

# **Annex J - Forestry**

# February 2023





# Crossaig North Substation Environmental Appraisal Compensatory Planting Strategy

Management

February 2023



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## **1** Introduction

This Compensatory Planting Management Strategy presents information relevant to the proposed Crossaig North substation and associated connection to the existing Inveraray to Crossaig 275kV overhead line (OHL). It should be read in conjunction with the **Environmental Appraisal (EA) Report**, specifically **Chapter 5 Forestry and Chapter 2 Project Description**, for full details of the Project.

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. Due to the growth in renewable electricity generation in Scotland, upgrade of the transmission network is required to provide the necessary increase in transmission capacity.

The Applicant proposes to construct a new 275kV electricity substation (hereby referred to as 'the Proposed Development') with associated overhead line works (hereby referred to as 'the Associated Development') in the vicinity of the existing Crossaig Substation. The two developments are hereby collectively referred to as 'the Project'. The new substation will support the export of renewable energy generated within the Argyll area. The substation platform would cover an area of 2.41 ha within a wider Project Red Line Boundary (RLB) of 42.2 ha.

As detailed in **Chapter 5 Forestry,** the Project impacts a total area of 11.65 ha of woodland. The site is composed of plantation Sitka spruce *Picea sitchensis* woodland which is mature, areas of recent clear-fell, and two areas of young plantation broadleaf/pine mix woodland with Sitka spruce regeneration throughout. There are large pockets of windthrow within the mature conifer plantation.

In-line with the Applicant's commitment to achieve no net loss of woodland for new Development Projects, the total woodland removal area of 11.65 ha for the Project will be replanted through the application of this Compensatory Planting Management Strategy.

#### 2 Purpose of the Strategy

This report explains the management strategy that will be undertaken by the Applicant prior to and during the Project's construction phase, to implement the replanting of the total area of woodland removed.

#### **3** Woodland Planting Management Constraint

The Electricity Safety, Quality and Continuity Regulations 2002 (ESQCR, 2002)<sup>1</sup> specify safety standards to protect the general public and consumers from danger of overhead electricity powerlines. These standards outline minimum safety clearances and the Distribution Network Operator's (DNO's) duty to maintain these safety clearances.

The regulations also contain requirements on quality and continuity of electricity supply to ensure an efficient and economic service to customers and consumers.

Further legislation arrived in 2006 with the ESQCR, 2006; Amendment<sup>2</sup>, which extended the above duties of the DNO to make their overhead powerlines resilient to the effect of major storms. This

<sup>&</sup>lt;sup>1</sup> Electricity Safety, Quality and Continuity Regulations 2002 (ESQCR, 2002) URL: www.legislation.gov.uk/uksi/2002/2665/contents/made

<sup>&</sup>lt;sup>2</sup> Electricity Safety, Quality and Continuity (Amendment) Regulations 2006 (ESQCR, 2006) URL: www.legislation.gov.uk/uksi/2006/1521/made



includes reducing the risk of falling trees and branch-wood of hitting the electricity network.

The result of this legislation is that the DNOs in addition to maintaining the vegetation to minimum safety clearances, now must seek to achieve further clearances for trees which may be affected by storm weather conditions.

Due to the requirements of the ESQCR it is generally not feasible to replant woodland within the operational areas of the Project. Therefore, in order to replant the woodland removal area of the Project 'off-site'<sup>3</sup> woodland planting must be achieved. The balance of on-site and off-site planting proposed for this project is detailed in the Crossaig North Woodland Report (**Annex J**) and comprises 4.01 ha of on-site and 7.64 ha off-site planting.

### 4 Compensatory Planting Scheme

The Applicant will implement the required woodland planting through the management of a Compensatory Planting Scheme. This management process is based on liaising and securing agreements with landowners that are located within the same Local Authority area as the Project for woodland planting of suitable bare land by the Applicant to fulfil the off-site planting requirements.

The Applicant is liaising with:

- Landowners who own the land where the proposed Project is to be located.
- 'Not for Profit' Organisations e.g., Community Trusts, who own or have rights to areas of land and wish to plant woodland.
- Landowners within the Local Authority area of the Project who wish to plant woodland.

Through liaison with these landowners, areas of bare land suitable for woodland planting will be identified and whereby they would enter into a Compensatory Planting Scheme agreement with the Applicant. The total area of bare land secured for woodland planting would meet the total area of woodland removal of the Project.

On agreement with the landowner a formal woodland planting scheme design will be produced and submitted to Scottish Forestry<sup>4</sup> for consultation and approval.

Following completion of the approval process, the Applicant will undertake the woodland planting as per the scheme design and will maintain the newly planted area for the required period in-line with forestry industry best practice to ensure successful woodland establishment is achieved.

#### 5 Reporting

After planting scheme approval is received from Scottish Forestry, the Applicant will formally report to the Planning Authority that the required woodland planting area has been achieved to meet the total woodland removal area of the Project and has secured no net loss of woodland.

<sup>&</sup>lt;sup>3</sup> 'off-site' meaning alternative bare land areas suitable for woodland planting out-with the Development's operational area.

<sup>&</sup>lt;sup>4</sup> Scottish Forestry - the Scottish Government agency responsible for forestry policy, support and regulations. URL: www.forestry.gov.scot



# Woodland Report Crossaig North Substation

Prepared by Scottish Woodlands Ltd on behalf of SSEN Transmission

February 2023





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# 1. Introduction

This woodland report has been prepared to identify potential impacts on the woodland and wider landscape as a result of the proposed new Crossaig North substation and accompanying infrastructure located within the Red Line Boundary (RLB), (hereby referred to as 'the Proposed Development') and the associated Inveraray to Crossaig overhead line tie-in (hereby referred to as 'the Associated Development'). The RLB site is located within Crossaig Wood at national grid reference point 'NR825503'. The property is a privately owned commercial conifer plantation under active forestry management.

An Environmental Appraisal (EA – to which this report forms part of **Annex J**) has been carried out to determine the potential impacts on the woodland and natural resource as a result of the Proposed and Associated Developments (collectively referred to as 'the Project'). The EA sets out mitigation measures for offsetting any loss of woodland and ecologically important habitats.

The objectives of this report are to:

- Describe the woodland baseline conditions on-site and in the immediate surrounding areas;
- Identify the potential windthrow risk in connection with the Proposed and Associated Developments and their components, including tree felling within the substation site, adjacent to the access tracks, and for the OHL alignment;
- Identify the short and long-term potential impacts to the commercial woodland;
- Describe any mitigation measures proposed to address likely impacts relating to windthrow risk;
- Identify the required area quantity for compensatory planting; and
- Carry out a landform assessment to determine the impact of the Project on the wider landscape.

This report is supported by the following Figures available in the Annex:

- Figure 1: Crossaig Forestry Project Felling OS Map
- Figure 2: Crossaig Forestry Project Felling Aerial
- Figure 3: Crossaig Plate Reference Map



# 2. Site Location

The site location plan, including the proposed Crossaig North substation site, the wider RLB (which encompasses additional land to facilitate the build of ancillary works) and the OHL alignment corridor is shown in **Figures 1 and 2**. In terms of the Proposed Development, the substation site (platform area) covers a total land area of 2.4 ha, the RLB 42.2 ha including the access road, and the Temporary Works Area 2.87 ha. The Inveraray to Crossaig Reinforcement OHL connects to the existing Crossaig Substation and a new section of OHL is to be installed to connect this existing line to the proposed new substation. The Associated Development (the OHL alignment/tie-in operational corridor [OC]) covers 3.72 ha and the proposed temporary bypass operational corridor covers 6.57 ha.

The existing access track runs east from the proposed new substation and then south through Crossaig and Cour Estates, eventually connecting to the Cross Kintyre Haul Road. Utilising the haul road connection for access into the proposed new substation site will enable construction and forestry vehicles to travel across the Kintyre peninsula from the A83 near Killean, without using the public roads for extended periods of time. Having been recently upgraded for the Inveraray to Crossaig OHL Reinforcement, it is not expected that the proposed access route will require any vegetation clearance as part of the Project other than possible minor pruning and removal of self-seeded trees on track verges. Furthermore, the Proposed Development will involve the construction of new sections of permanent access track, which will service the substation, whereas the Associated Development will require the construction of a new permanent and temporary access tracks as detailed in Chapter 2.

The existing Crossaig substation lies directly east of the proposed development and is servicing the current 132kv OHL. The new Inveraray to Crossaig OHL Reinforcement corridor runs approximately 250 m east/southeast of the development, and the management felling associated with this project included harvesting of a mature Sitka spruce area just north of the proposed new substation. This felling area will encompass the full 85 m OHL alignment/tie-in corridor into the proposed new substation. The RLB Site, including the entire extent of the substation site, is located within a large commercial conifer plantation, the majority of which is mature Sitka spruce *Picea sitchensis* (30-35 years old) and ready to be harvested. The surrounding landscape comprises mature conifer plantations of similar age. The watercourses Allt na Buaile Salaich and Allt a Ghobhainn run towards the southwestern corner of the RLB.



# 3. The Project

The Proposed Development will be subject to an application under the Town and Country Planning (Scotland) Act 1997 (as amended), whilst the Associated Development will be subject of an application under section 37 of the Electricity Act 1989 (as amended).

#### 3.1 Proposed Development

The Proposed Development layout is shown in **Figures 1-2** and comprises the following:

- RLB including access track (including Cross Kintyre Haul Road/Cour Estate track. Track maintenance will be required);
- A substation platform of approximately 2.4 ha containing Gas-Insulated Switchgear (GIS) and transformer buildings and electrical equipment. Platform extension at the existing Crossaig substation;
- Construction of a SUDs system including an outfall pipeline;
- Construction of new permanent access tracks, connecting the existing forestry track to the substation site;
- A temporary works area located directly southeast of the proposed substation, approximately 2.87 ha in size.

#### 3.2 Associated Development

The Associated Development layout is shown in Figures 1 and 2 and comprises the following:

- Construction of 2 new towers and new section of OHL to make the connection into the Proposed Development from the existing OHL and temporary OHL bypass;
- Dismantling of 3 redundant towers;
- Construction of new temporary and permanent access tracks.

#### 4. Woodland Characteristics

#### 4.1 Substation Site / Design Layout Area

The RLB Site (comprising the substation site and associated components) covers a total of 42.2 ha (of which 2.87 ha comprises the Temporary Works Area) of mainly mature Sitka spruce plantations with intertwined areas of Lodgepole pine *Pinus contorta* and Scots pine *Pinus sylvestris*. This crop has evidence of significant windthrow, and there are pockets of 'check' (areas of poor quality/stunted growth trees) due to presence of deep peat. However, felling will follow the RLB as no practicable windfirm edge could be established. All possible windfirm forest rides were investigated, but many areas were impassable with large pockets of windthrow. These areas form part of the landowner's active forestry management. As mentioned above, the 85 m wayleave



corridor for the OHL realignment is fully encompassed by the recently clear-felled management felling area associated with the Inveraray to Crossaig OHL Reinforcement.

A 2-3-year-old deer-fenced broadleaf plantation (including pedunculate oak *Quercus robur*, silver birch *Betula pendula*, and willow *Salix sp*.) lies in the area of the proposed new substation platform. Many of these young trees have failed due exposure to browsing, grass and weed competition, and an abundance of natural Sitka spruce and Lodgepole pine regeneration is present in the area. There is a second deer-fenced planting site southeast of the proposed substation platform (adjacent to the existing forestry/farm track and the B842 public road). This planting site also has a level of weed competition and natural regeneration of mixed conifers; however, it lies on sloped ground with effective drainage, which has helped the mixed hardwood planting outcompete small areas of weed growth.



Figure 3 - plan identifying photographic plate locations.

**Plates 1-10** below show the woodland characteristics throughout the Proposed Development. **Plates 11-14** show the woodland characteristics of the wider Project. **Figure 3** above shows the plate locations relative to the Project.







Plate 1 – View to the east within the deer-fenced broadleaf plantation showing significant conifer regeneration.





Plate 2 - View to the south showing the native broadleaves being outcompeted by other



#### vegetation.



Plate 3 – View to the east showing the south-eastern broadleaf plantation on sloping ground, where the native hardwoods are suffering less from weed competition.





Plate 4 – View to the east within the woodland showing the mature Sitka spruce crop.





Plate 5 – View to the south showing a pocket of windthrow (image taken from drone footage).





Plate 6 – View to the south showing a large area of open space with peaty gley soils.





Plate 7 – View looking south showing stunted tree growth due to large areas in 'check' (drone footage images).





Plate 8 – View to the north on the southern edge of the RLB showing Sitka spruce in 'check'.





Plate 9 - View to the north on the southern edge of the RLB showing stunted Sitka spruce in 'check'. Person included for scale.





Plate 10 - View to the north from the proposed permanent access track of the RLB, showing considerable change in crop.



#### 4.2 Existing Track Maintenance

**Figure 1** shows the extent of access tracks that may require maintenance, including the newly built Crossaig/Cour Access track and the Cross Kintyre Haul Road. However, it is expected that any required maintenance works will be minimal, as the tracks have been recently upgraded as part of the Inveraray to Crossaig OHL Reinforcement. The Crossaig/Cour Access is newly built and largely cleared, and the Cross Kintyre Haul Road is an established hauling route.

Plate 11 below shows the woodland characteristics in relation to the existing access tracks.



Plate 11 – View southeast showing part of the upgraded access track that falls within the red line boundary across the Crossaig and Cour estates towards the Kintyre haulage road (image taken from drone footage). The B842 is shown behind the access track.

#### 4.3 Access Track Construction (New Build Section)

The section of new permanent access track is entirely encompassed by the RLB clear-felling, and therefore no further felling will be required to construct the track. A 20 m wide corridor will be utilised for the construction of the new access track.





Plate 12 – View to the southeast from the top of the broadleaf plantation, showing where part of the permanent new access track will run.

## 5. Windthrow Risk Impact Assessment

Most of the site lies on peaty gley soil, with signs of deep peat in the woodland area which has resulted in checked' tree growth. The ground conditions improve on the south-eastern boundary, where an established broadleaf plantation is located on sloped ground with better drainage. Most of the site is moderate to highly exposed, and the Sitka spruce and pine woodland site to be felled within the RLB has a 'Detailed Aspect Method of Scoring' (DAMS)<sup>1</sup> windthrow hazard class score ranging between 13-16, with the southern edge of the RLB being the least exposed. The moisture status of the soil is wet. Despite the poor growing conditions there are native broadleaf regeneration of species such as birch and willow.

The management of the wider windthrow risk to the woodland is largely dependent on the landowner's long term forest plan application, which is being progressed. Semi-mature and mature

<sup>&</sup>lt;sup>1</sup> Detailed Aspect method of Scoring (DAMS) Ref. Forest Research, "Forest Gales software programme" and Forestry Commission Leaflet 85 "Windthrow Hazard Classification"



conifer tree crops are present in the wider woodland area adjacent to the proposed development and will require clear-felling prior to reaching their terminal windthrow risk height for landowner timber production to be realised. No viable windfirm edge could be established within this crop. The existing forest rides which were assessed for windfirm 'green edges' have large volumes of tree windthrow present, thus negating their suitability as proposed windfirm edges.

#### 5.1 Substation Site / Design Layout Area

Windthrow risk to the site is moderate to high. The Sitka spruce crops to the north-east and west of the proposed substation platform area are mature, with significant pockets of windthrow evident throughout the woodland. Areas of very wet ground to the point of saturation has resulted in shallow tree rooting, further increasing localised windthrow risk. The windthrow impact in the centre of the RLB/at the substation platform area is low, due to the nature of young broadleaf plantation and mixed conifer regeneration.

#### 5.2 Existing Access Track

As described in **Section 4.2**, maintenance works will be required on the existing access track. There will be no increase in windthrow risk as a result of these works.

#### 5.3 Access Track Construction (New Build Section)

The access track construction works for the proposed and associated development will have a low risk of windthrow, as the proposed new permanent access tracks are fully encompassed by the RLB clear-felling area or within the existing Inveraray to Crossaig OHL operational corridor.

## 6. Woodland Management and Landscape Impact

The required woodland removal (by clear-felling) areas of the Project within the RLB would be permanently lost for future forestry restructuring/planting within the woodland property area, as it would become under the management of the Applicant. The 85m OC through the already clearfelled woodland area for the OHL build, will also be restrictive for the future replanting of trees. The long-term impact of the Project on future forestry felling operations would be minimal, as a safe tree clearance from the sub-station and OHL infrastructure would be established. Also, the key forestry management access routes will not be restricted as a result of the Project. The existing access track maintenance works will improve the condition of the access track for future use for woodland property management purposes however any upgrading or widening would be subject to a separate planning application.



The wider landscape impact of the woodland removal for the Project has been considered. The site is considerably isolated and does not constitute a prominent feature in the wider landscape. The proposed development will sit on a plateau dipped into the landscape on a relatively gradual gradient. The only viewpoints the new development may be seen from would be the Isle of Arran (approximately 5 miles to the east), Eascairt/Escart Farm (PA29 6YQ) and the adjacent section of public road (B482).

Woodland replanting within the RLB area, as referenced in Section 7 of this report, will provide further landscape mitigation.

Plates 13-15 show several viewpoints of the proposed project.



Plate 13 – Looking north from the B842 towards the Proposed Development, showing part of the public road.





Plate 14 – Looking north-west towards the Proposed Development from the existing Crossaig substation bellmouth on the B842.







Plate 15 – Looking south-west towards the proposed development from the B842 near Eascairt Farm. The view towards the Proposed Development is largely screened by mixed hardwoods along the public road.

The Proposed Development will see the removal of areas of mature Sitka spruce within the RLB. Growth rates vary in these plantations, with poor soil characteristics in areas which have resulted in 'checked' Sitka spruce. This has been taken into account in the proposed on-site re-planting area.

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.



# 7. Mitigation Opportunities

The removal of the woodland within the RLB is required to facilitate the Proposed Development (construction, installation, and operation) and any ancillary works. The RLB site will be replanted with a native wet woodland mix in some areas, with the remainder being left as bog/mire habitat. The OHL tie-in OC will be left open to ensure safe operation of the OHL.

The compensatory planting areas referenced in Section 9 of this report would fully mitigate the potential impacts of woodland removal by achieving no net loss of woodland area.



# 8. Woodland Removal Impact

8.1 Woodland Removal for Infrastructure						
	ltem	Woodland Type	Area (ha)			
	RIB (including the substation	Mature conifer tree crop	7.59			
Bronocod	roposed platform, Temporary Works Area, new permanent access track, and existing access track)	Checked conifer tree crop	1.32			
Development		Young broadleaf plantation with conifer regeneration	1.69			
		Sitka spruce regeneration	0.53			
Associated	Temporary OHL Bypass 85 m	Mature conifer tree cron	0.52			
Development	Corridor					

8.2 Compensatory Planting						
Compensating		Planting Proposal	Area (ha)			
Proposed Development	RLB (including the substation platform, Temporary Works Area, new permanent access track, existing access track, and 33 kV interconnector cable corridor)	Native wet woodland (on site); mixed conifer and broadleaves (offsite)	11.13			
Associated Development	Temporary OHL Bypass 85 m Corridor	Native wet woodland (on site); mixed conifer and broadleaves (offsite)	0.52			

8.3 Woodland Removal Impact of Infrastructure						
	Total Loss of Woodland Area	Total On-site Compensatory Planting Area	Total Off-site Compensatory Planting Area	Total Net Loss of Woodland Area		
Proposed Development	11.13	4.01	7.12	0.00		
Associated Development	0.52	0.00	0.52	0.00		
Total Net Loss of Woodland Area				0.00		



# 9. Compensatory Planting

On-site and off-site compensatory planting is to be undertaken to replace the total area of woodland removal for the Project. This will be carried out in accordance with the Scottish Government's Control of Woodland Removal Policy<sup>2</sup> to achieve no net loss of woodland. The off-site planting will be agreed with a third party at a suitable planting site. The compensatory planting will be undertaken in-line with the construction work programme and following completion of the Project. For more information see the **Compensatory Planting Management Strategy** which also forms part of **Annex J and the Landscape Mitigation Plan in Annex E**.

<sup>&</sup>lt;sup>2</sup> Scottish Government Publication, provides policy direction for decisions on woodland removal in Scotland; URL: The Scottish Government's Policy on Control of Woodland Removal (forestry.gov.scot)



Figure 1



