Scottish & Southern Electricity Networks

Spittal to Loch Buidhe to Beauly 400 kV OHL Connection

Environmental Impact Assessment

Volume 5, Appendix 13.1 – W:

Woodland Reports

Ardross, Kildermorie and Bad A' Bhathaich Woodlands

July 2025

Contents

1. Introduction

1.1 Scottish and Southern Electricity Networks (SSEN) Transmission, hereafter referred to as 'the Applicant', owns, operates, develops and maintains the high voltage electricity transmission system in the north of Scotland and the Scottish islands. Due to the growth in renewable electricity generation in the north and north-east of Scotland, upgrade of the transmission network is required to provide the necessary increase in transmission capacity. The Applicant is applying for consent under Section 37 of the Electricity Act 1989 to construct and operate a new double circuit 400 (kilovolt) kV overhead line (OHL).

1.2 This report provides an assessment of woodland impact related to the Spittal to Loch Buidhe to Beauly 400 kV OHL Connection project (the 'Proposed Development'). The report details the woodland area affected by the Operational Corridor (OC), new access tracks (permanent), and additional felling required due to windblow risk within individual ownerships. It also includes mitigation considerations and compensatory planting recommendations.

2. Purpose of this Woodland Report

2.1 As part of the Environmental Impact Assessment (EIA) process, it was identified that construction of the OHL and associated access tracks would cross a number of woodland areas within both public and private landholdings. The landholding property boundaries are identified in **Figure 1: Woodland Impacted by the Proposed Development**.

2.2 This document provides an assessment of the woodland areas that are affected by the Proposed Development, including the requirement for woodland removal and management recommendations to mitigate the impact of the woodland removal.

2.3 Field surveys of the woodland areas have been undertaken and have been used to determine the various woodland characteristics to identify the woodland removal required and recommended. This document also sets out the area, in hectares (ha), of compensatory planting required to ensure no net loss of woodland is achieved.

3. Woodland Property

3.1 Ardross, Kildermorie and Bad A' Bhathaich Forests are publicly owned and managed by Forestry and Land Scotland (FLS). These extensive commercial forests are situated in the Strath Rusdale valley along the Black Water Burn, approximately 13 km northwest of Alness, with the B9176 being the nearest major road.

3.2 The woodland primarily consists of conifer species and spans elevations ranging from 200 m to over 380 m above sea level. The central grid reference for the property is NH 55481 78792, which is located within Strath Rusdale glen.

3.3 Access to Ardross, Kildermorie and Bad A' Bhathaich Forests is via the local public road east of Strath Rusdale glen, connecting to the forest road that provides entry to

multiple areas within both woodlands. The Black Water Burn flows east of the Proposed Development and intersects the OC at the boundary with the adjacent Strath Rusdale Wood. Additionally, a smaller burn runs through Ardross and Kildermorie forest, feeding into the Black Water.

3.4 The site benefits from an extensive and well-maintained network of tracks, providing access across both sides of the glen and crossing major watercourses. This infrastructure supports the commercial forestry operations within the woodland. Refer to **Figure 1: Woodland Impacted by the Proposed Development**.

4. Development Requirements

4.1 400 kV Operational Corridor

4.1.1 With reference to **Figure 1: Woodland Impacted by the Proposed Development,** the OHL sections relevant to Ardross, Kildermorie and Bad A' Bhathaich Forests extend from over 60 m south of Tower S72 to 170 m south of Tower S81.

4.1.2 The Study Area for this assessment is based around an operational corridor of 90 m. The Applicant defines the OC as the area in which it has rights to remove woodland for the purposes of creation of new OHL, resilience and maintenance of OHLs, or protection of electrical plant as required by the Electricity Safety, Quality and Continuity Regulations (ESQCR) 2002 regulations and The Electricity Act 1989. The OC is defined as to the distance at which a tree could fall and cause damage to the OHL, resulting in a supply outage. As a result, the final OC width would be based on the safety distance required from the OHL centreline to allow for a mature tree falling towards the OHL, taking account of topography and tree height at maturity.

4.1.3 The OC width that has been assessed and identified for the safe build and energisation of the new OHL through areas of conifer woodland is 90 m (45 m either side of the OHL centreline). Further details can be found in **Section 13.3** of **Volume 2, Chapter 13: Forestry** which outlines the extent of the study area.

