

Chapter 10

Forestry

Introduction

10.1 This chapter presents the findings of the likely significant effects of the proposed EDM Project on forestry, including Ancient and Semi-Natural woodland sites and the sites identified within the Native Woodland Survey of Scotland (NWSS) database. The assessment of effects is based on the project description as outlined in **Chapter 4: Project Description**. Effects on forestry are likely to occur as a result of the felling of the required 'wayleave corridor' (including additional areas of forest clearance required for temporary construction works, along with the requirement to minimise the risk of subsequent windthrow to the newly created forest edges by the additional felling of trees to more windfirm edges).

10.2 An assessment of the likely effects of felling on the landscape resource and visual amenity is covered separately in **Chapter 6: Landscape and Visual Amenity**. Hydrological effects are covered in **Chapter 7: Geology, Hydrology, Hydrogeology, Water Resources and Peat**, and effects on biodiversity are considered in **Chapter 8: Ecology and Ornithology**.

10.3 Planning policies of relevance to this assessment are provided in **Chapter 5: Policy Context**.

10.4 The forestry assessment has been undertaken by RTS Ltd.

Scope of the Assessment

Effects Assessed in Full

10.5 On the basis of the desk based and field survey work undertaken, in combination with the professional judgement of the EIA team, experience from other relevant projects and policy guidance or standards, and feedback received from consultees, the following effects have been assessed in detail:

- Long term loss of local forest resource as a result of felling of trees for the New 132kV OHL wayleave;
- Long term loss of broadleaf woodland including ancient woodland and native woodland for the New 132kV OHL wayleave;
- Temporary loss of forest resource associated with the felling of trees for the creation of temporary infrastructure for the New 132kV OHL; and
- Effects on forest management during construction of the New 132kV OHL.

Effects Scoped Out

10.6 On the basis of the desk based and field survey work undertaken, in combination with the professional judgement of the EIA team, experience from other relevant projects and policy guidance or standards, and feedback received from consultees, a number of potential effects have been 'scoped out' of the detailed assessment:

- Effect of forest loss due to windthrow outside the wayleave corridor - The area of proposed tree felling outside the wayleave corridor which will be required to reduce the risk of windthrow has been identified (see **Chapter 4**). The total area equates to 0.3 hectares (ha) of conifer forest at Pole 120. The effects of windthrow anticipated to result from the introduction of the wayleave have been assessed as secondary effects by each of the topic specialists. In relation to loss of woodland as an effect, SPEN has no mechanism to control felling and replanting outwith the wayleave. Felling and replanting will require the agreement of the landowner and would be delivered under a felling permission to be applied for by the landowner. It is anticipated that any felling permission would be granted subject to a condition that the felled woodland is replanted. In terms of the Forestry and Land Management (Scotland) Act 2018 (2018 Act) and associated regulations¹, in making a decision on any felling application, the Scottish Ministers acting through Scottish Forestry (SF) must have regard to their duty under section 2 to promote sustainable

forest management. In addition, SF are entitled to impose conditions in relation to the retention of, or increase in, woodland cover. SF normally expect an area which has been clear felled to be restocked and will normally attach what is referred to as a continuing condition to felling permissions to secure the restocking². As explained in **Chapter 4**, should the landowner not agree to pre-emptively fell the trees to create a more windfirm edge and the trees subsequently suffer from windthrow, it is within the control of SF using the powers contained in the 2018 Act and associated regulations to ensure that these areas are replanted using felling and restocking directions. In terms of section 34 of the 2018 Act, if it appears to SF that felling of trees is required to prevent deterioration or further deterioration in the quality of timber comprised in the trees or to prevent or reduce harm caused by the presence of the trees, it may serve a felling direction on the owner of the land requiring the felling of the trees. These powers could be exercised to address the effects of windthrow. Felling directions may also be issued subject to conditions addressing the retention of or increase in woodland cover. SF can therefore secure the replanting or restocking of woodland which has been felled. In addition and separately, in terms of section 36 of the 2018 Act, SF may serve a restocking direction where felling is not carried out in accordance with a felling permission, a felling direction, a restocking direction, or a continuing condition on felling permission in relation to land has not been complied with. On the basis of the foregoing, the assessment has been undertaken on the basis that any windthrow resulting from the introduction of the overhead line (OHL) wayleave would require the relevant landowner to replant the same area of forest. As such, there is deemed to be no loss of forestry from the effect of windthrow and this has been scoped out of detailed assessment.

