Volume 5: Appendix 8.2.19 – Woodland Report: Balrownie Wood

Contents:

List of Figures

1. WOODLAND REPORT: BALROWNIE WOOD

1.1 Introduction

1.1.1 This Woodland Report has been prepared by Scottish Hydro Electric Transmission plc (the Applicant) who, operating and known as Scottish and Southern Electricity Networks Transmission (SSEN Transmission), own, operate and develop the high voltage electricity transmission system in the north of Scotland and remote islands.

1.1.2 This Woodland Report will accompany an application for Consent under Section 37 of the *Electricity Act 1989*[1] (as amended) and Section 57(2) of the *Town and Country Planning (Scotland) Act 1997* to construct and operate approximately 105.2 kilometres (km) of new double circuit 400 kilovolts (kV) overhead transmission line (OHL) between Kintore and Tealing (hereafter referred to as the 'Proposed Development'). A full description of the Proposed Development and its ancillary works is set out within **Volume 1, Chapter 3: Project Description** of this EIAR.

1.2 Purpose of this Woodland Report

1.2.1 As part of the Environmental Impact Assessment (EIA) process, it was identified that the OHL construction and the access tracks required to construct the Proposed Development would cross a number of woodland areas within private or state-owned landholdings.

1.2.2 This Woodland Report provides a conceptual assessment of the woodland areas that are affected by the Proposed Development, including the requirement of woodland removal and management recommendations to mitigate the impact of the woodland removal.

1.2.3 This Woodland Report relates to land at Balrownie Wood and the relevant landholding property boundary is presented in **Figure 8.1.19: Landowner Boundaries**.

1.2.4 Field surveys of the woodland areas have been undertaken and have been used to determine the various woodland characteristics in order to identify the woodland removal required and recommended. This Woodland Report also sets out the area quantity (in hectares (ha)) to be compensatory planted to ensure no net loss of woodland is achieved as required by The Scottish Government's Policy on Control of Woodland Removal[2].

Requirement and Objectives of the Report

1.2.5 This Woodland Report details the works required to the woodland, including the felling and any restocking, due to the construction and operation of the Proposed Development.

1.2.6 The objectives of this Woodland Report are to:

- provide 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; and
- describe any mitigation measures proposed to address likely impacts relating to loss of woodland and windthrow risk and to meet The Scottish Government's Policy on Control of Woodland Removal by identifying the required quantity for compensatory planting.

Limitations and assumptions

1.2.7 All data included within this Woodland Report has been gathered from field surveys or desk-based assessments, which includes analysis of nationally held datasets, up to date aerial imagery and field measurements and data collection.

[1] UK Government, 1989. *Electricity Act 1989*. [Online] Available at: https://www.legislation.gov.uk/ukpga/1989/29/contents
[2] Forestry Commission Scotland, 2009. *Scottish Government's Control of woodland Removal Policy* [Online] Available at: https://www.forestry.gov.scot/publications/285-the-scottish-government-s-policy-on-control-of-woodland-removal

1.2.8 Baseline data was derived from Scotland's environmental web[3] and Scottish Forestry map viewer[4]. The data sources identified in **paragraph 8.4.6** of **Volume 2, Chapter 8: Forestry** were also used to inform this Woodland Report.

1.2.9 Forests (or woodlands) comprise the land, of at least 0.5 ha (UKFS: V5 2023) under areas of trees with a canopy cover of at least 20%, or having the potential to achieve this, including the integral open space, as well as any felled areas awaiting replanting and are identified on the National Forest Inventory (NFI). The term 'forest' and 'forestry' for the purpose of this report is used to refer to areas that are typically coniferous that are managed for commercial timber production. The term 'wood' and 'woodlands' is used to refer to areas that are typically broadleaved and deciduous and not principally managed for timber production.

1.2.10 Woodland structure and age for the purpose of this Woodland Report have been categorised into an age class matrix:

- Young – young trees, generally less than 5 years old;
- Immature – trees between approximately 6-15 years old;
- Pole Stage – trees between 16 – 30 years old, primarily conifer;
- Mature – trees considered to be of felling age, 31 –50 years and over; and
- Established – established range of age classes with mature trees and an understory of younger trees.