4.1.4 The OC width that has been assessed and identified for the safe build and energisation of the OHL through the areas of broadleaves is also 90 m (45 m either side of the OHL centreline). This has been assessed as a maximum OC width required at these woodland locations, with the potential of further narrowing of the OC prior to construction to allow greater tree retention depending on factors such as tree height, topography, crown reduction or other mitigation strategies[1].

[1]As specified by the 'Red Zone' set out in paragraph 41 of the Forest Industry Safety Accord. (2020) Safety Guide 804 Electricity at Work: Forestry. [pdf] Available at: FISA 804 (ukfisa.com).

4.2 Access Track Route Design

4.2.1 An existing infrastructure network within the property provides access to various areas of the woodlands and is in proximity to the Proposed Development features; however, new sections of both temporary and permanent roads will be constructed within and outside the OC. These roads will serve as the primary vehicle access route for the Proposed Development, as illustrated in **Figure 1: Woodland Impacted by the Proposed Development**, and will undergo maintenance and upgrades as part of the construction scope.

4.2.2 New access tracks, also detailed in **Figure 1: Woodland Impacted by the Proposed Development**, will be built to service Towers S73 to S81.

4.2.3 The access track corridor width required for clearing through the woodland is 20 m (10 m on either side of the centreline), but this will be evaluated in situ to determine the suitability for further tree retention.

4.2.4 The construction of these new access tracks will increase the impact of woodland removal along routes located outside the OC. The affected woodland along the new roadways will consist of a similar composition to that found within the OC, featuring a combination of coniferous plantations, depending on the specific location of the roads.

4.2.5 Tree felling, stump removal and residue mulching will be required for the installation of new access tracks and at each tower location for the formation of temporary construction working areas.

4.2.6 These roads will serve as the main arterial construction route. Tree felling and timber extraction will be able to utilise existing tracks, prior to any construction activity.

4.2.7 Where existing tracks require maintenance or upgrading, this may involve the removal of trees and scrub to facilitate the works, particularly to accommodate the creation of additional passing places. While much of the upgrade activity would fall within standard forest access maintenance, which typically involves the removal of scrub, regeneration, and crown management, some sections may require additional tree clearance within a corridor of up to 12 m in width.

5. Woodland Characteristics

5.1 A desk-based study of the woodland areas was conducted, to identify current woodland environmental designations and classifications.

5.2 The web-based data provided by Scottish Forestry and referencing the Scottish Government's Ancient Woodland Inventory (AWI), and

- The Scottish Forestry Map Viewer provides spatial data on the Native Woodland Survey of Scotland (NWSS) and classifies the woodland types into four categories[2] [3]:

1. Native woodland
2. Nearly-native woodland
3. Open land habitat
4. Plantations on Ancient Woodland Sites (PAWS)

5.3 The woodlands within this ownership are located on undulating lowlands and valley sides with gentle and strong slopes, generally not rocky. The predominant aspects are northeast- and southeast-facing. Within this landscape, the Proposed Development primarily passes through conifer plantations of different ages and mix of species.

5.4 Some of these coniferous plantations are classified as Native Woodlands, as identified in the NWSS, and there are also woodlands classified as Long-Established woodlands of Plantation Origin (LEPO), as identified in the AWI. Refer to **Table 5.1**

5.5 All classified Native Woodland is also noted to be LEPO.

Table 5.1: Woodland Designations

Item	Type of Impact	Woodland Designations	Area (ha)
Operational corridor	Permanent	AWI-LEPO 2b	5.38
		NWSS- Native woodland	0.52
Access Tracks corridor	Temporary	AWI-LEPO 2b	0.70
Access Tracks corridor	Temporary	NWSS- Native woodland	0.20
Management Felling*	Temporary	AWI-LEPO 2b	24.14
		NWSS- Native woodland	13.73

*Management Felling reference and details described in **Section 6**- Windblow Risk Impact.