- Effects on shelter - these are most commonly attributed to the removal of agricultural shelterbelts in more exposed upland locations. For the EDM Project, whilst there is the partial removal of some shelterbelts, it is deemed that sufficient residual shelter in the local area will be left.
- Effects of Decommissioning the Existing 132kV OHL: decommissioning of the Existing 132kV OHL on forestry will release 7.08ha of land to be potentially returned to forest land use. This 7.08ha figure is a result of measurement of land currently under the existing EDM 40m wayleave (20m either side of the centre line). This land is currently not growing trees but is within, and directly adjacent to, land registered as forest within National Forest Inventory. It is also not part of the New 132kV OHL 70m wayleave. 1.32ha of the 7.08ha is currently registered within Ancient Semi-Natural Woodland (ANSW) or NWSS registers. The decommissioning of this line will release the wayleave conditions under which SPEN has some controls over the vegetation management for the site. As such the decision on the future management of this land will revert to the landowner and SPEN will not be able to control whether the land does revert to woodland or not. However due to the relatively small areas involved and the perceived costs of reverting this land to agriculture, it is reasonable to assume that the landowner will allow these sites to be returned to forestry. In some cases, this will be by natural regeneration and in others by more proactive planting of new forestry. As SPEN has no control over any potential replanting in these areas this is considered as potential non-committed offsetting and highlighted in the mitigation section of the assessment of long-term loss of local forest resource.
- Effects on forest management during operation – due to the nature of the woodland types effected by the project it is deemed unlikely there will be any ongoing effect on the current methods of managing the forests within the project are post construction
- Cumulative effects - . due to the Scottish Government's stated policy on Woodland Removal (Scottish Government Policy on Control of Woodland Removal. 2009), it is reasonable to assume there will be no residual loss of woodland associated with other energy related projects in the study area (should felling be required), as the respective developer will be required to undertake compensatory planting for any area of trees felled. As such the cumulative effect on forestry of the EDM Project, has been scoped out of detailed assessment.

¹ The Felling (Scotland) Regulations 2019

² The position is also detailed in their application form seeking felling permission.

Assessment Methodology

Legislation and Guidance

10.7 As there are no published criteria, guidance or methodologies in relation to the assessment of effects on forestry. The assessment is therefore based on professional judgement informed by available forestry plans (and supporting information), field work, local management experience and consultation.

10.8 This assessment has however taken account of statute, national policy, guidance and advice including Scottish Forestry (previously Forestry Commission Scotland) Guidance where applicable including;

- FC (FLS) Technical paper 16 Designing Forest Edges to improve wind stability (1996);
- FISA guidance note 804 Electricity at Work: Forestry (August 2013);
- Electricity Association Engineering Recommendations G55/1 Safe Working in Proximity to Overhead Electric Lines (July 2000);
- Forestry Commission guidelines in the assessment of Yield class has been utilised to assesses forest areas and establish the growth rates and productivity of the individual sites;
- Forest Research, Forest Gales 2.5 model for predicting risk of windthrowⁱ;
- The Scottish Government, (2009), Policy on the Control of Woodland Removal;
- Scottish Government's policy on control of woodland removal : implementation guidance (February 2019)
- Forestry and Land Management (Scotland) Act 2018;
- The Felling (Scotland) Regulations 2019;
- Scotland's Forestry Strategy 2019-2029;
- UK Forestry Standard 2017ⁱⁱ; and
- UK Woodland Assurance Standardⁱⁱⁱ.

Consultation

10.9 In undertaking the assessment, consideration has been given to the scoping responses and other consultation undertaken as detailed in **Table 10.1**.

