APPENDIX 9.1: WOODLAND REPORTS

Overview

This Appendix presents information relevant to the 132 kV single circuit overhead line (OHL) connection between Rothes III Wind Farm and Blackhillock substation, referred to as 'the Proposed Development.' This appendix should be read in conjunction with the **Elchies (Rothes III) Wind Farm Grid Connection Works: Environmental Appraisal** (**EA)** specifically **Chapter 9: Forestry.**

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. In this Appendix, the Applicant and SSEN Transmission are used interchangeably unless the context requires otherwise.

The Applicant is applying for consent under Section 37 of the Electricity Act 1989 to construct and operate a new 24.3 kilometre (km) single circuit 132 kV OHL. The majority of the connection would be supported on a trident wood pole between a new Cable Sealing End ("CSE") structure approximately 450 m southeast of Rothes III Wind Farm (Ordnance Survey (OS) grid reference 322434,847882) and a new CSE structure approximately 900 m north-west of Blackhillock substation (OS grid reference 342233,848695). Ancillary works would also be required to facilitate the construction and operation of the Proposed Development, including tree felling and vegetation clearance, temporary measures to protect road and water crossings, upgrades to existing access tracks and existing access points, new permanent and temporary access routes (i.e. Trackway, where required), permanent stone hardstanding areas and associated working areas around infrastructure to facilitate construction. The location of the Proposed Development is shown in **Figure 9.1 (EA).** Deemed planning permission under section 57(2) of the Town and Country Planning (Scotland) Act 1997 for the new OHL and ancillary infrastructure is also sought.

The Proposed Development would also include the following works, which would fall under the Applicant's permitted development rights[1]:

- Approximately 450 m of UGC between the Rothes III Wind Farm on-site substation (OS grid reference 322049, 848063) and a new CSE structure to the southeast; and
- Approximately 1.1 km of UGC between the new CSE structure which would be situated approximately 900 m north-west of Blackhillock substation and Blackhillock substation itself (OS grid reference 343098,848409).

As part of the Environmental Assessment (EA) process, it was identified that OHL construction and the access tracks required to construct the Proposed Development would cross a number of woodland areas within private landholdings. The landholding property boundaries are identified in **Figure 9.2 (EA).**

This Appendix provides a conceptual assessment of the woodland areas that would be affected by the Proposed Development, including the requirement of woodland removal and management recommendations to mitigate the impact of the woodland removal. These are Woodland Impact Assessments (WIA). There are five WIAs included in this Appendix, and these are:

- 9.1.1 - Ben Aigan
- 9.1.2 - Multiple landownerships with small scale impact
- 9.1.3 - Rosarie Wood
- 9.1.4 - Rothes Estate
- 9.1.5 - Sourden wood

[1] Town and Country Planning (General Permitted Development) (Scotland) Order 1992

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 appendix also sets out the area quantity (ha) to be compensatory planted to ensure no net loss of woodland is achieved.

Appendix 9.1: Woodland Reports - 9.1.1: Ben Aigan

Contents:

1. Woodland Property

The Ben Aigan forest is owned and managed by Forestry and Land Scotland (FLS) and is located approximately 9.8 km west of the village of Keith, see **Figure 9.1 (EA)**. The woodland property is a large area of commercial conifer woodland, with an existing forest road infrastructure. The property area is located south of the B9103 public road. Main access into the property is from the A95 road at the national grid reference NJ335494.

The property is mainly well serviced by hard metalled forest roads, it however falls at NJ339504, where the forest road is now severely overgrown, not suitable for HGV's.

2. Development Requirements

2.1 Overhead Line

With reference to **Figure 9.1 (EA)**, the sections of overhead line (OHL) applicable to the Ben Aigan property are from Pole 148 to Pole

The new Trident wood pole line infrastructure width is generally 5 metres, measuring the width from outside conductor to outside conductor on each side on the insulator prongs., In addition to this, the safety vicinity zone from each conductor is a 3.5 m radius around the conductor.

The OHL infrastructure and minimum safety clearance distance is therefore 17m (8.5m either side of the OHL centreline) and this has been utilised to calculate the area of the operational corridor occupied by infrastructure.

The study area for this assessment is based around the Operational Corridor (OC). This is the area in which the Applicant 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 outage[1]. 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 posts, 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 9.1 (EA)** has been based on the likely height of the woodland at maturity and therefore, varies in width according to the woodland type present.

The landowner's future plans for woodland restructuring (clearfell and replant) have been reviewed.

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). This has been assessed as a maximum OC width required at these woodland locations, with the potential to further narrowof the OC prior to construction to allow greater tree retention.

2.2 Access Track Route Design

Ben Aigan commercial conifer forest is serviced from the A95 public road by well-constructed hard metalled forest roads, regularly used for timber haulage. These forest roads will form part of the main vehicle access route for the Proposed Development as shown in **Figure 9.1 (EA).** They will be subject to maintenance and

[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)

upgrade works as part of the construction work scope. The existing forest roads will be utilised during the forestry works.

An additional length of approximately 280 m of road which already is already in existence, but badly overgrown will need to be upgraded to enable forestry and construction works, . No tree felling licenses are required to facilitate the works, as most trees (predominantly regenerating Sitka Spruce) are under 8cm diameter. Additional tree maintenance work adjacent to existing access tracks may be required in preparation for the civil engineering access track upgrade works.

3. Woodland Characteristics

The property is situated just south of the B9103 public road west of Craighead. The woodland area is impacted by the development project from Pole 148 to Poleas seen in **Figure 9.1 (EA).**

The woodland area impacted by the development project is an area of commercial conifer woodland with a small area of mixed conifer and broadleaf woodland, as well as impacting very slightly on an area (0.01 ha) of some gorse and self-seeded regenerating broadleaves at Pole 148. The conifer area has undergone significant woodland restructuring in recent years, which is being carried out by the landowner under the terms of their Land Management Plan (LMP). The LMP was drafted by the landowner, as part of the woodland restructuring management strategy for the property. The woodland management regime in the area affected by the Operational Corridor is a low impact silvicultural system. Predominant tree species here are Scots Pine (SP) *Pinus sylvestris* with some pure or mixed Sitka Spruce (SS) *Picea sitchensis* compartments. Both compartments are of semi mature age.

The woodland ground conditions are predominantly podzol soils[2].

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.

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

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

Ancient Woodland Inventory[5] provides 3 main categories:

i. Ancient Woodland (category 1a and 2a)
ii. Long-established woodlands of plantation origin (LEPO) (category 1b and 2b)
iii. Other woodlands on 'Roy' woodland sites (category 3)

There is a regenerating area that has been felled consisting of mixed conifer and broadleaves located between Poles 151 and Pole as can be seen in **Figure 9.1 (EA)**, the size of 0.88 ha.