[2] Scottish Forestry Map Viewer URL https://scottishforestry.maps.arcgis.com/apps/webappviewer/index.html?id=0d6125cfe892439ab0e5d0b74d9acc18

[3] Scottish Forestry Native Woodland Survey of Scotland: Glossary of Terms; URL: Main Title (forestry.gov.scot)
Native Woodland – woods where the canopy cover is composed mainly of native species (i.e., over 50%).
Nearly Native Woodland - where native species make up between 40% and 50% of the canopy. These are woods that could have potential to be converted into native woodlands by altering their species mix.
Open Land Habitat – areas with <20% canopy cover of trees and shrubs adjoining a native woodland.
PAWS - Plantation on Ancient Woodland Sites. These are surveyed in the NWSS where they are recorded in the Scottish ancient woodland inventory (SAWI). These woodlands appear to have originated through natural regeneration sometime before the mid-19th century, but were later converted to planted wood.

5.6 The area which is both classified within the AWI and NWSS registers as LEPO 2b and the Native Woodland, classified as native pinewood, is located bordered to the east by the Black Water Burn and to the southwest by the watercourse flowing from Loch Bad A' Bhathaich. This LEPO woodland is characterised by a mix of conifer species, including spruce, Scots pine, and larch in the upper storey averaging 18 m in height. Scattered birch trees, approximately 6 m tall, are also present, along with significant conifer regeneration in canopy gaps. Refer to **Plates 1 and 2**.

5.7 Deadwood is scattered throughout the woodland, reflecting its maturity, with planting dating back to the late 1950s. However, there are no obvious remnant features within the OC that suggest the potential for this woodland to develop characteristics of Ancient Woodland in the future. Refer to **Plate 1**.

Plate 1- LEPO 2b-designated woodland consists primarily of pole-stage to semi-mature conifer trees, of a mix of spruce, pine and larch, with scattered signs of deadwood and patches of dense bracken understorey. Grid reference: NH 55786 79395.

Plate 2- LEPO 2 b-classified woodland consists of semi-mature Scots pine and spruce, with understorey regeneration primarily of spruce, which are reaching up to 7 m in height. Grid reference: NH 55583 79038.

5.8 The Native Woodlands within the OC are all located within the LEPO classified areas are native pinewood. These pinewoods are primarily composed of semi-mature Scots pine, averaging 20 m in height, with some spruce present in the mix. Scattered semi-mature larch trees are also found, along with pole-stage birch regeneration in the understorey. Refer to **Plate 3**.

Plate 3- Native Woodland classified as pinewood in the NWSS. This semi-mature Scots pine woodland has undergone previous thinning, with trees averaging 20 m in height. Scattered regeneration of spruce saplings is present throughout, along with some birch and rowan. Grid reference: NH 55606 78957.

5.9 The remaining conifer plantations, not associated with any designations or classifications, consist of either young recently restocked conifer plantations or semi-mature to mature conifer stands approaching financial maturity. These stands primarily feature a mix of Lodgepole pine and spruce.

5.10 At Bad A' Bhathaich, two distinct stands can be identified. The northern stand, bordering Ardross and Kildermorie, has extensive windblow across the entire coupe, where semi-mature spruce and Lodgepole pine mix have been overturned by the wind, with a significant amount of broken trees and deadwood still present on site (see **Plate 4**). This damage to the forest occurred a number of years ago, and there is now evidence of natural regeneration developing across this area.