Table 10.1: Consultation Responses

Consultee and Date	Scoping/Other Consultation	Issue Raised	Response/Action Taken
Forestry Commission Scotland (FCS) January 2019 NOTE; FCS changed in April 2019 to Scottish Forestry as a result of Forestry and Land Management (Scotland) Act 2018.	Formal Scoping Consultation	The applicant is asked to demonstrate the risk of individual trees falling on the line and therefore the need for felling in regards to the 80m tree free corridor proposed along the length of the line. FCS advises that where additional wider forest management felling is proposed, this will require a separate Felling Licence. Drainage systems, biodiversity and forest landscape design should be taken into account and clearly set out the criteria for determining the acceptability of woodland removal and areas required to obtain Felling Licence. FCS requires that felling as the result of construction is mitigated by compensatory planting which should take place onsite and be fully assessed within the EIA Report.	It is considered that for the New 132kV OHL the nature of the woodlands being passed through allow a workable corridor width of 70m. This is due primarily to the abundance of open grown broadleaf woodland trees where there is deemed to be a lower risk of windthrow relative to plantation conifer. With landowner agreement and in consultation with SF, SPEN will seek to replant certain sections of the wayleave corridor and the wayleave corridor edge with low growing shrub species, sourced from local seed provenance, which are not deemed to put at risk the ongoing safe operation of the line. These areas of planting

Consultee and Date	Scoping/Other Consultation	Issue Raised	Response/Action Taken
		The scope of the EIA Report should include a separate forestry chapter. The applicant is advised to provide a felling and restocking plan as part of the EIA that conveys the long term restructuring of the forest should the development not go ahead. The baseline plan should be supported by maps and tables with felling and restocking figures. An additional 'forest plan with development' should also be produced to illustrate and quantify the same aspects if the development was to go ahead.	will be targeted to specific areas where issues of woodland linkage and habitat protection have been identified. SPEN has no mechanism for felling and/or replanting windthrow areas however, in accordance with good forestry design, SPEN is liaising with the landowners to agree that these areas will be felled under a separate felling licence, and restocking plans will be submitted (by the forest owner/manager) to Scottish Forestry Conservator. This chapter provides details of the net loss of woodland resource from the EDM Project and is supported by Figures 10.1a-h showing areas of proposed felling and crowning within the 70m wayleave as well as felling proposed to address windthrow.
SEPA January 2019	Formal Scoping Consultation	The EIA Report should assess the potential effects of forestry felling on water quality.	Effects of forestry felling on water resources is considered in Chapter 7: Geology, Hydrology, Water Resources and Peat .
Inverclyde Council January 2019	Formal Scoping Consultation	Inverclyde Council highlighted the effects on forestry, particularly ancient and semi-natural woodland, as a result of the proposed development. Inverclyde Council note that developers are aware of the species and mix that should be introduced.	Both the routeing and detailed design of the New 132kV OHL has aimed to minimise the effect on forestry. Details of those routing changes made to minimise the effect on ASNW and NWSS are detailed within The Project Design Considerations section and in Chapter 3: Routeing and Design Strategy .
SNH January 2019	Formal Scoping Consultation	SNH advised that the applicant should consult SF.	A site meeting was held with Forestry and Land Scotland on 19/3/19 as landowners of Knock mountain forest. Scottish Forestry have been involved as consultees and responded in January 2019 see above.

Study Area

10.10 The assessment covers a study area defined as a 70m corridor, 35m either side of the final alignment of the New 132kV OHL and access tracks, compound, pulling areas, where felling is required to accommodate temporary construction infrastructure (see **Figures 10.1a-h**). The forestry assessment has included all woodland types that will be affected by the EDM Project.

10.11 Over the length of the New 132kV OHL, 10.71ha of woodland has been identified within the areas assessed as directly affected. Of this, 9.78ha is broadleaf of which 4.01ha is designated as either Ancient-Semi Natural Woodland (ASNW) or classed as native woodland under the Native Woodland Survey of Scotland (NWSS). 0.93ha is commercial conifer woodland.

10.12 Of the 10.71ha of woodland areas affected, 6.00ha, will require to be felled as detailed within **Table 10.3** below. The balance of 4.71ha comprises mixed broadleaf woodland which is to be retained through the proposed embedded mitigation methods (including

crowning where the tree is retained but reduced in height to facilitate the safe construction and operation of the New 132kV OHL. Further detail on this work is provided within the embedded mitigation section of this chapter.

10.13 Potential effects on the windthrow areas outside the wayleave are not assessed in detail (as outlined above), but information is presented below in relation to the felling proposed as mitigation in these areas.

10.14 In reviewing the effects on the forest areas affected by the EDM Project a comparison has been made relative to the total forest area for the combined regions of Inverclyde and Renfrewshire. Within these two areas there is a total of 5,373ha of forest of which it is estimated 2,150ha is predominately conifer forest and 3,223ha is predominately broadleaf forest. Within this chapter these area figures have been used to reflect the 'local' forest resource.

Desk Based Research and Data Sources

10.15 Desk based studies were undertaken using the following sources of information:

- Ordnance Survey maps at 1:25,000 and 1:50,000 scale;
- Aerial photography (dated 2017 and 2018);
- SNH Ancient Woodland Inventory (2000);
- Scottish Forestry -The Native Woodland Survey of Scotland (NWSS 2014);
- Forest and Land Scotland- Land Management Plans, Compartment schedules and maps^{iv};
- National Biodiversity Network (NBN) Gateway website^v.

Field Survey

10.16 Field surveys were undertaken between March and May 2019 to inform the assessment.

10.17 During these site visits, site conditions were adequate for the purposes of completing the detailed assessments of those woodlands within the Study Area, to verify the desk-based work and consultations and to further inform the assessment. The surveys comprised walking along the route of the New 132kV OHL and the Existing 132kV OHL. Forest characteristics including forest type and detailed descriptions of the area, age, species mix and stocking density, together with length of proposed connection passing through the forest, were recorded. A general assessment of site conditions was undertaken to inform the prediction of the likely risk of windthrow to the trees outwith the wayleave corridor. This was based on the professional judgement of the forestry surveyor and took into account the current forest, including an assessment of age, species and height of the trees. In addition, a range of site conditions were considered, including aspect, altitude and soil type.

Assessing Significance

10.18 The approach to assessing the significance of effects comprised the following stages:

- establish the existing conditions;
- identify likely forestry effects;
- assess whether each likely effect is adverse or beneficial in nature;
- assess the significance of the likely effect;
- where an effect is likely to be significant, identify measures to avoid, reduce or mitigate such significant effects; and
- assess the significance of the residual effect following application of the mitigation measures.

10.19 The significance of an effect on forestry derives from the combination of the sensitivity of the forestry and the extent/degree of change to the forestry, i.e. the magnitude of effect.

Sensitivity

10.20 As there are no published criteria, guidance or methodologies in relation to the appraisal of sensitivity of effects on forestry, the assessment is based on professional judgement informed by available forestry, field work, local management experience and consultation.

10.21 Sensitivity has been determined on the basis of the following categories:

■ **Highly sensitive** areas of woodland are considered to be those that are:

- highly valued due to crop species and age, e.g. ASNW or NWSS;
- particularly rare or distinctive; and
- considered susceptible to small changes.

■ **Moderately sensitive** areas of woodland are considered to be those that are:

- valued more locally; and
- are tolerant of moderate levels of change.

■ **Low sensitive** areas of woodland are considered to be those that are:

- generally, more commonplace;
- considered potentially tolerant of noticeable change; and
- undergoing substantial development such that their character is one of change.

■ **None:** areas of woodland that are:

- subject to the OHL 'oversailing' the woodland area;
- tolerant of major changes, e.g. plantation forest where major structural changes are regular or planned as part of a normal felling cycle; and
- with no designations and considered of no ecological or landscape value.

10.22 The sensitivity of forestry management to the effects of the wayleave felling for construction has been determined taking additional account of:

- forest productivity (in terms of, species and crop mixture);
- accessibility in terms of ground conditions;
- current management regime, including objectives of management, and size of management unit; and
- imposition of additional safety constraints in forest areas adjacent to the line.

10.23 It should be noted that not all aspects considered within the example conditions are required concurrently to define the sensitivity level, which is assigned based on professional judgement.