1.2.11 In addition, to simplify the reader's understanding, a species matrix has been derived to categorise the species along the length of the Proposed Development:

- Felled – trees which have been felled and are awaiting restocking;
- Mixed Broadleaves – broadleaf trees containing a range of species including native trees such as Oak or Birch, may also contain non-native trees such as Sycamore or Chestnut;
- Mixed Woodland – a diverse mix of conifer and broadleaf trees with non-native species present;
- Native Mixed Woodland – mixed woodland containing native broadleaf species such as Oak or Birch and including elements of Scots Pine;
- Conifer – Conifer species; Sitka spruce, Norway spruce, Larch, Firs or Pines; and
- Scrub/Regen – areas of unmanaged land with low density, self-seeded trees. A mixture of species with non-native conifer and broadleaf trees present.

1.3 Woodland Property

1.3.1 Balrownie Wood (hereinafter referred to as the property) is approximately 1 km northwest of Little Brechin at National Grid Reference: NO 57477 63294. The property is accessible via a single carriage road. The property is affected by the Proposed Development east of Tower S101.

1.4 Development Requirements

400 kV Overhead Line

1.4.1 The Study Area for this assessment is based on the required Operational Corridor (OC) (see **paragraphs 3.8.21 to 3.8.22** in **Volume 1, Chapter 3: Project Description**. The Applicant defines the OC as the area in which it has rights to remove woodland for the purposes of the safe construction, resilience and continued 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 with reference 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 to allow for a mature tree falling towards the OHL at the mid-point on an OHL span between two Towers, taking account of topography and tree height at maturity. Standard falling distance for a mature conifer tree is considered to be a minimum

[3] Scottish Forestry Land Information Search URL: https://map.environment.gov.scot/LIS_Agri/Agri.html
[4] Scottish Forestry Map Viewer URL: https://scottishforestry.maps.arcgis.com/apps/webappviewer/index.html?id=0d6125cfe892439ab0e5d0b74d9acc18

of 30 m. Where the OC passes through areas of native broadleaved woodland, it is noted that the width of woodland may be reduced, due to the general lower height and characteristics of the tree species present and as will be detailed in the Woodland Retention Plan.

1.4.2 The 400 kV OHL standard tower dimensions for the Proposed Development have a width of 11.2 m at the widest part (crossarm) of the tower ie from outside conductor to outside conductor, in addition to this the safety vicinity zone from each conductor is a 5.3 m radius around the conductor.

1.4.3 The OHL infrastructure and minimum safety clearance distance is therefore 90 m (45 m either side of the OHL centreline) and this has been utilised to calculate the area of the OC. In some cases, such as angle towers the requirement may be slightly in excess of this distance, however the average minimum distance has been used in this assessment.

Access Track Route Design

1.4.4 Tower S101 will require a permanent stone track, which will connect the single carriage road (see **Figure 8.2.19: Proposed Felling Requirements**). The area required to be cleared to facilitate new access track construction totals 0.17 ha. As the entire site was affected by windthrow, this will require tree removal, rather than clear felling.

1.4.5 Temporary woodland removal will be required to facilitate 'holding out positions'; tension towers require a temporary 'holding out position' to raise the tower working platforms which would be utilised when stringing the conductors. This platform is winched into position by a tractor at one and a half the tower height away and once in position gets locked off and attached to concrete sledges, the area required for this holding out position is estimated to be 0.08 ha.

1.4.6 Stump removal and residue mulching will be required for the installation of new access tracks and at each tower location for the formation of a construction compound and temporary crane pad.

1.5 Woodland Characteristics

1.5.1 The property is under private ownership. The woodland previously contained mature spruce trees which suffered a detrimental windthrow to the extent of the total area and has been subsequently clear felled under the Felling Permission FPA-9088-CF (see **Plate 1**). Restock of the area is due by 2027. The Proposed Development will have an impact on those commitments, addressed in **Section 1.7: Woodland Management Impact**.

1.5.2 The site has a warm, moderately exposed and moist climate. The soils are moist and rich in nutrient. The terrain is generally flat.

1.5.3 A desk-based study of the woodland areas was conducted, utilising web-based data provided by Scottish Forestry[3] and referencing the Scottish Government's Ancient Woodland Inventory, to identify current woodland environmental designations and classifications.