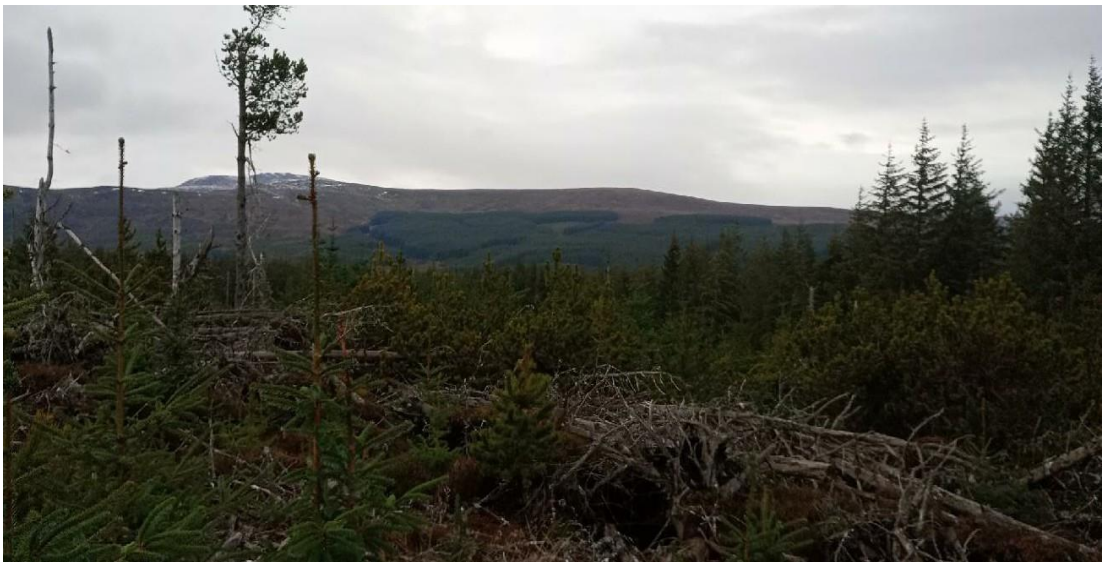

Plate 4- Extensive windblow is evident within the commercial conifer coupe at Bad A' Bhathaich property, where regeneration is visible throughout the damaged woodland. Grid reference: NH 55148 77905.

5.11 To the south of the Bad A' Bhathaich property, there are recently restocked conifer plantations, consisting of trees that are estimated to be 2 years old, primarily featuring a mix of Lodgepole pine and spruce. Refer to **Plate 5**.

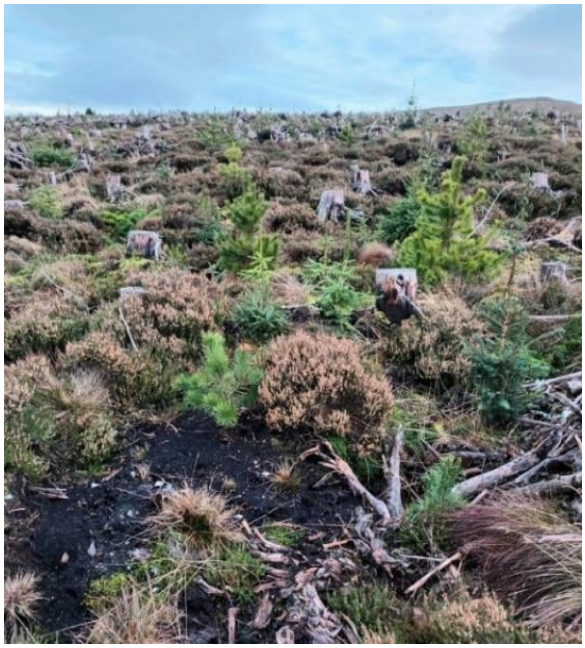

Plate 5- Commercial conifer woodland restocked 1 to 2 years ago within Bad A' Bhathaich property. Young mix of spruce and Lodgepole pine. Grid ref: NH 55093 77701.

5.12 On Ardross and Kildermorie property, young conifer plantations established in recent years are located both north and south of the LEPO woodland coupe. The northern woodland within the OC at Ardross and Kildermorie includes areas that have been recently restocked. This mix primarily consists of spruce and Lodgepole pine, with scattered established clusters of birch and rowan also present within the OC. Refer to **Plates 6 and 7**.

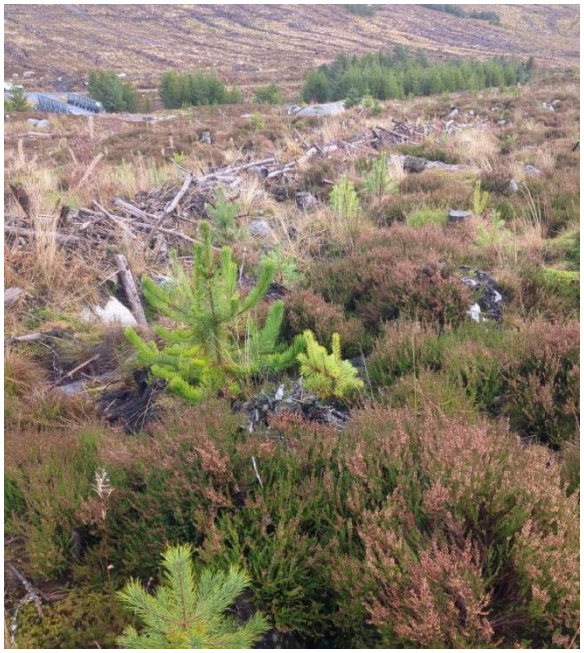

Plate 6- Recently restocked commercial conifer woodland in Ardross and Kildermorie forest, featuring a young plantation primarily composed of a mix of Lodgepole pine and spruce. Grid reference: NH 56065 80460.