Magnitude

10.24 The following criteria have been used to inform the assessment of magnitude of changes as a result of the EDM Project:

- **Major:** a noticeable change to the woodland over a wide area or an intensive change over a limited area;
- **Moderate:** small changes to the woodland over a wide area or noticeable change over a limited area;
- **Minor:** very minor changes to the woodland over a wide area or minor changes over a limited area; and
- **None:** effectively no change.

Significance

10.25 Due to the inherent differences between the types of forestry effect, where possible, sensitivity and magnitude criteria have been identified using professional judgement and these have been combined to identify the significance of the effect, based on the matrix presented in **Table 10.2** below.

Table 10.2: Significance Matrix

Magnitude	Sensitivity			
	High	Moderate	Low	None
Major	Major	Major	Moderate	None
Moderate	Major	Moderate	Minor	None
Minor	Moderate	Minor	None	None
None	Minor	None	None	None

10.26 For some effects e.g. effects on forestry management during construction and operation, sensitivity and magnitude criteria are not appropriate therefore a judgement of significance has been made based on professional judgement. The approach to assessing significance for each effect is set out below.

10.27 All effects are considered and presented as either significant (**major** or **moderate**) or not-significant (**minor** or **none**) in the context of the EIA Regulations.

Felling Requirements

10.28 The felling requirements for the New 132kV OHL and the approach to the assessment of the following potential effects on forestry are detailed further below:

- The **long-term** loss of local forest resource due to the felling of the wayleave corridor.
- **Long-term** loss of local broadleaf and native woodland resource including sites designated as ASNW and NWSS native woodland areas due to felling of the wayleave corridor.
- **Temporary** loss of local forest resource due to felling for temporary infrastructure such as access tracks; for this area of felling it is expected that it will all be replanted once the construction phase of the EDM Project is completed.
- **Temporary** effects on forest management during construction and **long-term** effects during operation.

10.29 Table 10.3 identifies the area of forestry that will be felled during the construction and operation of the New 132kV OHL. It should be noted that the windthrow felling (0.3ha) is not considered to represent long term forestry loss as it will be replanted by the landowner under a separate felling permission, such that there will be no net loss of forestry due to windthrow felling. This has therefore been included in Table 10.3 for information purposes only.

Table 10.3: Felling Requirements for New 132kV OHL

Wayleave Felling Area (ha)	Windthrow Additional Felling (ha)	Access Tracks, Pulling Areas (ha)	Total (ha)
5.43	0.3	0.27	6.00

Potential Effects Assessed

10.30 A detailed overview of the potential effects assessed for EDM Project is provided below. Unless otherwise stated, potential effects identified are considered to be negative.

Long-Term Loss of Forest Resource as a Result of Felling for the Wayleave Corridor

10.31 Creation of the 70m wayleave corridor (in accordance with operational safety requirements) requires the felling of 5.43ha within the 70m corridor. As the wayleave corridor requires to be kept clear of trees which may impinge on the safety clearances for the duration of the operational life of the New 132kV OHL, the effect is considered to be a long-term loss of the forest resource of 5.43ha. The loss is considered reversible on the basis that, following decommissioning, the wayleave corridor could be replanted.

10.32 The assessment of the effect of the New 132kV OHL on long-term loss of the forest resources is undertaken in the context of Scottish Government policy. This policy is detailed within Scotland's Forestry Strategy 2019-2029, and includes a policy to increase

new woodland planting across the country from the existing 10,000ha of new planting per annum to up to 15,000ha per annum. Therefore, the long-term removal of forestry within the wayleave resulting from the New 132kV OHL conflicts with the woodland expansion objectives.

10.33 The Scottish Government Policy on the control of woodland removal published in 2009 includes a presumption in favour of protecting Scotland's woodland resources. Woodland removal should only be permitted where it would achieve significant and clearly defined additional public benefits. Where woodland removal is association with development, compensatory planting may form part of the balancing exercise.

10.34 There is a long-term loss of woodland as detailed within Table 10.3. The assessment presents the area of woodland loss (in ha) and the % of the local forestry resource and makes a judgement on significance of the effect based on the sensitivity and magnitude criteria outlined above.

