Forestry Environmental Impact Assessment (Scotland) Regulations 2017 are understood by SSEN Transmission.
Forestry and Land Scotland (FLS)	<p>1. FLS request that the length of underground section on the approach to Fort Augustus be increased from 500 m to 2 km.</p> <p>2. FLS request that the new OHL through the Beauly - Denny corridor be placed between the existing steel lattice OHLs. Should felling be required for the cable section then the western more sheltered edge is preferred.</p>	<p>1. The design has been amended to include approximately 2 km of UGC.</p> <p>2. The new OHL has been placed between the existing Beauly – Denny OHLs as far as is safe to do so.</p> <p>3. A landscape and visual assessment is included in Chapter 4 which assesses the level of anticipated impact of introducing further infrastructure into the existing Beauly – Denny corridor.</p>

	<p>3. FLS highlighted concern on introducing a third OHL within the Beauty- Denny corridor.</p> <p>4. It would be preferable for the section of OHL between Dundreggan Dam and Torgyle Bridge to be converted to a double circuit and carry the new connection rather than construct an additional OHL through this area and require further woodland loss. If this is not possible, then a new OHL should be situated to the north side of the existing OHL to minimise impact on FLS woodland.</p> <p>5. FLS suggest undergrounding the existing 33 kV OHL between Dundreggan Dam and Bhlaraidh and running the proposed OHL through the existing wayleave to minimise further woodland loss. FLS intend to remove the commercial forestry between this existing OHL and the public road and replant with native woodland due to operational difficulties experienced here.</p>	<p>4. The double circuit option has been explored: a temporary OHL would have to be established while rebuilding the existing steel lattice line to accommodate a second circuit which would require an equivalent area of felling as building a new OHL. It would also likely require larger support structures, increasing landscape and visual impacts. Building the new OHL to the north of the existing OHL is less preferable due to being placed close to the edge of the River Moriston, which is an SAC designated for Atlantic salmon and fresh water pearl mussel, the latter which is very sensitive to pollution. Construction closer to the water is more likely to result in sediment release to the water and an increased risk associated with pollution incidents. It would also require removal of most (if not all) of the woodland block along the south bank of the river, increasing landscape and visual effects.</p> <p>5. Initial design options explored undergrounding of the existing 33 kV OHL, as suggested: however, due to technical constraints this has since proven to be an unfeasible option. As such, the alignment has been moved slightly further north to run parallel to the existing 33 kV OHL, making use of as much of the existing wayleave as is safe to do so while observing required separation distances between active electrical connections. This will require an expansion of the wayleave to the north and associated loss of woodland, but less than would be required for an entirely new wayleave. This will be assessed further to determine whether a narrower separation is safe and practicable to further reduce felling requirements. Subsequent design change has moved the OHL out of FLS woodlands above the A887 to south of the River Moriston.</p>
<p>Scottish Environment Protection Agency (SEPA)</p>	<p>As part of the preferred route crosses forested areas, SEPA will require reassurance that any felled timber will be removed from site and not left as waste and avoids large scale felling as this can result in a peak in release of nutrients that can affect local water quality. Proposals to</p>	<p>Forestry removal will be kept to a minimum, where it cannot be avoided, in order to reduce impacts on forestry interests. The preference will be to remove any felled timber from site; however, any timber left as waste will comply with the noted guidance. Forestry removal will be undertaken in-line</p>