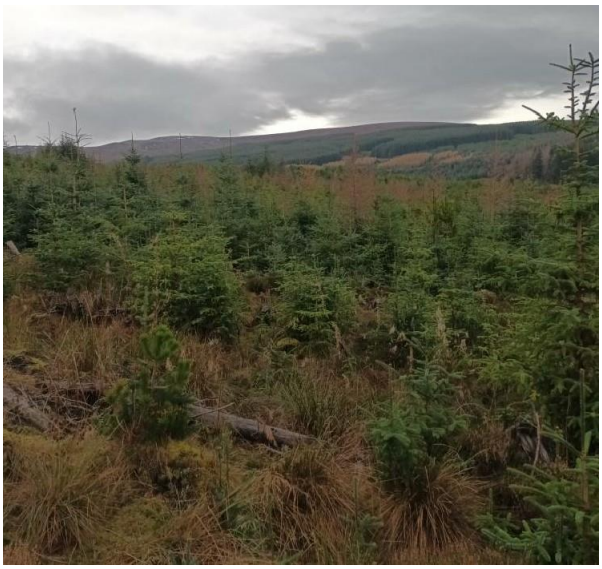

Plate 7- Young commercial restocked woodland, approximately 5 years old, primarily composed of spruce with some larch intermixed. Grid reference: NH 55905 79719.

5.13 Within Ardross and Kildermorie, adjacent to the boundary with Bad A' Bhathaich forest, there is a standalone coupe of financially semi-mature conifer plantation that the OC crosses. This woodland block consists of a mix of Lodgepole pine and spruce, previously thinned, with an average height of 18 m. The coupe features a relatively closed canopy, and no regeneration is observed in the understorey. Refer to **Plate 8.**

Plate 8- Commercial conifer woodland within Ardross and Kildermorie forest is characterised by a mix of semi-mature spruce and Lodgepole pine, with trees averaging 18 m in height. Grid reference: NH 55255 78181.

5.14 There is a small cluster of broadleaved trees of semi-natural origin, featuring established regeneration of pole-stage birch and rowan, along with some scattered willow. This sparse coupe consists of individual trees distributed along the riparian zone of the Black Water watercourse to the north of the ownership.

5.15 In summary, the existing woodlands consist of a range of age classes and species, primarily composed of conifer plantations dominated by Sitka spruce and Lodgepole pine. Scots pine is the prevailing species within the native woodland areas, accompanied by smaller clusters of broadleaved species such as birch and rowan.

5.16 The site soils are predominantly peaty gleyed podzols[4].

6. Windblow Risk Impact

6.1 An assessment was undertaken of the risk of windblow to areas of woodland adjacent to the OC which would be exposed due to the tree clearance required for the OC. This assessment was based on the professional judgement of the forestry surveyor with consideration being given to the soil and moisture regime, the topography, tree species, top height, exposure, altitude and aspect in relation to the prevailing wind direction and any previous management regimes. This assessment was also based on site visits and observations, and available data of the site. Reference was also made to Forest GALES 2.5 Forest Research decision support system where appropriate. Felling outwith the OC to a windfirm boundary is termed Management Felling and is presented within **Figure 1: Woodland Impacted by the Proposed Development**.

6.2 Given the nature of some of the woodland coupes- those of semi-mature conifer woodlands of averaging height of 18 m with mixed thinned and unthinned stands and the characteristic of topography and exposition, and the evidence on site of existing windblow it is anticipated that future windblow may impact the surrounding woodlands due to the creation of the 90 m wayleave for the OHL. Leaving the remaining unstable trees exposed presents a medium risk of future windblow. Refer to **Table 9.1.**

6.3 The woodland site affected by the Proposed Development has a 'Detailed Aspect Method of Scoring' (DAMS)[5] windblow hazard class score of 15, classified as moderately exposed. The site presents mineral soils with shallow rooting being mostly cool and moist.