1.5.4 The Scottish Forestry Map Viewer[4] provides spatial data on the Native Woodland Survey of Scotland[5] and classifies the woodland types into four categories:

- Native woodland[6];
- Nearly-native woodland[7];
- Open land habitat[8]; and

[5] Scottish Forestry Native Woodland Survey of Scotland: Glossary of Terms; URL: https://www.forestry.gov.scot/publications/75-native-woodland-survey-of-scotland-glossary-of-terms/viewdocument/75
[6] Native Woodland – woods where the canopy cover is composed mainly of native species (ie over 50%)
[7] 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.
[8] Open Land Habitat – areas with <20% canopy cover of trees and shrubs adjoining a native woodland.

- Plantations on Ancient Woodland Sites (PAWS)[9].

1.5.5 Desk-based study of the woodland area, using both the Ancient Woodland Inventory and the Native Woodland Survey of Scotland, has identified a small area of Long Established of Plantation Origin (LEPO) (2b – 1860) as detailed in **Table 1: Woodland type affected by the Proposed Development**.

Table 1: Woodland type affected by the Proposed Development

Woodland	Ancient semi-natural native broadleaved woodland (ASNW) 1a	Ancient semi-natural native broadleaved woodland (ASNW) 2a	Long Established of Plantation Origin (LEPO) (1b – 1750)	Long Established of Plantation Origin (LEPO) (2b – 1860) -	Other Woodlands (Roy)	Native broadleaved woodland	Total classified woodland area
Balrownie Wood	-	-	-	1.16 ha	-	-	**1.16 ha**

*- Rounding errors may occur

Plate 1 Taken from the single carriage road looking southwest.

1.6 Windthrow Risk Impact

1.6.1 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 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 from

[9] PAWS - Plantations 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 woods.

either, observations at a site level or via an approved management plan. Reference is also made to Forest GALES[10] 2.5 Forest Research decision support system. Felling outwith the OC to a windfirm boundary is termed Management Felling and is presented within **Figure 8.2.19: Proposed Felling Requirements**.

1.6.2 The woodland site affected by the Proposed Development has a 'Detailed Aspect Method of Scoring' (DAMS)[11] windthrow hazard class score ranging between 6 and 12, classified as sheltered to moderately exposed. The local climate is classified as warm, moderately exposed and moist. The soils are moist, rich in nutrient and are podzols.

1.6.3 As the trees have already been cleared there is no further risk arising from the Proposed Development, and hence no Management Felling is prescribed here.

1.7 Woodland Management Impact

1.7.1 The OHL alignment will create additional challenges for the future management of the forest as it introduces an electrical hazard, the constraint associated with the electrical hazard will be reduced by regular maintenance of the OC which will avoid the incidences of "Red Zone" trees (reference FISA 804 "Electricity at Work: Forestry.[12]

1.7.2 The Proposed Development will require permanent sterilisation of wooded areas from the OC. This will reduce the forestry restructuring/planting land available within the woodland property area, as the OC will be maintained clear of trees.

1.7.3 During the construction phase, a level of disruption will be created for the undertaking of routine forestry management activities by the landowner on the woodland property. This will be project managed through communication and agreement with the affected stakeholders.

1.8 Mitigation Opportunities

1.8.1 The OC woodland removal area is required for the construction and functioning of the new OHL infrastructure. Reference to **Section 1.10: Compensatory Planting**, will fully mitigate the OC woodland removal area by replanting the area of woodland removed.

1.8.2 The management felling areas will be replanted by the landowner, in-line with the Scottish Forestry felling licence regulations.

1.9 Woodland Removal Impact

1.9.1 Woodland removal area calculations are approximate and have been rounded up to reflect the worst case scenario for removal. Woodland felling will be reduced as much as possible through mitigation.

