Volume 5: Appendix 8.2.9 – Woodland Report:
Tillybrigg, Tillyfoddie, Scaur, Culfosie, Barmekin
and Myriewell





# **Contents:**

1.1	Introduction	2
1.2	Purpose of this Woodland Report	2
1.3	Woodland Property	3
1.4	Development Requirements	4
1.5	Woodland Characteristics	4
1.6	Windthrow Risk Impact	9
1.7	Woodland Management Impact	10
1.8	Mitigation Opportunities	10
1.9	Woodland Removal Impact	10
1.10	Compensatory Planting	11

# **Figures**

Figure 8.1.9 a-b – Landowner Boundaries

Figure 8.2.9 a-b – Proposed Felling Requirements



# 1. WOODLAND REPORT: TILLYBRIGG, TILLYFODDIE, SCAUR, CULFOSIE, BARMEKIN AND MYRIEWELL

#### 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*<sup>1</sup> (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 Tillybrigg, Tillyfoddie, Scaur, Culfosie, Barmekin, and Myriewell and the relevant landholding property boundary is presented in **Figure 8.1.9: 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<sup>2</sup>.

#### 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.

<sup>&</sup>lt;sup>1</sup> UK Government, 1989. Electricity Act 1989. [Online] Available at: https://www.legislation.gov.uk/ukpga/1989/29/contents

<sup>&</sup>lt;sup>2</sup> 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<sup>3</sup> and Scottish Forestry map viewer<sup>4</sup>. 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 This woodland report pertains to several separate woodland areas, all under the same ownership, geographically associated by being between a specific set of proposed tower locations (the roadside tree strip ca 112 m NW of Tower N18, southwards to Tower N31). The woodlands covered by this report are the following (National Grid Reference locations, (NGR) in brackets following woodland name): Tillybrigg Wood (NJ740094), Tillyfoddie Wood (NJ741092), Scaur Wood (NJ741088), Culfosie (NJ738076), Barmekin Wood, and Myriewell Wood.
- 1.3.2 All these woodlands are situated on privately-owned property under a single ownership.
- 1.3.3 No current Long-Term Forest Plans or other woodland management plans are active for any of these woodlands. No current or recent Felling Permissions have been issued for any of these woodlands.

https://scottishforestry.maps.arcgis.com/apps/webappviewer/index.html?id=0d6125cfe892439ab0e5d0b74d9acc18

<sup>&</sup>lt;sup>3</sup> Scottish Forestry Land Information Search URL: https://map.environment.gov.scot/LIS\_Agri/Agri.html

<sup>&</sup>lt;sup>4</sup> Scottish Forestry Map Viewer URL:



#### 1.4 Development Requirements

#### 400 kV Overhead Line

- 1.4.1 The Operational Corridor (OC) is described in greater detail in **Volume 1**, **Chapter 3**: **Project Description** and is defined as the designated area around Proposed Development that is maintained to ensure safe and reliable operation of the OHL.
- 1.4.2 The Study Area for this assessment is based on the required 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 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.
- 1.4.3 The 400kV 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.
- 1.4.4 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 during construction to allow greater tree retention depending on factors such as tree height, topography, crown reduction or other mitigation strategies

#### Access Track Route Design

1.4.5 Access track requirements outside of the OC to facilitate tower construction on this property will pass through several of the woodlands. Any felling associated with this access track will be included in the tree felling component of the Section 37 application and is included in **Tables 2** and **4**.

# 1.5 Woodland Characteristics

- 1.5.1 A desk-based study of the woodland areas was conducted, utilising web-based data provided by Scottish Forestry<sup>3</sup> and referencing the Scottish Government's Ancient Woodland Inventory, to identify current woodland environmental designations and classifications.
- 1.5.2 The Scottish Forestry Map Viewer<sup>4</sup> provides spatial data on the Native Woodland Survey of Scotland<sup>5</sup> and classifies the woodland types into four categories:
  - Native woodland<sup>6</sup>;
  - Nearly-native woodland<sup>7</sup>;
  - Open land habitat<sup>8</sup>; and

<sup>&</sup>lt;sup>5</sup> 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

 $<sup>^{6}</sup>$  Native Woodland – woods where the canopy cover is composed mainly of native species (ie over 50% )

<sup>&</sup>lt;sup>7</sup> 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.

<sup>&</sup>lt;sup>8</sup> Open Land Habitat – areas with <20% canopy cover of trees and shrubs adjoining a native woodland.