[4] Scottish Government's Scotland's soils website https://soils.environment.gov.scot
[5] Detailed Aspect method of Scoring (DAMS) Ref. Forest Research, "Forest Gales software programme" and Forestry Commission Leaflet 85 "Windthrow Hazard Classification"

6.4 Management felling is proposed to the areas adjacent to the OC and the access track corridors to minimise the future risk of windblow. However, certain areas within the woodland contain more open coupes, which are likely to remain wind-stable. These coups have been assessed up to the nearest green-edge and are therefore considered stable in the current conditions. Refer to **Table 9.4**.

6.5 While management felling is proposed by the Applicant as part of sound forestry practice, the decision to implement such operations ultimately rests with the forest owner, who must align any felling activities with their broader forest management plans and objectives. Felling permission for these areas must be obtained by the landowner through an application to Scottish Forestry. As part of this regulatory process, Scottish Forestry will consider the appropriateness of the proposed felling and will attach conditions requiring the restocking of felled areas to ensure continued sustainable forest management.

7. Woodland Management Impact

7.1 The OHL will create additional challenges for the future management of the forest as it dissects existing management coupes and introduces an electrical hazard. The risks associated with the electrical hazard will be reduced by regular maintenance of the OC, so maintaining the compliance of the OC and reducing any need for future tree clearance operations within the "Red Zone".[6]

7.2 The sterilisation of the OC, however, will have an impact on forest restructuring, potentially impacting the landowner's ability to utilise the forest's commercial viability in accordance with the UK Forestry Standard. Mitigation opportunities are discussed in the following **Section 8**.

7.3 The OHL will cross the woodland road network at either approximately 45 or 90 degrees and will be built to the regulatory safe height clearances above forest access tracks, which will reduce the hazard in respect of future timber haulage. It may still, however, impact on machine operations within the proximity of the OHL, such as stacking and loading. Mitigation of which could be incorporated into the access design, following discussions with the landowner.

7.4 The OHL may be restrictive to future in-forest machinery access. The requirement for dedicated forestry machine OHL crossing points will be discussed with the landowner and if required, will be identified once the OHL has been constructed, thus providing a safe OHL crossing point(s) for future working within the woodland.

7.5 The impact of the Proposed Development on the overall viability and continuity of woodland management has been assessed. The affected area lies within a broader woodland landscape, predominantly comprising commercial conifer blocks.

[6] As specified by the 'Red Zone' set out in paragraph 41 of the Forest Industry Safety Accord (FISA) Safety Guide 804. Electricity at Work: Forestry (2020) FISA 804 (ukfisa.com)

Although the proposed OC intersects several woodland compartments, it is not expected to hinder the implementation of forest operations or ongoing management. The OC crosses central sections of the woodland where existing access infrastructure is already in place on both sides, ensuring continued operational accessibility. In addition, the construction of new access tracks will enhance connectivity across the Ardross, Kildermorie and Bad a' B'hadath forests. As a result, no significant isolation of woodland units is anticipated, and the Proposed Development is not expected to materially impact the viability of current or future woodland management.

7.1 The impacts arising from the Proposed Development are not anticipated to affect the wider woodland management regime, nor are they expected to necessitate any alteration to the current or planned species composition.

8. Mitigation Opportunities

8.1 Mitigation to reduce the extent of tree felling within the OC will be considered and incorporated in areas of broadleaved woodlands as part of the proposals. This only affects the small riparian broadleaved group of trees north of Ardross and Kildermorie forest. The Applicant will be using a process of 'managed resilience', which will seek to retain naturally regenerated broadleaved trees and shrubs as close as possible to the line to keep as much tree cover as possible. Smaller- and lower-growing tree species and shrubs can be retained closer to the OHL. OHL vegetation maintenance would take place on a 4-year cycle as required.

8.2 Impacts on woodland restock opportunities, resulting from the OC sterilisation, could be addressed through the amendment of the Felling Licence Application or the Long-Term Forest Plan (LTFP), adhered to the regulations of the Forestry and Land Management (Scotland) Act 2018, and in line with the UK Forestry Standard guidance to utilise wayleave corridors as designed Open Ground, repurposing currently unplanted areas to maintain the commercial productivity of the woodland.