Table 2: Woodland Removal for Infrastructure

Item	Woodland Type	Area
Infrastructure Felling	Felled	1.29 ha

Table 3: Compensatory Planting

Item	Woodland Type	Area
Compensatory Planting Area	Conifer	1.29 ha

[10] Forest Research (2025). Available at: http://www.forestdss.org.uk/geoforestdss/ The Detailed Aspect Method of Scoring (DAMS) is a system used to assess wind exposure in forestry and land management. It provides a numerical score that quantifies the level of exposure a site experiences based on factors such as elevation, topography, and aspect (the direction a slope faces). The DAMS score helps foresters predict wind risk, which is crucial for understanding tree stability, growth potential, and the likelihood of windthrow (trees being uprooted or broken by wind) The scoring system ranges from 0 to 24, with higher scores indicating more exposure to wind.
[11] Detailed Aspect method of Scoring (DAMS) Ref. Forest Research, "Forest Gales software programme" and Forestry Commission Leaflet 85 "Windthrow Hazard Classification".
[12] 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: https://ukfisa.com/

Table 4: Woodland Removal Impact of Infrastructure

Item	Woodland Type	Area
Total Loss of Woodland Area	Felled	1.29 ha
Total Compensatory Planting Area	Conifer	1.29 ha
Total Net Loss of Woodland Area		**0.0 ha**

Table 5: Woodland Removal for Management Felling

Item	Woodland Type	Area
Management Felling		0.00 ha
Replanting/Restocking		0.00 ha
Net Loss of Woodland Area		0.00 ha
Note. Felling approval is via Scottish Forestry Felling Licence application process or Long Term Forest Plan application or amendment process.		