2 Scottish Government's Scotland's soils website https://soils.environment.gov.scot/
3 Scottish Forestry Land Information Search URL: https://map.environment.gov.scot/LIS_Agri/Agri.html
Scottish Forestry Map Viewer URL:
https://scottishforestry.maps.arcgis.com/apps/webappviewer/index.html?id=0d6125cfe892439ab0e5d0b74d9acc18
4 Scottish Forestry Native Woodland Survey of Scotland: Glossary of Terms; URL: Main Title (forestry.gov.scot)
5 A guide to understanding the Scottish Ancient Woodland Inventory (AWI): https://www.nature.scot/doc/guide-understanding-scottish-ancient-woodland-inventory-awi

The area of SP approximately 2.75 ha, between T152-156 is listed on the Native Woodland Inventory.

The whole plantation is also listed under the Ancient Woodland Inventory, Category 2b, so a total of 3.64 ha area affected by the Operational Corridor is classed as ancient (category 2b), although as explained above none of it is ancient in origin.

Plates 3.1 to 3.4 show the variable woodland condition impacted by the OC between Pole locations 148 and Pole The predominant tree species is Scots Pine intermixed with some other conifers and is of semi mature age.

The Scots Pine has been planted as commercial tree crop and is of uniform age.

The landscape character type is Broad Farmed Valley [6], lower lying farmlands enclosed by adjacent uplands. Ground conditions within the OCare good, with low ground vegetation no deep plough furrows or previous clear-fell debris.

Plate 1: Shows the conifer compartment's main species Scots pine/ Mixed Conifer with some pioneering species such as Birch (BI) in the understory. Estimated timber volume per hectare[7] in this section is 334m^3/ha.

Plate 1: Coordinates: 333756.89,851000.50 1, facing west.

Plate 2: Shows the overgrown access track from the B9103 road. While the surface of the road appears in good condition it is severely overgrown and not suitable for forestry traffic. The vegetation on each side will

[6] Landscape Capacity Study: Main Study Report: Microsoft Word - Moray Appendix Report May 2012.doc
7 Forestry Commission (Scottish Forestry) Forest Mensuration; A handbook for practitioners (2006)

need to be mulched with the potential for some additional stone/gravel overlay required. No felling of mature trees will be necessary.

Plate 2: Coordinates: 333864.80,851322 facing south.

Plate 3 shows level ground with limited undergrowth, which may otherwise inhibit harvesting operations. No permanent access will need to be constructed through this compartment to enable harvesting.

Plate 3 Coordinates 333755.65,850985.8 facing east.

Plate 4 shows the semi mature Sitka Spruce and Mixed Broadleaves compartment in the distance. This compartment is accessible via an existing forest road from the west. A closer investigation of this compartment was restricted by active shooting on the day of the survey.

Plate 4: Coordinates 333672.98,850980.74 facing west

4. Windthrow Risk Impact

The site lies on soils classified as podzols.

The woodland site affected by the Proposed Development has a 'Detailed Aspect Method of Scoring' (DAMS)[8] windthrow hazard class score around 11, classified as low. The site has a cool, moderately exposed and moist climate. The soil's moisture status is considered slightly dry and nutrient status as very poor.

The risk of windthrow damage to the species composition is low and thus no management felling is being proposed here.

[8] Detailed Aspect method of Scoring (DAMS) Ref. Forest Research, "Forest Gales software programme" and Forestry Commission Leaflet 85 "Windthrow Hazard Classification"

5. Woodland Management Impact

The OHL alignment will 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 will be reduced by regular maintenance of the operational corridor to remove vegetation, which will avoid the incidences of "Red Zone" trees.[9]

The OHL alignment crosses the forest road network at either approximately 45 or 90 degrees and will be built to the safe height clearances as set out in the relevant regulations above forest roads/access tracks, which will reduce the hazard in respect of 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 woodland.

The Proposed Development will permanently remove existing mature and young conifer woodland with an area of mixed conifer and broadleaf woodland from the operational corridor. This will reduce the forestry restructuring/planting land available within the woodland property area, as the operational corridor will be maintained clear of trees.

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.

6. Mitigation Opportunities

A reduced operational corridor width will be assessed for the areas of mixed broadleaf 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 development project and in particular the safety of OHL wiring operations.

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 operation and maintenance of the OHL. Reference to **Section 7** of this report, will fully mitigate the operational corridor woodland removal area by replanting through Compensatory Planting Schemes the same quantity of hectares felled.

7. Woodland Removal Impact

Table 7.1 below outlines the woodland type that would be removed to accommodate the Proposed Development.

[9] 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)

Table 7.1 Woodland Removal for Infrastructure

Woodland Type to be removed	Area
For OHL	
Mature conifer tree crop	2.75 ha
Mixed conifer and broadleaf woodland	0.88 ha
Shrub	0.01 ha
Total to be removed	**3.64 ha**

As a total area of 3.64 ha of woodland would be required to be removed, the Compensatory Planting Area of mixed conifer or mixed broadleaves would therefore also be 3.64 ha. This would result in no net loss of woodland area.

No management felling would be required in this forestry property.

8. Compensatory Planting

Compensatory planting to achieve the area quantity (ha) of woodland removal will be provided for the OHL and access track operational corridor area and will be in accordance with the Scottish Government's Control of Woodland Removal Policy of no net loss of woodland.

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Appendix 9.1: Woodland Reports - 9.1.2: Multiple landownerships with small scale impact

Contents:

1. Woodland Properties

Due to small scale impact in terms of area size, multiple properties are assessed in this report, instead of individually. For ease of reference, they are listed in a table below:

Table 1.1: The impact of the OC on multiple properties summary table:

Pole No	Landownership	Type of habitat	Area (ha)	Main access NGR:	Additional details
56-66	Drumbain Farm	Broadleaves	0.91	NJ266504	
		Shrub	0.81		
66-68	Smalburn Farm	Shrub	0.84	NJ266504	Temporary access to pole 67
		Broadleaves	1.95		
44-45,47 56	Glenrothes Estate Maturation Warehouse	Shrub	1.51	NJ286459	
		Broadleaves	0.38		
100-122, 128,138-139	Delfur Estate	Broadleaves	2.44	NJ315518	0.98 ha is SSSI and SAC
		Mixed Broadleaves	0.95		
		Shrub	1.17		
122-127	Orton Estate	Shrub	0.29	NJ315518	
139-148	Auchroisk	Shrub	0.04	NJ315518	
		Broadleaves	0.1		
163-165	Lag Dhubh	Shrub	0.08	NJ343512	
165-171	Stoneyton	Mixed broadleaves and conifer	0.64	NJ350510	
		Shrub	0.14		
171-185	Mulben/Shandston Farm	Broadleaves	0.33	NJ356509	
		Mixed broadleaves and conifer	0.32		
190-191	Tam Farm	Shrub	0.09	NJ360516	
		Broadleaves	0.07		
202-203	Shalloch/Garlad	Mixed Broadleaves	0.05	NJ372498	
202-204	Tor Croft	Mixed broadleaves and conifer	0.19	NJ372498	
204	SSE Rosarie	Mixed broadleaves	0.46	NJ376500	
218-219	Simmers Contracts Ltd	Shrub	0.62	NJ399495	
233-234	Hillockhead wood	Shrub	0.09	NJ398493	
		Conifer	0.7		
234-235	Blackhill Farm	Broadleaves	0.38	NJ398493	
241-242	Douglas Brae	Mixed broadleaves and conifer	0.2	NJ411491	
242-249	Coldhome	Broadleaveswoodland	0.7	NJ420489	

* Data taken from Ancient Woodland Inventory, may not match Spatial imagery data.