8.3 Before the construction phase, these areas, along with access tracks, will be assessed for selective felling and also crown reduction to determine if greater tree retention is feasible. The final extent of tree retention will depend on the requirements of the Proposed Development, particularly ensuring the safety of OHL wiring operations during construction.

8.4 The OC woodland removal area is required for the construction and operation of the new OHL infrastructure. Opportunities will be assessed for encouraging woodland regeneration within the OC, the identification of suitable areas cannot be guaranteed due to the requirement of maintaining the safe energisation of the OHL. Reference to **Tables 9.2 and 9.3** below will fully mitigate the loss of forest resource within the OC through compensatory planting of the equivalent area (ha) of woodland removed.

8.5 Impacts on the tree windfirm stability within the remaining crop have been assessed and considered as noted in **Section 6**. Woodland loss and management felling have been minimised through retention of crops identified as likely to be windfirm.

8.6 Impact of stability within the remaining crop has been assessed and reported on above.

9. Woodland Removal Impact

Table 9.1: Woodland Removal for Infrastructure			
Item	**Type of Infrastructure**	**Woodland type**	**Area (ha)**
Operational corridor	Permanent	Broadleaved woodland	0.22
		Conifer woodland	27.01
Access track corridor	Permanent	Conifer woodland	0.50
	Temporary	Conifer woodland	2.54
Equipotential Zone (EPZ) Pulling Positions	Temporary	Conifer woodland	1.05

Table 9.2: Compensatory planting		
Compensatory Planting Area		31.32

Table 9.3: Woodland Removal Impact of Infrastructure		
Item	**Woodland type**	**Area (ha)**
Total Loss of Woodland Area	Broadleaved woodland	0.22
	Conifer woodland	31.10
Total Compensatory Planting Area off-site	Broadleaved woodland	0.22
	Conifer woodland	27.51
Total Restocking/ Replanting Area on-site	Conifer woodland	3.59
Total Net Loss of Woodland Area		0

Table 9.4: Woodland Removal for Management Felling			
Item		**Woodland type**	**Area (ha)**
Management Felling	Temporary	Conifer woodland	58.27
Replanting / Restocking	Adhere to Forestry and Land Management (Scotland) Act 2018.	Conifer woodland	58.27

Net Loss of Woodland Area			0
Note: Felling approval is via Scottish Forestry Felling Licence Application process or Long-Term Forest Plan application or amendments process.			

10. Compensatory Planting

10.1 Compensatory planting to achieve the area quantity (ha) of woodland removal as a result of the Proposed Development will be in accordance with the Scottish Government's Control of Woodland Removal Policy of no net loss of woodland. A compensatory planting strategy is set out in **Volume 5, Appendix 13.3: Compensatory Planting Strategy.**

Scottish & Southern Electricity Networks

TRANSMISSION

A

B

C

D

E

Scale 1:350,000

S72

S73

S74

S75

S76

S77

S78

S79

S80

S81

S82

Allt a' Chroic Dhuibh

Weir

Weir

Innisachomair

Allt Tarsuinn

Allt Loch Bad a' Chaorainn

Drain

Bog Buidhe

Cnoc an Ruigh' Choinnich

Coir' an Ruigh' Choinnich

Allt Cnoc an Ruigh' Choinnich

Black Water

Track

Dail a' Mhoirt

Collects

Scale @ A3 1:10,000

N

0 0.25 0.5 km

254000 254500 255000 255500 256000 256500

880500 880000 879500 879000 878500 878000 877500

Legend

- Landownership boundary/parcel
- Operational Corridor
- Central line Operational Corridor
- Proposed 400kV OHL Towers
- Management Felling
- 20m Access Corridor
- Access Tracks- Existing Upgrade
- Access Tracks- New Stone Perm
- Access Tracks- New Stone Temp
- HLP/EPZs buffer
- Conifer woodland- Operational Corridor 90m
- Broadleaved woodland- Operational Corridor 90m

Woodland report
Project No- LT000132
Spittal- Loch Buidhe - Beauly 400kV Connection
Figure 1. Woodland Impacted by the Proposed Development
Section D-Ardross , Kildermorie and Bad A'Bhathaich Woodlands

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