	<p>make use of any waste wood on the site should comply with the SEPA Guidance: Management of Forestry Waste and there must be a clear beneficial use identified for any material left on site.</p> <p>Tree felling proposals should be shown to meet the requirements of Use of Trees Cleared to Facilitate Development on Afforested Land – Joint Guidance from SEPA, NatureScot and FCS.</p>	<p>with The UK Forestry Standard (UKFS) guidance.</p> <p>Tree felling proposals will accord with the noted guidance.</p>
The Highland Council (THC)	<p>In line with the Government’s Control of Woodland Removal Policy (2009), woodland removal should be kept to a minimum and where woodland is felled it should be replanted. However, this policy only supports woodland removal where it would achieve significant and clearly defined public benefits. Where this involves woodland removal, compensatory planting will be required.</p> <p>HwLDP Policy 52: Development in woodland also requires the applicant to demonstrate the need to develop a wooded site and to show that the site has capacity to accommodate the development. The Council will maintain a strong presumption in favour of protecting woodland resources. Within the boundary of the site, there are multiple areas of native woodland (as shown on the NWSS) which the applicant is strongly encouraged to retain and protect from damage wherever possible.</p>	<p>Woodland removal associated with the development will be kept to a minimum where possible. Some woodland removal will be required to accommodate the new connection, and this is identified as part of the EA.</p> <p>Removal of native woodland will be avoided as far as possible, and any felling requirements minimised.</p>
John Muir Trust	<p>Protecting native woodland, as part of protecting wild places, is something that the John Muir Trust supports and therefore also support SSEN Transmission’s reasoning in reaching the preferred alignment.</p> <p>John Muir Trust welcome SSEN Transmission’s biodiversity net gain commitments and would welcome an assurance about a plan for ensuring no net loss of native woodland and, particularly, the native Caledonian woodland, identified in sections of the route. If there are opportunities to work with Forestry and Land Scotland to achieve net gain then John Muir Trust strongly encourage SSEN Transmission</p>	<p>SSEN Transmission has maintained direct communications with FLS throughout the route and alignment selection and EA process in order to identify options with the least impact on woodland, on balance with other factors. The BNG assessment will include proposals for habitat creation and will aim to achieve no net loss in biodiversity.</p>

	to take these opportunities in advance of the 2025 commitment for all infrastructure projects to achieve net gain.	
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9.5 Methodology

- 9.5.1 The desktop study included the review of the forest information provided by the landowners' forest managers. This included the latest sub compartment schedules and sections of the current Land Management Plans in the case of the Forestry and Land Scotland and draft revisions to the current Forest Plans for Glenmoriston Estate. Further discussions were had with forest managers to establish the current position and future plans for forest management.
- 9.5.2 Further open data for the Ancient Woodland Inventory (Scotland)¹ (AWI) and the Native Woodland Survey of Scotland² (NWSS) available through the Scottish Forestry Map Viewer³ was also viewed for the present position of felling permission applications and forest plans.
- 9.5.3 Web based imagery was also reviewed to ensure all forest and woodland cover was included within this appraisal.
- 9.5.4 Forest walkovers were undertaken 1 September 2021, 5 November 2021, 23 March 2022 and 15 July 2022 to confirm the mapping provided and note any changes. It is noted that timber harvesting operations were in place during the period of the visits. Tree health and vigour was noted and an estimate of growth was made to confirm or apply a Yield Class where appropriate. Potential tree crop stability was predicted through observation of the ground conditions and ground preparation method with the current tree height and growth rate.
- 9.5.5 Photographic record is provided in **Appendix 9.1**
- 9.5.6 The required woodland removal for the OC is based on the principle of a clear "topple distance" of trees from the conductors. This distance is species sensitive and for the purposes of this appraisal has been rationalised into two categories;
- AWI and NWSS would generally require a clear corridor of 50 m. However, where this includes native Scots pine this has been increased to that of the commercial conifer areas.
 - Commercial, or productive conifer areas would require a clear corridor of 72 m.
- 9.5.7 Wherever appropriate this corridor of woodland removal is reduced by occupying areas of existing open ground.

9.6 Baseline Conditions

- 9.6.1 The alignment of the Proposed Development runs through a range of forest and woodlands which includes areas listed within the AWI and NWSS as follows:
- Areas of AWI north of the River Moriston are part of Coille Bhlaraidh and listed as Ancient (of semi-natural origin (ASNO)) 1750⁴ with some as Other (on Roy maps)⁵.
 - South of the river, Coille na Feinne is recorded ASNO 1750 with a small area of ASNO 1860.

¹ Ancient Woodland Inventory (Scotland) <https://www.data.gov.uk/dataset/c2f57ed9-5601-4864-af5f-a6e73e977f54/ancient-woodland-inventory-scotland> Visited 19/08/2022

² Native Woodland Inventory of Scotland <https://www.data.gov.uk/dataset/da3f8548-a130-4a0d-8ddd-45019adcf1f3/native-woodland-survey-of-scotland-nwss> Visited 19/08/2022

³ Scottish Forestry Map Viewer <https://scottishforestry.maps.arcgis.com/apps/webappviewer/> Visited 19/08/2022

⁴ ASNO 1750 Interpreted as semi-natural woodland from maps of 1750 and continuously wooded to the present day.

⁵ Other woodlands on 'Roy' woodland sites. Shown as unwooded on the 1st edition maps but as woodland on the Roy maps. Such sites have at most, had only a short break in continuity of woodland cover and may still retain features of Ancient Woodland.

- NWSS including: Plantations on Ancient Woodland Sites (PAWS)⁶, native pinewood, Upland birchwood and a minor area of Upland oakwood. The PAWS sites are currently non-native conifer species.

9.6.2 The designated woodlands associated with the Proposed Development are shown on **Figure 9.1 Designated Woodlands**.

9.6.3 The coniferous plantations are generally semi mature non-native species including Douglas fir, Sitka spruce, Norway spruce and Lodgepole pine. Mapped mixed broadleaves are those outside of AWI or NWSS. The other woodland habitats include young native woodland which forms part of the Bhlaraidh Wind Farm Habitat Management Plan (HMP), areas listed as native clear felled and unplanted undefined woodland.

9.6.4 The age classes within the Proposed Development include young native woodlands, recently felled areas awaiting replanting or natural regeneration, polestage, mature woodlands and plantations.

9.6.5 The woodland habitats recorded within the OC are summarised in **Table 9-2**. The types of woodland are as categorised within the descriptions of AWI and NWSS and other non-designated woodland areas including conifer plantations.

Table 9-2 Woodland Habitat Types

Woodland Habitat Type	Designated	Area (ha)
HMP native woodland	N/A	0.75 ⁷
PAWS	NWSS	17.49
Upland birchwood	NWSS	4.44
Upland oakwood	NWSS	0.76
Native pinewood	NWSS	12.16
Native clear-felled	AWI Part ASNO 1750	2.32
Mixed broadleaved	N/A	3.67
Conifer plantation	N/A	8.96
Unplanted, previously conifer woodland to be managed as natural reserve.	N/A	5.43
Total		55.98

9.7 Potential Impacts

9.7.1 The potential impact on AWI and NWSS is a permanent woodland loss of 37.17 ha, of which 17.49 ha is PAWS. The impact area could potentially be further avoided or reduced through detailed design where a combination of factors (e.g. topography, tree species and height) may reduce the area of ancient semi-natural woodland defined as being within the OC. For example, the extent of tree clearance may be reduced where it can be demonstrated through further detailed survey that the trees can be safely overflown by the Proposed Development or that the trees can be accommodated within closer proximity to the Proposed Development with either no work being required, or a degree of crown reduction only.

9.7.2 The potential impact on the other woodlands (excluding the Bhlaraidh Wind Farm HMP) including conifer plantation is a permanent woodland loss of 18.06 ha for the OC.

⁶ PAWS; Interpreted as semi-natural woodland from maps of 1750 or 1860 and continuously wooded to the present day. If planted with non-native species during the 20th century they are referred to as Plantations on Ancient Woodland Sites (PAWS).

⁷ This area is reflective of a worst-case scenario based on Phase 1 Habitat mapping within the HMP area.

- 9.7.3 The woodland removal required to achieve the OC for the Proposed Development is shown in **Figure 9.2: Fell Operational Corridor**.
- 9.7.4 The tree felling through areas of mature and semi mature conifers to create the Proposed Development OC would result in an indirect effect of increasing potentially unstable forest edges where retained trees stand immediately adjacent to the OC. These areas, known within the forest industry as 'brown edges', have relatively unstable trees within them which previously depended upon the now felled neighbouring trees for support. The risk of windthrow is that these brown edge trees will be damaged and blown over due to the lack of shelter.
- 9.7.5 The introduction of a new overhead line, or the increasing of a corridor, presents additional forest management conditions associated with live conductors. These include the requirements to maintain the appropriate safety distances when carrying out forestry operations and in particular tree harvesting, with planned arrangements for isolation of the conductors or planned specialist "live line" felling. Any passage below an OHL will require assessment of the height of the conductors and protection measures including safe clearance and guidance through signage and goalposts during operations. Underground cables are not without constraint to forest management and introduce similar requirements of signage and planned safe working distances with agreed and constructed crossing points. Guidance on safe working adjacent to conductors in forestry is provided by the Forest Industry Safety Accord (FISA)⁸
- 9.7.6 Changes to the forest structure and the constraints introduced by the Proposed Development may require a revision of any current Forest Plans. This may include bringing forward a proposed future felling area to accommodate the Proposed Development or redesign of a felling coupe and replanting proposals.