2. Development Requirements

2.1 Overhead Line

With reference to Figure 9.1 (EA), the sections of overhead line (OHL) applicable to the each property can be seen in Table 1.1 above.

The new trident wood pole overhead line (OHL) infrastructure width is generally 5 metres (m) from outside conductor to outside conductor on the insulator prongs. In addition to this the safety vicinity zone from each conductor is a 3.5 m radius around the conductor.

The OHL infrastructure and minimum safety clearance distance is therefore 17 m (8.5 m either side of the OHL centreline) and this has been utilised to calculate the area of the operational corridor occupied by infrastructure.

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 outage[1]. 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 posts, 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 9.1 (EA)** has been based on the likely height of the woodland at maturity and therefore, varies in width according to the woodland type present.

The future plans of landowner woodland restructuring (clearfell and replant) have been reviewed.

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 72m (36m 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.

2.2 Access Track Route Design

Some additional temporary tracks to the existing infrastructure network may need to be constructed outside out of the operational corridor. These may include rough extraction tracks through arable land, which will be reinstated using a digger, during the non- productive season.

Where large volumes of timber need to be extracted to roadside temporary mud mats might be used, to minimise soil compaction and mud runoff.

For a more detailed design of the additional access tracks refer to **Figure 9.1 (EA).**

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)

3. Woodland Characteristics

A desk-based study of the woodland areas was conducted, utilising web based data provided by Scottish Forestry[2] and referencing the Scottish Government's Ancient Woodland Inventory, to identify current woodland environmental designations and classifications.

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

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

Ancient Woodland Inventory[4] provides 3 main categories:

i. Ancient Woodland (category 1a and 2a)
ii. Long-established woodlands of plantation origin (LEPO) (category 1b and 2b)
iii. Other woodlands on 'Roy' woodland sites (category 3)

Areas identified under the afore listed designations are identified in the **Table 9.1.** Total area affected by the Proposed Development in the Native Woodland Inventory is 2.64 ha and an area of 1.58 ha is in the Ancient Woodland Inventory (Category 2b).

3.1 Drumbain/ Smalburn Farms

Plate 1 shows the occasional gorse bush, with individual hawthorn tree along the boundary. The impact of removing these will be minimal.

2 Scottish Forestry Land Information Search URL: https://map.environment.gov.scot/LIS_Agri/Agri.html ; 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)
4 A guide to understanding the Scottish Ancient Woodland Inventory (AWI): https://www.nature.scot/doc/guide-understanding-scottish-ancient-woodland-inventory-awi

Plate 1: Coordinates:327062, 850641 south facing

Plate 2 shows a section of the native woodland impacted by the OHL development (poles 64-67). The terrain is very steep, main access to this section is from the A941. There is no existing infrastructure into the woodland, but there is a layby nearby. It is a semi mature woodland and upland birch is the dominating species here, amongst other native deciduous trees.

Due to the steepness of the terrain trees outwith the falling distance will be assessed for further retention.

Plate 3 shows the average size of the trees and steepness of the slope in this section.

Plate 2: Coordinates: 326683, 850400 east facing

Plate 3: Coordinates: 326713, 850433 north east facing

3.2 Delfur Estate

Plate 4 shows a section of mixed broadleaves (poles 100-101), primarily sycamore, aged approximately 15-20 years. Density very high. The terrain is uneven and primary access is off the B9015.

Plate 4: Coordinates: 329355, 850871 south facing

Plate 5 shows an area with mixed broadleaved plating (poles 112-113). Age young, around 5 years old, with semi mature broadleaves on the edges. A good mix of cherries, hawthorn, birch and hazel, mirroring the deciduous tree mix on the opposite side of the road at pole 104, approximately 10 to 15 years old.

Plate 6 showing the native broadleaved woodland (pole 122) in the background, classed as upland birchwood containing other species such as cherry, horse chestnut, rowen, beach and sycamore.