- Plantations on Ancient Woodland Sites (PAWS)<sup>9</sup>.
- 1.5.3 Desk-based study of the woodland area, using both the Ancient Woodland Inventory and the Native Woodland Survey of Scotland, has identified areas of Long Established of Plantation Origin (LEPO) (2b 1860) and small areas of Native Woodland 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
Tillybrigg, Tillyfoddie, Scaur, Culfosie, Barmekin, Myriewell	-	-	-	1.37 ha	-	0.15 ha	1.52 ha

<sup>\* -</sup> Rounding errors can occur

#### Tillybrigg Wood:

- 1.5.4 While nominally part of Tillybrigg Wood, the single tree affected by the OHL alignment here lies outside of the named wood and is instead part of a strip of roadside trees. The species of this tree is beech, and it the southeasternmost member of the roadside strip along the north verge of the A944 Westhill Alford public road. The tree in question is shown in **Plate 1.**
- 1.5.5 The remainder of the broader Tillybrigg Wood is part of both the NWSS and the AWI, as Native Woodland (native pinewood) and 2b, LEPO respectively. From these adjacent designations, it is clear that the tree in question is not part of the NWSS designated areas, as being a beech avenue tree, it does not qualify for inclusion into a native pinewood. While it might qualify for inclusion as part of a 2b, LEPO area, the root place position lies marginally outside the indicated coverage of the 2b, LEPO-designated area.
- 1.5.6 The age of the tree is Mature to Overmature. The soil type<sup>10</sup> at the location of this tree is non-calcareous gley. The total area of woodland affected by the OHL alignment in Tillybrigg Wood is 0.004 ha.

<sup>&</sup>lt;sup>9</sup> 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.

 $<sup>^{10}</sup>$  All soil type determinations are as per the Soils of Scotland 1:25,000 shapefile provided by the James Hutton Institute.



Plate 1: Tree at Tillybrigg Wood, taken from NGR NJ 74124 09446, facing WNW.



#### Tillyfoddie Wood:

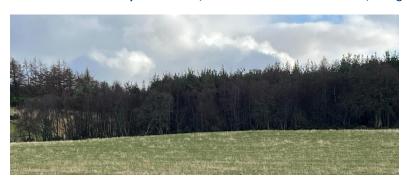
- 1.5.7 The sections of this woodland affected by the OHL alignment consists of a small wedge of forest facing onto the A944 public road, and a larger section of forest set back from the road.
- 1.5.8 The smaller strip facing the road consists in its northern half of mixed broadleaves (age class Established, Top height ca. 15 m), and in its southern half of Sitka spruce, age class Overmature, top height ca. 30 m. The larger block to the south consists of Scots pine and mixed broadleaves; age class Pole Stage, and top height ca. 15 m. The smaller northern wedge-shaped block is shown in **Plate 2** and larger main block is shown in **Plate 3**.
- 1.5.9 The northern block has no designations applied to it under the NWSS, but does have a LEPO (antiquity 2b) designation under the AWI. The larger southern block has a Native Woodland designation under the NWSS, whereby it is classed as a native pinewood. It also has a LEPO (antiquity 2b) designation under the AWI.

Plate 2: Woodland at Tillyfoddie Wood, taken from NGR NJ 74124 09446, facing WSW.





Plate 3: Woodland at Tillyfoddie Wood, taken from NGR NJ 74124 09446, facing SSE.



#### Scaur Wood:

- 1.5.10 Only a single section in the northeast of Scaur Wood is affected by the OHL alignment.
- 1.5.11 The species at this location is Sitka spruce, age class Mature. Top height is undetermined as the block is entirely (100%) windblown.
- 1.5.12 The northwest corner / edge of the block has the NWSS designation of Native Woodland, listed as being of an 'unidentifiable' type. It also has a LEPO (antiquity 2b) designation under the AWI.

## Culfosie:

1.5.13 These woodlands are shelterbelts lining a farm track and a field boundary. The species is Ash, the age class is Mature, and the top height is ca. 20 m. No part of any of these woodlands is included in the AWI or NWSS.

Plate 4: Woodland at Culfosie, taken from NGR NJ 74039 07452, facing NW.



# Barmekin Wood:

1.5.14 Several sections of Barmekin Wood are affected by the OHL alignment. These woodlands are shelterbelts, following a straightened burn. The species is mixed woodland, with Sitka spruce, Norway spruce, Larch, Ash, and Willow. Top height is variable, with a maximum of ca. 30 m. No part of any of these woodlands is included in the AWI or NWSS.



Plate 5: Woodland at Barmekin Wood, taken from NGR NJ 73960 06683, facing NE.



Plate 6: Woodland at Barmekin Wood, taken from NGR NJ 74356 06532, facing SSE.



# Myriewell Wood:

- 1.5.15 Only a single section of the main Myriewell Wood shelterbelt is affected by the OHL alignment, the remainder of the shelterbelt and the larger rectangular block to the south are unaffected.
- 1.5.16 The species at this location are mixed broadleaves, with beech being the dominant species. Stem density is very low, with the trees being arranged in a scattered manner; Age class is Established, with large mature trees being interspersed with smaller young trees. Top height is ca. 20 m.
- 1.5.17 No parts of the affected part of this woodland are included in the NWSS. It has a LEPO (antiquity 2b) designation under the AWI.



Plate 7: Woodland at Myriewell Wood, taken from NGR NJ 74873 06226, facing S.



#### 1.6 Windthrow Risk Impact

- 1.6.1 The woodlands are situated in a lowland arable agricultural zone, on and between low rolling hills. The predominant soil types<sup>11</sup> are freely drained humus-iron podzols, non-calcareous gleys, and brown earths.
- 1.6.2 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 is 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 either, observations at a site level or via an approved management plan. Reference is also made to Forest GALES<sup>12</sup>. Felling outwith the OC to a windfirm boundary is termed Management Felling and is presented within Figure 8.2.9: Proposed Felling Requirements.
- 1.6.3 The woodland site affected by the Proposed Development has a relatively uniform 'Detailed Aspect Method of Scoring' (DAMS)<sup>13</sup> windthrow hazard class score are shown below for each of the named woodlands:
  - Tillybrigg Wood = 10
  - Tillyfoddie Wood = 10
  - Scaur Wood = 11
  - Culfosie = 11
  - Barmekin Wood = 11

<sup>&</sup>lt;sup>11</sup> As per the National Soil Map of Scotland (1:250,000), accessed at https://soils.environment.gov.scot/maps/soil-maps/national-soil-map-of-scotland/.

<sup>&</sup>lt;sup>12</sup> Forest Research (2025). Available at: <a href="http://www.forestdss.org.uk/geoforestdss/">http://www.forestdss.org.uk/geoforestdss/</a>. 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</a>
<sup>13</sup> Detailed Aspect method of Scoring (DAMS) Ref. Forest Research, "Forest Gales software programme" and Forestry Commission Leaflet 85 "Windthrow Hazard Classification"



- Myriewell Wood = 11
- 1.6.4 By the DAMS scores ranging from 10 11, this gives them a risk classification of being Sheltered, with a low risk of windblow occurring. It should be noted that, despite being of low windblow risk, there is significant windblow in the Scaur Wood block, with this having occurred during Storm Arwen in 2021.

#### 1.7 Woodland Management Impact

- 1.7.1 The OHL alignment will create additional challenges for the future management of the forest as it dissects existing management coupes. An electrical hazard will be introduced adjacent to each of these woodland blocks, creating an additional challenge for future forest management. 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.
- 1.7.2 The OHL alignment does not cross any of the existing internal forest road network. Where it does cross driveways and agricultural access tracks, the OHL will be built to comply with statutory clearances above these, which will reduce the hazard in respect of public traffic and/or future timber haulage. The OHL alignment 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 woodlands.
- 1.7.3 The Proposed Development will result in the permanent removal of existing conifer forest and broadleaved woodland from the operational OC. This will reduce the productive forestry land available for planting within the woodland property area, as the OC will require to be kept clear of trees.
- 1.7.4 During the construction phase, there will be a level of disruption to the undertaking of routine forestry management activities by the landowners on the woodland property. This will be project managed through communication and agreement with them.

#### 1.8 Mitigation Opportunities

- 1.8.1 A standard OC width of 90 m (45 m either side of OC centre line) has been prescribed for the entire length of the alignment through this property. On account of the surrounding trees being quite varied, with a significant proportion of non-native productive conifers, along with native conifers and mature mixed broadleaves.
- 1.8.2 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.
- 1.8.3 The OC woodland removal area is required for the construction and operation of the new OHL infrastructure. Reference to **Appendix 8.1: Compensatory Planting Management Strategy**, will fully mitigate the OC woodland removal area by replanting the area quantity (hectares) of woodland removed.
- 1.8.4 The management felling (those areas outwith the OC that require to be felled) areas will be replanted by the landowner in accordance with the usual legal obligations associated with Scottish Forestry Felling Permissions.

#### 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	Conifer plantation	1.47 ha
	Mixed broadleaved woodland	0.60 ha

<sup>&</sup>lt;sup>14</sup> 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/



Item	Woodland Type	Area
	Mixed woodland	1.20 ha

#### **Table 3: Compensatory Planting**

Item	Woodland Type	Area	
Compensatory Planting Area	Mixed conifer or mixed broadleaves	3.28 ha	

#### **Table 4: Woodland Removal Impact of Infrastructure**

Item	Woodland Type	Area
Total Loss of Woodland Area		3.28 ha
Total Compensatory Planting Area		3.28 ha
Total Net Loss of Woodland Area		0.00 ha

#### **Table 5: Woodland Removal for Management Felling**

Item	Woodland Type	Area
Management Felling		0.92 ha
Replanting/Restocking		0.92 ha
Net Loss of Woodland Area		0.00 ha

Note. Felling and restocking approval is via Scottish Forestry Felling Permission application process or Long-Term Forest Plan application or amendment process. This is to be sought by the landowner on whose land the management felling takes place, who is also responsible for all associated restocking operations.

#### 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 Policy 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.