9.8 Mitigation

- 9.8.1 Design has mitigated the overall disruption of woodland integrity by:
- Avoiding woodlands and utilising currently open ground;
 - Following existing wayleaves;
 - Taking advantage of current felling plans, unplanted areas and the redesign of Forest Plans (in terms of both felling and restocking operations); and
 - Where the conditions allow, the actual tree removal for the OC may be reduced and the woodland structure may be designed to accommodate the Proposed Development with lower growing shrubs, leaving limited height standing and cut deadwood to introduce additional biodiversity elements.
- 9.8.2 Woodland removal of some 55.98 ha would be required for the OC. SSEN Transmission is committed to meeting the Scottish Government's CoWRP⁹ objective of no net loss of woodland for the Proposed Development. On this basis SSEN Transmission are in discussions with landowners regarding compensatory planting arrangements, subject to UKFS approval by Scottish Forestry. **Technical Appendix 9.4 Compensatory Planting Management Strategy** provides further details.
- 9.8.3 In order to address the potential significant effects on forest land-use management, SSEN Transmission has committed to the development of OHL Woodland Reports for each forest ownership (see **Appendix 9.2 and Appendix 9.3**).
- 9.8.4 The OHL Woodland Reports identify all areas of felling required to form the operational corridor and access corridors. In addition, the OHL Woodland Reports will aim to reduce the risk of future wind throw by identifying felling to stable forest edges (outside of the operational corridor). The OHL Woodland Reports would also include, but are not limited to seeking to agree a forest landscape design following good practice as defined by

⁸ Forest Industry Safety Accord, Safety Guide 804 Electricity at Work- Forestry, <https://ukfisa.com/Safety/Safety-Library/fisa-804> Visited 19/08/2022

⁹ The Scottish Government's Policy on Control of Woodland Removal, <https://forestry.gov.scot/publications/285-the-scottish-government-s-policy-on-control-of-woodland-removal>, visited 24/10/2022

Forestry Commission Guidance (2014)¹⁰. The delivery of the felling identified in the OHL Woodland Reports will require working jointly with the forest owner to deliver felling and restocking outwith the operational corridor. SSEN Transmission has agreed the use of the 'OHL Woodland Report' to confirm the detail and extent of woodland removal required within each woodland. This proposed felling will be further reviewed with the landowners to link this with their existing long-term forest plan, which will, once amended, be required to adhere to the UKFS as part of the approval process with Scottish Forestry. This approval is required prior to any felling being undertaken outwith the Proposed Development operational corridor or proposed access tracks. This method of addressing felling has been successfully used on a number of recent large overhead line projects and has delivered forest design to the satisfaction of Scottish Forestry as the statutory authority.

9.9 Summary

- 9.9.1 The Proposed Development lies within forested and wooded area, of which a significant part is under the woodland designations AWI and NWSS.
- 9.9.2 The width of the OC has been adjusted to accommodate full height conifer trees and lesser stature native broadleaves. These generally reflect the "topple height" distances of commercial conifer plantations at a 72 m corridor and native woodlands at a 50 m corridor, with the exception of native Scots pine which has been allocated the full conifer tree height.
- 9.9.3 Although the impact on these designated areas has been reduced through the design process, through avoidance or reduction in the OC width, a total of 37.17 ha of these designated woodlands (of which 17.49 ha is PAWS) would require removal. Additionally, an area 0.75 ha of recently planted native woodlands which form part of the Bhlaraidh Wind Farm HMP would require removal. The remaining 18.06 ha of the total 55.98 ha for removal consists of commercial conifer woodland, mixed broadleaves and unplanted woodland. There is a commitment that where possible this OC will be reduced for the designated woodland areas at the detailed design stage prior to construction.
- 9.9.4 The effects of woodland removal are not significant by area in this locality and can be managed through revision of felling and replanting plans. However, while AWI and NWSS are considered to be important forestry resources, it is recognised that PAWS is either conifer plantation or recently felled conifer plantation and within the context of the area in which the Proposed Development lies, the loss is not significant.

¹⁰ Forestry Commission, Practice guide, Design techniques for forest management planning <https://forestry.gov.scot/publications/106-design-techniques-for-forest-management-planning/viewdocument/106> Visited 19/08/2022