Plate 5: Coordinates: 330420, 851016 south west facing

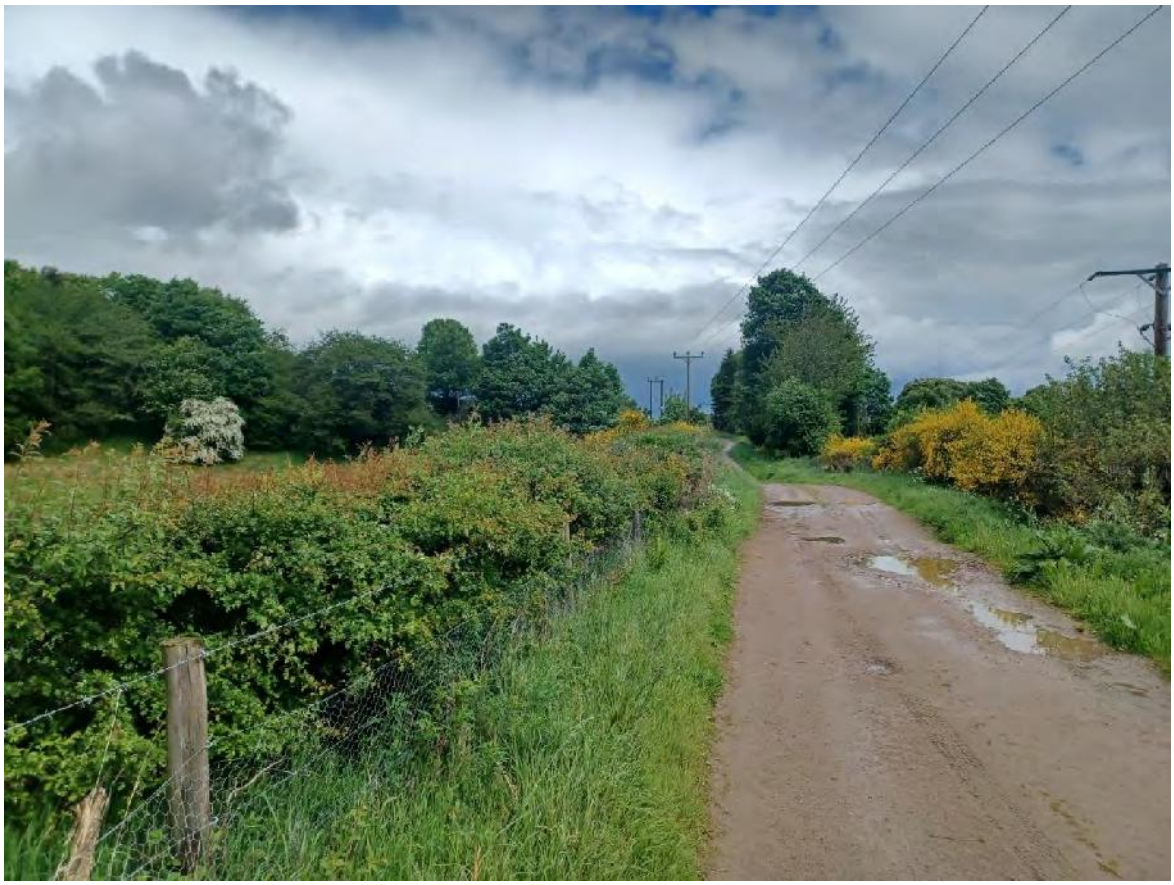

Plate 6: Coordinates:330981, 851561 north facing

A cross section between B9015 and B9103 (poles 123 and 125) will stretch over some shrub mainly gorse, some broom and a handful of individual semi mature broadleaves, which will be individually assessed for retention.

Plate 7 shows the riparian woodland (pole 131-132) with a mixture of mature broadleaves, mostly birch but also oak, ash, alder and willow. This section is on the native woodland inventory as well as SSSI and SAC. Terrain is extremely steep on side and access is limited on both sides.

Plate 7: Coordinates: 331800, 851696 south east facing

Plate 8 showing a span between poles 132 and 133 and a row of shrub underneath, and as previously mentioned, due to the limited mean average height of these species are suitable for further retention and will be assessed on individual basis. Limited access to the location, off the B9103.

Plate 9 showing a section of native broadleaved woodland (poles 136 to 139), which in the Ancient woodland inventory is classed as ancient woodland, category 2b. A wide mix of species, such as cherry, oak, ash, beech, hazel, rowen, as well as occasional conifers, such as spruce and larch.

Further micro siting will identify any ancient or veteran trees for further retention. Temporary access through the adjacent field will be required.

Plate 87: Coordinates:331506, 851888 east facing

Plate 9: Coordinates 332289,851365 east facing

3.3 Auchriosk

Plate 10: Coordinates: 332641, 851324 north west facing

Plate 10 showing a mature hedge near post 142, dominated by hawthorn, gorse and broom. Due to the limited height of the species, the corridor is likely to be reduced here. Good access off the B9103.

3.4 Lag Dhubh

Plate 11: Coordinates: 334421.82,851301.7 facing east.

Plate 11 showing a clear fell site on the left, which falls within the OC. While it is unlikely to need any intervention at this stage, the regenerating Sitka Spruce may need to be contained in the future.

3.5 Stoneyton

Plate 12: Coordinates: 335047.19,851122.36 facing east.

Plate 12 showing shrub and occasional broadleaves near the fence falling withing the OC, and a mixed conifer and broadleaf woodland in the distance. Temporary access through the field.

3.6 Mulben/Shandston Farm

Plate 13 showing a mature willow tree, which is within the OC corridor. Temporary access is likely to be required.

Plate 14 show a mixed woodland on steep grounds, also within the OC, some of the lower growing tree maybe retained, species and terrain permitting.

Plate 15 showing some roadside trees, a mix of conifer and broadleaves, also within the OC.

Plate 13: Coordinates: 335251.37,851075.24 facing east.

Plate 14: Coordinates: 335251.37,851075.24 facing north.

Plate 15: Coordinates: 335451.88,851057.86 facing west.

3.7 Tam Farm

Plate 16: Coordinates: 335903.019,850858.616 facing south.

Plate 16 showing young broadleaves and conifers that are within the OC, due to the terrain a retention of some trees will be assessed.

Plate 17 Shows the edge of a semi mature woodland within the OC, some of the standing deadwood will e retained due to limited risk of increasing height.

Plate 17: Coordinates: 336131.655,850525.965 facing south.

3.8 The Croft

Plate 18 shows an area of shrub with the occasional tree in between. Trees within the falling distance to the powerline will have to be removed and the rest assessed for retention.

3.9 SSE Rosarie

Plate 19 shows a young mostly deciduous woodland on very wet grounds.

Plate 18: Coordinates: 337779.312,850059.41 facing north.

Plate 19: Coordinates: 337694.85,850029.15 facing east.

3.10 Hillockhead Wood

Plate 20 Shows the Sitka Spruce restock site, heavily overgrown with gorse and broom and birch. No direct access to the site.

Plate 20: Coordinates: 340535.573,849418.703 facing east.

3.11 Blackhill Wood

Plate 21 showing a deciduous woodland, mainly birch with gorse and broom underneath and heavy cattle traffic and browsing.

Plate 21: Coordinates: 340629.36,849411.01 facing east.

3.12 Douglas Brae

Plate 22 showing an FGS Woodland Creation Scheme ref no: 19FGS37783, classed as Native Mixed Broadleaves. Individual mature spruce and a hawthorn are also within the OC. There is a private driveway off the B9104.

Plate 22: Coordinates: 341198.82,849183.15 facing east.

3.13 Coldhome

Plate 23 showing riparian trees sycamore, aspen and willow, with a good amount of dead wood. Access through adjacent field only.

Plate 24 showing a mixture of deciduous shrubs and trees along Lowrie Burn, which will be assessed for further retention due to its limited height potential and descending terrain.

Plate 23: Coordinates: 341303.82,849148.33 facing east.

4. Windthrow Risk Impact

No windthrow hazard has been identified as a possible result from the proposed tree clearance.

5. Woodland Management Impact

The OHL alignment will create additional challenges for the future management of the land as it introduces an electrical hazard. The constraint associated with the electrical hazard will be reduced by regular maintenance of the operational corridor, which will avoid the incidences of "Red Zone" trees.[5]

The OHL alignment crosses roads and tracks at either approximately 45 or 90 degrees and will be built to the regulatory safe height clearances above roads/access tracks, which will reduce the hazard in respect of future forestry or farming operations.

During the construction phase, a level of disruption will be created for the undertaking of routine activities by the Landowner on their properties. This will be project managed through communication and agreement with the affected stakeholders.

5 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)

6. Mitigation Opportunities

Prior to the construction phase areas of broadleaves 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 development project and in particular the safety of OHL wiring operations.

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. Reference to **Section 6**, will fully mitigate the operational corridor woodland removal area by replanting the area quantity (hectares) of woodland removed.

The total area requiring tree clearance for the OC has been summarised in the **Table 9.1** below.

7. Woodland Removal Impact

Table 7.1 below outlines the woodland type that would be required for removal for the Proposed Development.

Table 7.1 Woodland Removal for Infrastructure

Woodland Type to be removed	Area
For OHL	
Conifer woodland	0.7 ha
Native woodland (conifer and broadleaved)	2.64 ha
Shrub	5.68 ha
Broadleaves (including mixed broadleaves)	5.79 ha
Access Track Corridor	
Broadleaves	1.64 ha
Total to be removed	**16.45 ha**

As a total area of 16.45 ha of woodland would be required to be removed, the Compensatory Planting Area of mixed conifer or mixed broadleaves would therefore also be 16.45 ha. This would result in no net loss of woodland area.

No management felling would be required in these forestry properties.

8. Compensatory Planting

Compensatory planting to achieve the area quantity (ha) of woodland removal will be provided for the OHL and access track operational corridor area and will be in accordance with the Scottish Government's Control of Woodland Removal Policy of no net loss of woodland.

Appendix 9.1: Woodland Reports - 9.1.3: Rosarie Wood

Contents:

1. Woodland Property

The Rosarie Forest is owned and managed by Forestry and Land Scotland and is located approximately 4 km west of the village of Keith, see **Figure 9.1 (EA)**. The woodland property is a large area of commercial conifer woodland, with an existing forest road infrastructure. The property area is located just off the A95 road. Main access into the property is from the A95 road at the national grid reference NJ383499.

The property is mainly well serviced by hard metalled forest roads, some of which however is severely overgrown and deteriorated in places, so is likely to need extensive mulching and some stone overlay to enable operations required.

2. Development Requirements

2.1 Overhead Line

With reference to **Figure 9.1 (EA)**, the sections of OHL applicable to the Rosarie Forest property are from Pole 210 to Pole 225.

The new Trident wood pole line infrastructure width is generally 5 metres ie. outside conductor to outside conductor on the insulator prongs, in addition to this the safety vicinity zone from each conductor is a 3.5 m radius around the conductor.

The OHL infrastructure and minimum safety clearance distance is therefore 17m (8.5m either side of the OHL centreline) and this has been utilised to calculate the area of the operational corridor occupied by infrastructure.

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 outage[1]. 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 posts, 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 9.1 (EA)** has been based on the likely height of the woodland at maturity and therefore, varies in width according to the woodland type present.

The future plans of landowner woodland restructuring (clearfell and replant) have been reviewed.

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).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.

2.2 Access Track Route Design

The Rosarie Forest commercial conifer plantation is serviced from the A95 public road by well-constructed hard metalled forest roads, regularly used for timber haulage. These forest roads will form part of the main vehicle access route for the Proposed Development **Figure 9.1 (EA)** and will be subject to maintenance and upgrade works as part of the construction work scope. The existing forest roads will be utilised during the forestry works.

[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)

General access track tree maintenance work may be required along the existing forest road/access track in preparation for the civil engineering access track upgrade works.

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

3. Woodland Characteristics

The property is situated at the A95 public road, east of Mulben. The woodland area is impacted by the development project from Pole 210 to Pole 225 **Figure 9.1 (EA).**

The woodland area impacted by the development project is mostly an area of commercial conifer woodland with marginal broadleaved areas, as well as clipping an area (0.01 ha) of some gorse and self-seeded regenerating broadleaves at Pole 210. The conifer area between Poles 213 to 215 has been recently clear felled, with only the edge trees remaining, awaiting a felling license approval and will also be felled. Further areas affected by the Proposed Development are between Poles 217 to 220 and 221 to 225. Both areas are relatively recently clear felled and restocked areas, approximately around 5 to 7-year-old. Main species in those compartments are Sitka Spruce (*Picea sitchensis*) and Douglas Fir (*Pseudotsuga menziesii*) The areas of broadleaves comprise mainly a young Ash (*Fraxinus excelsior*) compartment, and a mixed broadleaved section running along the burn of Rosarie, mostly comprised of Beech (*Fagus sylvatica*).

The woodland ground conditions are predominantly gley soils[2].

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.

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

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

Ancient Woodland Inventory[5] provides 3 main categories:

i. Ancient Woodland (category 1a and 2a)
ii. Long-established woodlands of plantation origin (LEPO) (category 1b and 2b)
iii. Other woodlands on 'Roy' woodland sites (category 3)

The sections at Pole 210 (0.01 ha) as well as the recently clear felled area (1.25 ha) is listed under the Ancient Woodland Inventory (category 2b), so a total of 1.26 ha area affected by the Operational Corridor is classed as ancient, although as explained above none of it is ancient in origin and is therefore classed as LEPO.

[2] Scottish Government's Scotland's soils website https://soils.environment.gov.scot/
[3] Scottish Forestry Land Information Search URL: https://map.environment.gov.scot/LIS_Agri/Agri.html
Scottish Forestry Map Viewer URL:
https://scottishforestry.maps.arcgis.com/apps/webappviewer/index.html?id=0d6125cfe892439ab0e5d0b74d9acc18
[4] Scottish Forestry Native Woodland Survey of Scotland: Glossary of Terms; URL: Main Title (forestry.gov.scot)
[5] A guide to understanding the Scottish Ancient Woodland Inventory (AWI): https://www.nature.scot/doc/guide-understanding-scottish-ancient-woodland-inventory-awi

The Plates 3.1 to 3.4 show the variable woodland condition impacted by the OHL operational corridor between Pole locations 210 and Pole 225.

The landscape character type is Narrow Valleys with Upland Farmland[6], large area comprising various character types with sparce forest plateaus.

Ground conditions within the Operational Corridor are rough, with old SS stumps and mounds and some deep trenches. Thick restock and gorse vegetation in places, see Plate 3.1

Plate 3.1: Coordinates 339285.0,849615.4. Facing south east

Plate 3.2 shows the recently clear-felled area with the boundary trees still standing. These are planned to be felled after a felling license is secured.

[6] Landscape Capacity Study: Main Study Report: Microsoft Word - Moray Appendix Report May 2012.doc

Plate 3.2: Coordinates 338443.9,849720.4 facing north.

Plate 3.3 shows the Ash comprtment. It appears in good health around 20 years of age.

Plate 3.3: Compartment of Ash..

Plate 3.4 shows mature trees, mostly Beech. Terrain is very steep and unstable, with some mature trees already uprooted.

Plate 3.4: Coordinates 338338.9,849858.6 facing east.

Plate 3.5 shows and overgrown forestry road, which is also waterlogged in places. This would require clearance and some maintenance to allow machine access.

Plate 3.5: Forest track veering east of the main forest road.

4. Windthrow Risk Impact

The site lies on soils classified as podzols.

The woodland site affected by the Proposed Development has a 'Detailed Aspect Method of Scoring' (DAMS)[7] windthrow hazard class score around 10, classified as low. The site has a cool, sheltered and moist climate. The soils moisture status is considered very moist and nutrient status as medium.

The risk of windthrow damage to the species composition and age is low and thus no management felling is being proposed here.

5. Woodland Management Impact

The OHL alignment will 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 will be reduced by regular maintenance of the operational corridor, which will avoid the incidences of "Red Zone" trees.[8]

The OHL alignment crosses the forest road network at either approximately 45 or 90 degrees and will be built to the regulatory safe height clearances above forest roads/access tracks, which will reduce the hazard in respect of 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 woodland.

The Proposed Development will permanently remove existing mature and young conifer woodland with an area of mixed conifer and broadleaf woodland from the operational corridor. This will reduce the forestry restructuring/planting land available within the woodland property area, as the operational corridor will be maintained clear of trees.

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.

6. Mitigation Opportunities

A reduced operational corridor width will be assessed for the areas of mixed broadleaf 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 development project and in particular the safety of OHL wiring operations.

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. Reference to **Section 6** of this report, will fully mitigate the operational corridor woodland removal area by replanting the area quantity (hectares) of woodland removed.

7. Woodland Removal Impact

Table 7.1 below outlines the woodland type that would be required for removal for the Proposed Development.

Table 7.1 Woodland Removal for Infrastructure

[7]Detailed Aspect method of Scoring (DAMS) Ref. Forest Research, "Forest Gales software programme" and Forestry Commission Leaflet 85 "Windthrow Hazard Classification"

[8] 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)

Woodland Type to be removed	Area
For OHL	
Young conifer	3.34 ha
Felled conifer	1.25 ha
Broadleaves	0.5 ha
Total to be removed	**5.09 ha**

As a total area of 5.09 ha of woodland would be required to be removed, the Compensatory Planting Area of mixed conifer or mixed broadleaves would therefore also be 5.09 ha. This would result in no net loss of woodland area.

No management felling would be required in this forestry property.

8. Compensatory Planting

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

Appendix 9.1: Woodland Reports - 9.1.4: Rothes Estate

Contents:

1. Woodland Property

The Rothes Estate forest is under private ownership and is located approximately 1km south west of the village of Rothes, see **Figure 9.1 (EA)**. The woodland property is a large area of commercial conifer woodland, with an existing forest road infrastructure. The property area is located west of the A941 public road.

The property is well serviced by hard metalled forest roads from the A941 public road through the main commercial conifer woodland areas.

The main vehicle access point is located at national grid reference 'NJ286461.

2. Development Requirements

2.1 Overhead Line

Reference to **Figure 9.1 (EA)**, the sections of OHL applicable to the Rothes Forest property are from Pole 1 to Pole 56.

The new Trident wood pole line infrastructure width is generally 5 metres ie. outside conductor to outside conductor on the insulator prongs, in addition to this the safety vicinity zone from each conductor is a 3.5 m radius around the conductor.

The OHL infrastructure and minimum safety clearance distance is therefore 17m (8.5m either side of the OHL centreline) and this has been utilised to calculate the area of the operational corridor occupied by infrastructure.

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 outage[1]. 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 posts, 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 9.1 (EA)** has been based on the likely height of the woodland at maturity and therefore, varies in width according to the woodland type present.

The future plans of landowner woodland restructuring (clearfell and replant) have been reviewed.

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).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.

[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)

2.2 Underground cable

Whilst the final cable installation method would be determined by the contractor selected to undertake the works, for the purposes of this appraisal it has been assumed that, for this circuit, an open cable trench method would be used, because this represents a worst-case scenario in terms of the area of ground disturbed. This method involves the construction of a temporary haul road (surfaced with crushed aggregate hardcore materials, to allow construction plant to access the route) and excavation of the two UGC trenches;

The development corridor (i.e. the working area required for the installation of the cable) required is expected to be a maximum of 30 wide (15 m either side of the UGC alignment) along the majority of the proposed cable route.

SSEN will carry out the installation of the proposed underground cable under the Town and Country

Planning (General Permitted Development) (Scotland) Order 1992 Class 40(1)(a).

2.3 Access Track Route Design

The Rothes Forest commercial conifer forest is serviced from the A914 public road by well-constructed hard metalled forest roads, regularly used for timber haulage. These forest roads will form part of the main vehicle access route for the Proposed Development, as can be seen in **Figure 9.1 (EA).** It will be subject to maintenance and upgrade works as part of the construction work scope. The existing forest roads will be utilised during the forestry works.

General access track tree maintenance work may be required along the existing forest road/access track in preparation for the civil engineering access track upgrade works.

Stump removal and residue mulching will be required for the installation of new access tracks and at each Pole location for the formation of a construction compound and temporary crane pad. As well as to accommodate the construction of the underground cable.

3. Woodland Characteristics

The property is situated on the west side of the A819 public road. The woodland area is impacted by the development project from the Rothes III windfarm substation to Pole 1 and then to Pole 54, seen in **Figure 9.1 (EA).**

The woodland area impacted by the development project is an area of commercial conifer woodland with a small area of mixed riparian broadleaf woodland. The woodland is broken up by areas of open ground integrated throughout. The conifer area has undergone significant woodland restructuring in recent years, which is continuing by the landowner through the RDC Forest Plan. RDC Forest plan was drafted by the landowner, as part of the woodland restructuring management strategy for the property. The woodland management regime is clear fell and replant, with the predominant tree species being Sitka spruce (SS) *Picea sitchensis*. The conifer age class ranges from young restock plantation (circa. 1 years) to mature woodland (circa 38 years) and all of plantation origin.

The woodland ground conditions are variable on podzol and gley soils[2].

[2] Scottish Government's Scotland's soils website https://soils.environment.gov.scot/

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.

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

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

Ancient Woodland Inventory[5] provides 3 main categories:

i. Ancient Woodland (category 1a and 2a)
ii. Long-established woodlands of plantation origin (LEPO) (category 1b and 2b)
iii. Other woodlands on 'Roy' woodland sites (category 3)

There is an area of broadleaves located between Poles 35 and Pole 36 as can be seen in **Figure 9.1 (EA)**, the size of 0.49 ha, which although is listed on the Native Woodland Inventory as a native pinewood is in reality predominantly scattered birch. None of the areas affected by the OC are in the Ancient Woodland Inventory in this forest.

The Plates 3.1 to 3.4 show the variable woodland condition impacted by the OHL operational corridor between Pole locations 1 and Pole 56. The predominant tree species is Sitka spruce.

The Sitka spruce has been planted as commercial tree crop and varies from young (circa. 1 year old) to mature plantation (circa. 38 years old), with integrated open ground and some checked areas due to heavy browsing or waterlogging.

The landscape character type is Upland Moorland Forestry[6], with gently undulating smooth slopes. Land cover comprises extensive conifer forestry and moorland. Restocked compartments have been mounded and together with the remaining stumps form rough and uneven ground. There is minimal harvestable timber within this section of operational corridor, mostly between Poles 1 and 4.

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

5 A guide to understanding the Scottish Ancient Woodland Inventory (AWI): https://www.nature.scot/doc/guide-understanding-scottish-ancient-woodland-inventory-awi
6 Landscape Capacity Study: Main Study Report: Microsoft Word - Moray Appendix Report May 2012.doc

Plate 3.1: Coordinates: 325362.07,848387.46 facing south west.

Plate 3.2: Coordinates 325529.970,848457.881 facing south west.

Plate 3.2 shows scattered birch in the distance. This area covers the span between Poles 35 and Poles 36. This is a very steep gully and access is difficult.

Plate 3.3: Coordinates: 324179.4,847356.9 facing east.

Plate 3.3 show the rough and uneven restock site. This section at the time of survey was not restocked, the other similar compartments to the west of this point have been restocked with SS but showed signs of heavy browsing.

Plate 3.4 shows the only mature SS compartment, aged 35 years old and an area of 1.49 ha requiring felling to accommodate the OHL construction. The measured standing timber volume is approximately 329 tons per hectare7. This also requires additional felling of 1.91ha to accommodate the underground cable to connect the Rothes III Wind farm substation to Pole 1.

7 Forestry Commission (Scottish Forestry) Forest Mensuration; A handbook for practitioners (2006)

Plate 3.4. Coordinates: 321995.31,848018.43 facing east.

Exposure to windthrow has been assessed and management felling coupes to achieve suitable woodland windfirm boundaries of least impact to the forest landscape have been proposed.

The total area of management felling proposed is 34.78 ha of commercial conifer woodland. The felling of these areas is subject to Landowner agreement and by method of Scottish Forestry felling licence approval or RDC Forest Plan formal amendment.[8]

4. Windthrow Risk Impact

The site lies on soils classified as podzols or gleys.

The woodland site affected by the Proposed Development has a 'Detailed Aspect Method of Scoring' (DAMS)[9] windthrow hazard class score around 13-15, classified as moderate. The site has a cool, sheltered and wet climate. The soils moisture status is considered wet and nutrient status as very poor.

The management felling coupes of the mature conifer woodland have been proposed to achieve suitable woodland windfirm boundaries.

No impact of windthrow risk will be created by the removal of the young conifer plantation areas within the OHL operational corridor and access track corridors.

8 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

9 Detailed Aspect method of Scoring (DAMS) Ref. Forest Research, "Forest Gales software programme" and Forestry Commission Leaflet 85 "Windthrow Hazard Classification"

5. Woodland Management Impact

The OHL alignment will 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 will be reduced by regular maintenance of the operational corridor, which will avoid the incidences of "Red Zone" trees.[10]

The OHL alignment crosses the forest road network at either approximately 45 or 90 degrees and will be built to the regulatory safe height clearances above forest roads/access tracks, which will reduce the hazard in respect of 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 woodland.

The Proposed Development will permanently remove existing mature and young conifer woodland with an area of broadleaf woodland from the operational corridor. This will reduce the forestry restructuring/planting land available within the woodland property area, as the operational corridor will be maintained clear of trees.

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.

6. Mitigation Opportunities

Prior to the construction phase these broadleaved 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 development project and in particular the safety of OHL wiring operations.

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. Reference to **Section 6**, will fully mitigate the operational corridor woodland removal area by replanting the area quantity (hectares) of woodland removed.

The management felling areas will be replanted by the Landowner, in-line with the Scottish Forestry felling licence regulations of the area felled must be replanted.

7. Woodland Removal Impact

Table 7.1 below outlines the woodland type that would be required for removal for the Proposed Development.

Table 7.1 Woodland Removal for Infrastructure

Woodland Type to be removed	Area
For OHL	

10 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)

Mature conifer tree crop	2.68 ha
Young Conifer	8.07 ha
Unplanted	2.94 ha
Native broadleaf woodland	0.49 ha
Total to be removed	**15.67 ha**

As a total area of 15.67 ha of woodland would be required to be removed, the Compensatory Planting Area of mixed conifer or mixed broadleaves would therefore also be 15.67 ha. This would result in no net loss of woodland area.

There would be some required woodland removal for management felling in this forestry property. 34.78 ha of mature conifer tree crop would be required to be felled. However, this would be restocked with 34.78 ha in accordance with landowners LFTP requirements to result in no net loss of woodland areas. It should be noted that felling approval would be via the Scottish Forestry Felling Licence application process or Long Term Forest Plan application or amendment process.

8. Compensatory Planting

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

Appendix 9.1: Woodland Reports - 9.1.5: Sourden Wood

Contents:

1. Woodland Property

The Sourden Wood is under private ownership and is located approximately 1km north of the village of Rothes, as can be seen in **Figure 9.1**. The woodland property is a large area of commercial conifer woodland, with an existing forest road infrastructure. The property area is located north of the B9015 public road.

The property is well serviced by hard metalled forest roads from the B9015 public road through the main commercial conifer woodland areas.

The main vehicle access point currently is located at national grid reference NJ299511.

2. Development Requirements

2.1 Overhead Line

With reference to **Figure 9.1**, the sections of overhead line (OHL) applicable to the Sourden Wood property are from Pole 69 to 70 and then again 76 to Pole 99.

The new Trident wood pole line infrastructure width is generally 5 metres ie. outside conductor to outside conductor on the insulator prongs, in addition to this the safety vicinity zone from each conductor is a 3.5 m radius around the conductor.

The OHL infrastructure and minimum safety clearance distance is therefore 17m (8.5m either side of the OHL centreline) and this has been utilised to calculate the area of the operational corridor occupied by infrastructure.

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 outage[1]. 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 posts, 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 9.1 (EA)** has been based on the likely height of the woodland at maturity and therefore, varies in width according to the woodland type present.

The future plans of landowner woodland restructuring (clearfell and replant) have been reviewed.

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).

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 can possibly be reduced, but will need to be assessed on span by span basis, taking into account tree species and terrain.

2.2 Access Track Route Design

The Sourden wood commercial conifer forest is serviced from the B9015 public road by well-constructed hard metalled forest roads, regularly used for timber haulage. These forest roads will form part of the main vehicle access route for the Proposed Development, and they can be seen on **Figure 9.1 (EA).** They will be

[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)

subject to maintenance and upgrade works as part of the construction work scope. The existing forest roads will be utilised during the forestry works. A further two new bell mouth areas are needed to enable operational access, see Figure 9.1. as well as an upgrade of an existing layby (NJ281504), which would serve as a turning stacking area.

An upgrade of an existing track at the south east as well as a considerable upgrade of a historic access each side of the gully is required (see **Figure 9.1 (EA)**), as well as an extension to the recently upgraded forestry road from the north.

General access track tree maintenance work may be required along the existing forest road/access track in preparation for the civil engineering access track upgrade works.

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

3. Woodland Characteristics

The property is situated on the north side of the B9015 public road. The woodland area is impacted by the development project from Pole 69to 70 and then again 76 to Pole 99, as can be seen in **Figure 9.1 (EA).**

The woodland area impacted by the development project is an area of commercial conifer woodland with large areas of pure or mixed broadleaf woodland. The woodland is broken up by areas of open ground integrated throughout. The conifer area has undergone significant woodland restructuring in recent years, which is continuing by the landowner through the Long-Term Forest Plan. The LTFP was drafted by the landowner, as part of the woodland restructuring management strategy for the property. The woodland is also UKWAS certified. The woodland management regime is clear fell and replant, with the predominant tree species being Sitka spruce (SS) *Picea sitchensis* and Scots Pine (SP) *Pinus sylvestris*. The conifer age class ranges from semi mature (circa 22 years) to mature woodland (circa 94 years) and all of plantation origin.

The woodland ground conditions are variable on podzol and alluvial soils[2].

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[4], to identify current woodland environmental designations and classifications.

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

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

Ancient Woodland Inventory[6] provides 3 main categories:

i. Ancient Woodland (category 1a and 2a)

[2] Scottish Government's Scotland's soils website https://soils.environment.gov.scot/
[3] Scottish Forestry Land Information Search URL: https://map.environment.gov.scot/LIS_Agri/Agri.html
Scottish Forestry Map Viewer URL:
https://scottishforestry.maps.arcgis.com/apps/webappviewer/index.html?id=0d6125cfe892439ab0e5d0b74d9acc18
[4] The Ancient Woodland Inventory, A guide to understanding the Scottish Ancient Woodland Inventory (AWI); URL:
https://www.nature.scot/doc/guide-understanding-scottish-ancient-woodland-inventory-awi
5 Scottish Forestry Native Woodland Survey of Scotland: Glossary of Terms; URL: Main Title (forestry.gov.scot)
6 A guide to understanding the Scottish Ancient Woodland Inventory (AWI): https://www.nature.scot/doc/guide-understanding-scottish-ancient-woodland-inventory-awi

ii. Long-established woodlands of plantation origin (LEPO) (category 1b and 2b)
iii. Other woodlands on 'Roy' woodland sites (category 3)

The areas of broadleaves are located mostly between Poles 87 and Pole 98, see **Figure 9.1 (EA)**, only sections of this are listed on Native Woodland Inventory, but nearly the entire plantation is listed as Ancient Woodland (category 2b), and although some trees are in excess of 100 years old, they are all of plantation origin and thus defined as LEPO.

The Plates 3.1 shows a mature SS compartment impacted by the OC corridor, there are already some signs of windblow within this compartment.

Plate 3.1: Coordinates 327271.2,850665.6 facing south.

Plates 3.2 to 3.6 show the variable woodland condition impacted by the OHL operational corridor between Pole locations 77 and Pole 99. Dominant species here SS and SP with extensive areas of mature Beech (*Fagus sylvatica*).

Plate 3.2 shows an SP compartment on fairly steep grounds with next to no vegetation growth beneath and no existing access to this section of the forest.

Plate 3.2: Coordinates 328255.54,850694.37 looking west

Plate 3.3 shows the broadleaves surrounding Crofts farm, are primarily dominated by Beech with hardly any understory. Ground also very steep.

Plate 3.3: Coordinates 328805.33,850903.33 facing west.

There are large areas with sparce mature trees, mostly SP and Birch (*Betula)* on very difficult terrain as shown in Plate 3.4

Plate 3.4: Coordinates 328539.97,850844.50 facing west.

There are several large gullies in the OC with mature broadleaves in them and around them, which are likely to be topped and debris stacked in situ due to access issues. See Plate 3.5

Plate 3.5: Coordinates 328458.40,850726.35 facing north

Plates 3.6 and 3.7 show the access track condition for access at the existing layby (NJ281504) and west of the Burn of Sourden from the B9015 road respectively (NJ288508).

Plate 3.7: NGR: NJ 28152 50468

Plate 3.7: NGR: NJ 28939 50898

The measured timber volume estimates range from around 200t/ha to nearer 500 tons per hectare[7].

Exposure to windthrow has been assessed and management felling coupes to achieve suitable woodland windfirm boundaries of least impact to the forest landscape have been proposed, see **Figure 9.1.** The total area of management felling is 3.26 ha. The felling of these areas are subject to Landowner agreement and by method of Scottish Forestry felling licence approval or Long Term Forest Plan formal amendment.[8]

4. Windthrow Risk Impact

The site lies on soils classified as podzols mostly.

The woodland site affected by the Proposed Development has a 'Detailed Aspect Method of Scoring' (DAMS)[9] windthrow hazard class score around 8-10, classified as low. The site has a cool, sheltered and wet climate. The soils moisture status is considered slightly dry and nutrient status as very poor.

The management felling coupes of the mature conifer woodland totalling an area of 3.26 ha have been proposed to achieve suitable woodland windfirm boundaries, see **Figure 9.1 (EA).**

5. Woodland Management Impact

The OHL alignment will 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 will be reduced by regular maintenance of the operational corridor, which will avoid the incidences of "Red Zone" trees.[10]

The OHL alignment crosses the forest road network at either approximately 45 or 90 degrees and will be built to the regulatory safe height clearances above forest roads/access tracks, which will reduce the hazard in respect of 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 woodland.

The Proposed Development will permanently remove both existing conifer and broadleaf areas from the operational corridor. This will reduce the forestry restructuring/planting land available within the woodland property area, as the operational corridor will be maintained clear of trees.

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.

6. Mitigation Opportunities

A reduced operational corridor will be assessed for the areas of native broadleaf woodland where the circumstances, such as tree species and terrain permit. 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

7 Forestry Commission (Scottish Forestry) Forest Mensuration; A handbook for practitioners (2006)
8 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
9 Detailed Aspect method of Scoring (DAMS) Ref. Forest Research, "Forest Gales software programme" and Forestry Commission Leaflet 85 "Windthrow Hazard Classification"
10 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)

dependent on the requirements of the development project and in particular the safety of OHL wiring operations.

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. Reference to **Section 6** of this report, will fully mitigate the operational corridor woodland removal area by replanting the area quantity (hectares) of woodland removed.

The management felling areas will be replanted by the Landowner, in-line with the Scottish Forestry felling licence regulations of the area felled must be replanted.

7. Woodland Removal Impact

Table 7.1 below outlines the woodland type that would be required for removal for the Proposed Development.

Table 7.1 Woodland Removal for Infrastructure

Woodland Type to be removed	Area
For OHL	
Mature conifer tree crop	5 ha
Mixed broadleaves and conifer	0.18 ha
Broadleaves	2.32 ha
Native mixed woodland	4.98 ha
Shrub	1.07 ha
For Access Track Corridor	
Mature Broadleaves including mixed broadleaves	2.25 ha
Conifer	1.14 ha
Total to be removed	**16.94 ha**

As a total area of 16.94 ha of woodland would be required to be removed, the Compensatory Planting Area of mixed conifer or mixed broadleaves would therefore also be 16.94 ha. This would result in no net loss of woodland area.

There would be some required woodland removal for management felling in this forestry property. 3.26 ha of mature conifer tree crop would be required to be felled. However, this would be restocked with 3.26 ha in accordance with landowners LFTP requirements to result in no net loss of woodland areas. It should be noted that felling approval would be via the Scottish Forestry Felling Licence application or Long Term Forest Plan amendment process.

8. Compensatory Planting

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