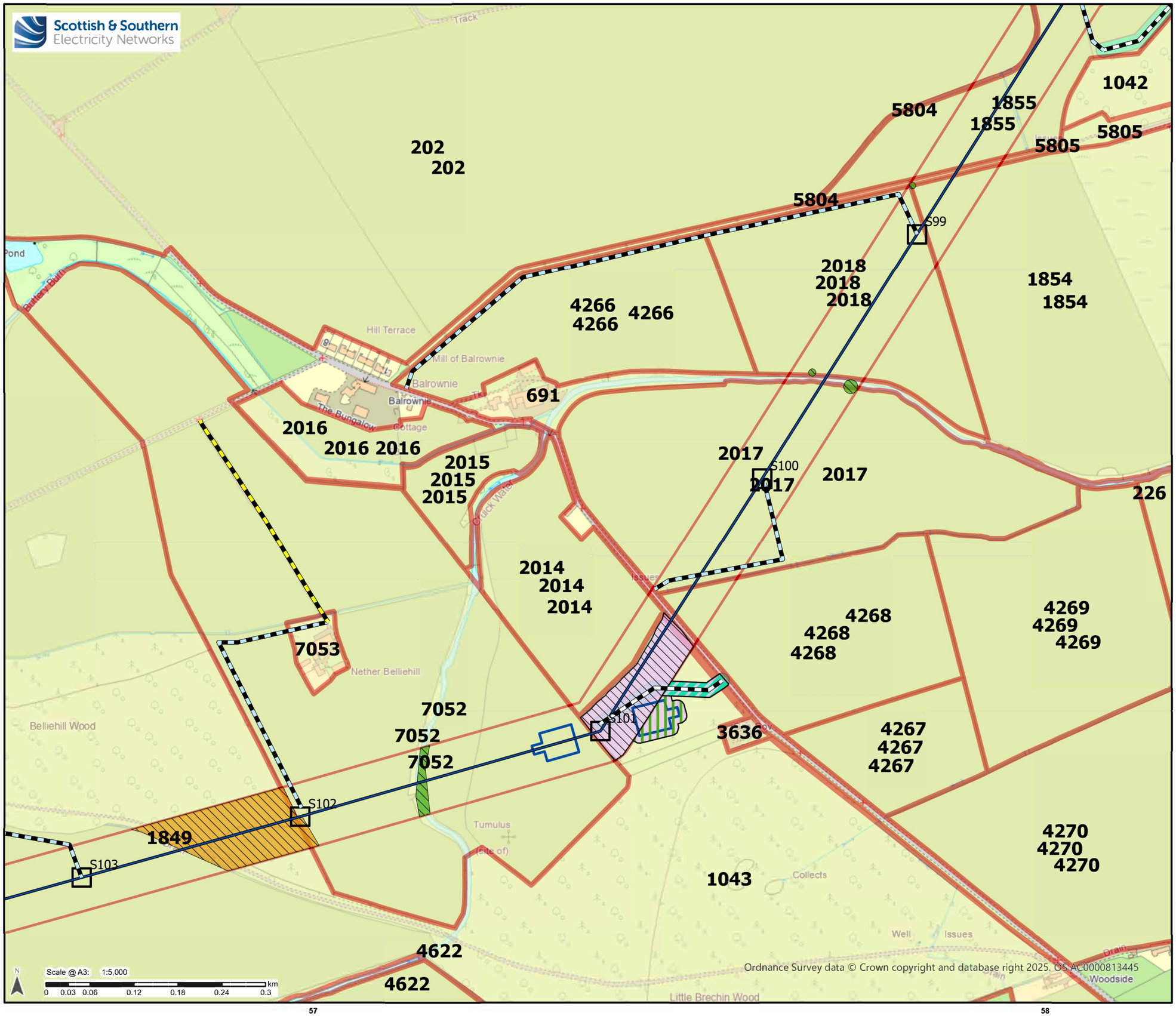
1.10 Compensatory Planting

1.10.1 Compensatory planting to achieve the area quantity (hectares) of woodland removal, referenced above will be provided for the OHL and access track OC area and will be in accordance with the Scottish Government's Policy on Control of Woodland Removal of no net loss of woodland.

1.10.2 Compensatory planting will be detailed within **Volume 5, Appendix 8.1: Compensatory Planting Management Strategy**.

1.10.3 Areas of tree felling required to facilitate construction (where necessary) outside of the OC, temporary access tracks, holding out positions and EPZ (Equi-potential zones) and areas felled to a windfirm boundary will be replanted on site. Replanting of these sites will follow the conditions set out in the Scottish Forestry approved felling permission (where required) and will be the responsibility of the landowner.

Figure 8.1.19
Landowner Boundaries



Landowner Boundaries

Proposed Tower - 400kV (with tower number)

Propoosed OHL Alignment - 400kV

90m Operational Corridor

Proposed Access Tracks

Access new stone permanent

Access_New_Stone_Temp

Access_Existing_Upgrade

Proposed Conductor Pulling Area (EPZ)

Permanent Access 20m Buffer

Proposed Felling requirements

OC

Access

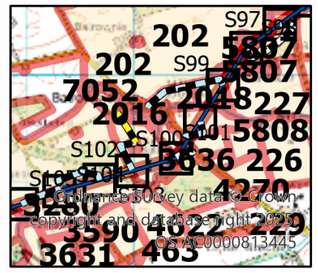
Infrastructure

Woodland Type

BL

CON/BL

Felled Conifer



Project No:

Project:

Title:

Drawn by:

Date: 15/07/2025

Drawing:

Figure 8.2.19 Proposed Felling requirements

Scottish & Southern Electricity Networks

57 58

64 64

63 63

Track
Issues
Pond
Buttery Burn
Hill Terrace
Mill of Balrownie
Balrownie
Balrownie Tks
The Bungalow
Cottage
FB
Cruick Water
S99
S100
S101
S102
S103
Nether Belliehill
Belliehill Wood
Gas Gov
Tumulus
(site of)
Collects
Well
Issues
Drain
Drain
Woodside
Little Brechin Wood

Scale @ A3: 1:5,000
0 0.03 0.06 0.12 0.18 0.24 0.3 km

Proposed Tower - 400kV (with tower number)

Propoosed OHL Alignment - 400kV

90m Operational Corridor

Proposed Access Tracks

- Access new stone permanent
- Access_New_Stone_Temp
- Access_Existing_Upgrade

Proposed Conductor Pulling Area (EPZ)

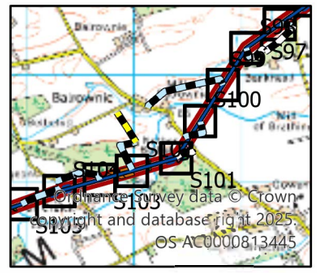
Permanent Access 20m Buffer

Proposed Felling requirements

- OC
- Access
- Infrastructure

Woodland Type

- BL
- CON/BL
- Felled Conifer



Project No:

Project:

Title:

Drawn by: Date: 15/07/2025

Drawing: