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APPENDIX 9.2: OHL WOODLAND REPORT – GLENMORISTON ESTATE

1.1 Introduction

- 1.1.1 This Appendix presents information relevant to the Bhlaraidh Extension Wind Farm Grid Connection Works. It should be read in conjunction with the EA Report, specifically **Chapter 9: Forestry**, for full details of the Proposed Development.
- 1.1.2 Scottish and Southern Electricity Networks (SSEN) Transmission, operating under licence held by Scottish Hydro Electric Transmission plc, hereafter referred to as 'the Applicant', owns and maintains the electricity transmission network across the north of Scotland. This appendix has been prepared to support the EA that is to accompany an application for consent under section 37 of the Electricity Act 1989 to construct and operate a new single circuit 132 kV transmission line between the Bhlaraidh Extension Wind Farm and Fort Augustus Substation.

1.2 Purpose of this Woodland Report

- 1.2.1 As part of the EA process, it was identified that the overhead line (OHL) construction and the access tracks required to construct the Proposed Development would cross a number of woodland areas within a single private or publicly owned landholdings. The landholding property boundaries are identified in **Figure 9.2.1**
- 1.2.2 This woodland report considers the private ownership of Glenmoriston Estate.
- 1.2.3 This document 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.
- 1.2.4 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 document also sets out the area quantity (hectares) to be compensatory planted to ensure no net loss of woodland is achieved.

1.3 Woodland Property

- 1.3.1 Glenmoriston Estate woodlands are located mainly within Glen Moriston with a small outlier north of Invermoriston on the western shore of Loch Ness. The woodland property contains large areas of commercial conifer woodland and significant areas of native woodlands.
- 1.3.2 The main woodland areas, and the areas of interest for this report are the area to the north of the River Moriston from Levishie in the east to Bhlaraidh in the west and extending north towards the existing Bhlaraidh Wind Farm and the consented Extension. This area is referred to as Bhlaraidh by the owners.
- 1.3.3 The area to the south of the River Moriston extends from east of the Dundreggan dam westward towards Inverwick. This area is referred to as Inverwick.
- 1.3.4 The woodland to the north of the river is well serviced by the existing wind farm access track from the A887 public road with other forest tracks accessing the woodland areas. The main vehicle access point is located at OS Grid Reference: NH 3955 1719.
- 1.3.5 South of River Moriston the main access is from the west at OS Grid Reference: NH 3093 1289 where the forest tracks and minor public road join the A887 near Torgyle Bridge.

1.4 Development Requirements

132 kV Overhead Line

- 1.4.1 The existing Bhlaraidh wind farm is located to the west of Loch Ness, approximately 5 km north of Invermoriston on a high rocky plateau. The consented extension to the existing wind farm is due east on this plateau.
- 1.4.2 SSEN Transmission plan to construct a single circuit 132 kV connection from the Bhlaraidh Extension Wind Farm substation compound, for a distance of approximately 19.5 km.
- 1.4.3 It is anticipated that approximately the first 3 km from the on-site substation and approximately the last 2 km of the connection into Fort Augustus substation would be by underground cable (UGC); subject to obtaining the necessary wayleave and consent approvals.
- 1.4.4 The minimum safety clearance distance for trees for the OHL infrastructure is 25 m for broadleaved trees and 36 m for conifer trees. These distances have been used to calculate the operational corridor (OC) of 50 m and 72 m respectively. In some cases, such as angle poles, the requirement may be slightly in excess of this distance however the average minimum distance has been used in this assessment.
- 1.4.5 The study area for this assessment is based around the OC. The Applicant defines the area in which it has rights to remove woodland for the purposes of creation of new overhead lines (OHLs), 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 with reference to the distance at which a tree could fall and cause damage to the overhead line, resulting in a supply outage¹. As a result, the final corridor 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 poles, taking account of topography and tree height at maturity. Where the OC passes through areas of native woodland, it is noted that the width of woodland removal is likely to be reduced due to the lower height of the tree species present. The proposed OC illustrated in **Figure A9.2.2** has been based on the likely height of the woodland at maturity and therefore, varies in width according to the woodland type present.
- 1.4.6 The future plans of landowner woodland restructuring (clearfell and replant) have been reviewed.
- 1.4.7 The OC width that has been assessed and identified for the safe build and energisation of the new OHL through the areas of commercial conifer woodland is 72 m (36 m either side of the OHL centreline).
- 1.4.8 The OC width that has been assessed and identified for the safe build and energisation of the new OHL through the areas of native broadleaved woodland is 50 m (25 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.

Access Route Track Change

- 1.4.9 Given the current wind farm and forest access track network it is not proposed to design and construct additional tracks.

1.5 Woodland Characteristics

- 1.5.1 The forest data has been drawn up from Glenmoriston Estate forest manager's compartment schedules and the draft revisions of the Long Term Forest Plan (LTFP). The previous LTFP, Case Reference: 3892588 was

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)

approved in 2011 through to 2021. An updated plan is being developed by the Estate owners and forest managers. However, this has yet to be submitted to or approved by Scottish Forestry (SF), as the agency regulating forests and woodland planning.

- 1.5.2 Forest walkovers were conducted during the selection of the alignment for the Proposed Development.
- 1.5.3 A desk-based study of the woodland areas was conducted, utilising web based data provided by Scottish Forestry² and referencing the Scottish Government's Ancient Woodland Inventory (AWI)³, to identify current woodland environmental designations and classifications.
- 1.5.4 The Scottish Forestry Map Viewer provides spatial data on the Native Woodland Survey of Scotland (NWSS) and classifies the woodland types into four categories:
- Native woodland;
 - Nearly-native woodland;
 - Open land habitat; and
 - Plantations on Ancient Woodland Sites (PAWS).
- 1.5.5 Glenmoriston Estate woodlands which would be impacted by the Proposed Development, Bhlaraidh and Inverwick, are situated on both sides of the River Moriston Figure A9.2.3.
- 1.5.6 Bhlaraidh woodlands, south from the wind farm substation includes compartment 43, identified as mixed broadleaves, the Proposed Development avoids any planted area.
- 1.5.7 The OHL would enter compartment 20 which is part of the Bhlaraidh Wind Farm Habitat Management Plan area east of Allt loch a' Chrathalch.



Photograph 1: Bhlaraidh Wind Farm HMP area (part)

- 1.5.8 Continuing east of this watercourse and beyond where it meets Allt Bhlaraidh the OHL alignment is through mature native broadleaves and open ground in woodlands designated as AWI (ASNO1750⁴) and NWSS (upland birchwood). On crossing Allt Bhlaraidh the OHL leaves the Glenmoriston Estate Bhlaraidh woodlands.

² <https://forestry.gov.scot/support-regulations/scottish-forestry-map-viewer>

³ <https://www.data.gov.uk/dataset/c2f57ed9-5601-4864-af5f-a6e73e977f54/ancient-woodland-inventory-scotland>

⁴ ASNO1750 are woodlands identified on Roy maps of 1750



Photograph 2: Upland birchwoods

- 1.5.9 South of the River Moriston the OHL would re-enter Glenmoriston Estate in their Inverwick woodlands.
- 1.5.10 Compartment 12 at this point is currently unplanted PAWS. The draft Glenmoriston Estate LTFP indicates replanting in 2023 with mixed conifers and native broadleaves.
- 1.5.11 Adjacent to Dundreggan Dam (compartment 4) the woodlands are mature native broadleaves with the woodland designations of AWI (ASNO1750) and NWSS (upland birchwood).
- 1.5.12 West of the dam, the woodlands adjacent to the existing OHL are mixed conifer comprising of Norway spruce, Douglas fir, and Sitka spruce planted in 1968 (compartments 7&9). These areas are PAWS. This area has been identified in the draft LTFP (and the former approved LTFP) as first phase felling through to where the OHL exits this ownership east of Inverwick. The draft LTFP replanting plan for these compartments indicates mixed conifer and areas of Sitka spruce as a single species.



Photograph 3: Inverwick Norway spruce, Douglas fir and Sitka spruce



Photograph 4: Planting Year 2011 Mixed broadleaves

1.5.13 The total area of management felling proposed is 13.47 ha of commercial conifer woodland. The felling of these areas is subject to forest owner agreement and felling permission approval or Long Term Forest Plan formal amendment⁵ by Scottish Forestry.

1.6 Windthrow Risk Impact

1.6.1 Within the Bhlaraigh woodlands, no impact of windthrow risk would be created by the removal of the young tree areas within the OHL operational corridor identified in the HMP area.

1.6.2 A minimal impact of windthrow has been assessed for the native broadleaved woodland areas, due to their location, size and structure.

1.6.3 As the Inverwick area includes ground due to be replanted in 2023 there is no windblow impact and, dependent on approval by Scottish Forestry of the draft LTFP felling plans and the actual timing of felling there is no significant risk of windthrow here. If felling is delayed there would be some temporary windthrow risk. Should felling approval not be authorised through the forest owner's LTFP management felling would be required consisting of some 13.47 ha of mature mixed conifer to avoid likely wind throw following felling of the OC.

⁵ This felling is not included within the scope of the Proposed Development (for the purpose of the application for consent under S37 of the Electricity Act 1989). This additional 'management felling' would be subject to a requirement for separate felling licence approval from Scottish Forestry

1.7 Woodland Management Impact

- 1.7.1 The OHL alignment would create additional challenges for the future management of the forest as it dissects existing management coupes and introduces an electrical hazard. The constraint associated with the electrical hazard would be reduced by regular maintenance of the operational corridor, which would avoid the incidences of “Red Zone” trees.⁶
- 1.7.2 The OHL alignment crosses the forest track network within Bhlaraidh and Inverwick woodlands and would be built to the regulatory safe height clearances above forest roads/access tracks, which would reduce the hazard in respect of future timber haulage.
- 1.7.3 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 forest owner and if required would be identified once the OHL has been constructed, thus providing a safe OHL crossing point(s) for future working within the woodland.
- 1.7.4 The Proposed Development would permanently remove existing mature and young conifer woodland with an area of broadleaved woodland from the operational corridor. This would reduce the forestry restructuring/planting land available within the woodland property area, as the operational corridor would be maintained clear of trees.
- 1.7.5 During the construction phase, a level of disruption to routine forestry management activities undertaken by the forest owner on the woodland property would occur. This will be project managed through communication and agreement with the affected stakeholders.

1.8 Mitigation Opportunities

- 1.8.1 A reduced operational corridor width of 50 m has been assessed for the areas of native broadleaved woodland. Prior to the construction phase these areas will be assessed for further selective felling to identify if greater tree retention can be achieved. This will be dependent on the requirements of the Proposed Development and in particular the safety of OHL wiring operations.
- 1.8.2 The operational corridor woodland removal area is required for the construction and functioning of the new OHL infrastructure. Opportunities will be assessed for woodland replanting within the operational corridor, the identification of suitable areas cannot be guaranteed due to the requirement of maintaining the safe energisation of the OHL. Compensatory planting would fully mitigate the operational corridor woodland removal area by replanting the area quantity (hectares) of woodland removed.
- 1.8.3 The management felling areas would be replanted by the forest owner, in-line with the Scottish Forestry felling permission⁷ regulations including replanting conditions.

1.9 Woodland Removal Impact

Table 9-1: Woodland Removal for Infrastructure

Item	Woodland Type	Area (ha)
OHL	HMP	0.75 ⁸
	Natural Regeneration not HMP	1.43
	PAWS (non-native conifer)	9.02

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)

⁷ Felling permission, <https://forestry.gov.scot/support-regulations/felling-permissions>, visited 24/10/2022

⁸ This area is reflective of a worst-case scenario based on Phase 1 Habitat mapping within the HMP area.

	Upland birchwood (NWSS)	3.20
	Mixed broadleaved (mature)	3.32
	Pine wood (NWSS)	4.30
	Conifer plantation	5.25
Total		27.27

Table 9-2: Compensatory Planting

Item	Woodland Type	Area (ha)
Compensatory Planting Area	Mixed conifer or mixed broadleaves	27.27

Table 9-3: Woodland Removal Impact of Infrastructure

Item	Area (ha)
Total Loss of Woodland Area	27.27
Total Compensatory Planting Area	27.27
Total Net Loss of Woodland Area	0.00

Table 9-4: Woodland Removal for Management Felling (should the draft LTFP not be approved)

Item	Woodland Type	Area (ha)
Management Felling	Mature mixed conifer plantation	11.00
Replanting / Restocking	Predominantly mixed conifer	11.00
Net Loss of Woodland Area		0.00

Note: Should the draft LTFP be approved then there would be no Management Felling required. Felling approval is via Scottish Forestry Felling permission 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 would be provided for the OHL and would be in accordance with the Scottish Government's Control of Woodland Removal Policy⁹ of no net loss of woodland.

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

1.11 List of Annexes

Figure 9.2.1 - Landownership Boundary

Figure 9.2.2 – Forestry Project OC Felling

Figure 9.2.3 – Glenmoriston Indicative LTFP

Figure 9.2.4 – Glenmoriston Viewpoint Location

Figure 9.2.5 - Glenmoriston Viewpoint Location – Viewpoint Bearing

Figure 9.2.6 – Glenmoriston Visualisation