10.35 With landowner agreement, SPEN will seek to replant certain sections of the wayleave corridor and the wayleave corridor edge with low growing shrub species, sourced from local seed provenance, which are not deemed to put at risk the ongoing safe operation of the line

10.36 The decommissioning of the Existing 132kV OHL presents the opportunity to replant areas of land where the infrastructure to be decommissioned and removed coincides with forestry. It is anticipated that where the route passes through commercial forestry, the replanting is most likely to occur post felling of the adjoining conifer forests due to the associated economics for replanting. Where the Existing 132kV OHL passes through areas of broadleaf woodland, there is scope to undertake replanting at an earlier stage as the broadleaf woodland is unlikely to be clearfelled. This replanting would reduce the loss of woodland resource and in areas of ASNW/NWSS could restore important native woodland habitat.

10.37 It is important to note that, while this would be seen as valuable offsetting against the effect of the New 132kV OHL on loss of forest resource, the decision to implement the replanting within the areas of the Existing 132kV OHL will be made by the landowner and not SPEN. SPEN will cease to hold any land rights over the Existing 132kV OHL corridor. As such, these measures are not considered to represent committed mitigation, and therefore are not taken into account in the assessment of effects reported below.

Long – Term Loss of Broadleaf Woodland including Ancient Woodland and Native Woodland

10.38 Sensitivity of these areas is determined using the professional judgement of the forestry consultants, taking account of the national conservation status of these woodlands as determined by either SNH or SF. The existing databases for these designations have been used alongside the onsite assessment as to the current condition of the woodland, and these areas are shown in Figures 10.1a-h.

10.39 The magnitude of the effect is defined as **Major** or **Moderate** based on the area of trees to be felled. **Minor** or **None** is used where trees can be crown reduced or lopped to reduce or remove the effect on construction or ongoing operation of the OHL.

10.40 Using professional judgement, the sensitivity and magnitude are combined to determine if the effect is significant or not-significant.

10.41 The ASNW and NWSS woodland areas affected by the New 132kV OHL are included within the total forest clearance figures detailed in Table 10.4 and are therefore included in the assessment of overall loss of forest resource. Potential effects associated with the loss of these sites are also assessed separately on the basis that the loss of broadleaf woodland (including areas of ASNW and NWSS registered woodlands) is deemed important by the Inverclyde Council (see Table 10.1).

10.42 The more open grown nature of the areas of broadleaf woodland has resulted in there being no need for felling of broadleaf woodland outwith the wayleave corridor as there is no perceived windthrow risk resulting from the tree clearance activities of the New 132kV OHL.

10.43 The area of broadleaf felling within the project is 5.15ha of which 2.54ha is designated as either NWSS, ASNW or both. There are no areas of plantation conifer designated as plantations on ancient woodland sites (PAWS).

Table 10.4: Felling of Broadleaf Woodlands for New 132kV OHL

Area of Broadleaf woodland including areas designated as ASNW and NWSS	Poles located within ASNW or NWSS designated sites
2.54ha	Pole numbers 1, 2,3,123,124,131

Temporary Loss of Forest Resource due to Felling for Access Tracks and Pulling Areas

10.44 As detailed in **Table 10.3**, a total area of 0.27ha requires to be felled for access tracks, and pulling areas. This includes an area of 0.17ha of woodland to the south of Pole 130 for an access track and a further 0.1ha felled for the creation of two pulling areas at Pole 1.

10.45 SPEN is committed to replanting these areas following construction (with species composition to be agreed with the landowner), subject to agreement of the landowners. However, similarly to the other planting measures discussed above, measures are not considered to represent committed mitigation, and therefore are not taken into account in the assessment reported in this chapter.

Temporary Effects on Forest Management during Construction

10.46 Felling and construction activities associated with the New 132kV OHL have been considered with regard to their impact on the associated forests management during the construction period. Due to the nature of those forests, and in particular the large proportion of broadleaf woodland, it is considered that there are likely to be only minor disruptions to the current management regimes. While the site is managed under Construction Design Management (CDM) regulations it is anticipated that there will be an impact on managers' access to these forests. However due to the relatively short-term nature of construction works and the type and age of these forests, it is considered that the magnitude of the effect is **minor** and the sensitivity is low. As such the effect will be **none**. The effect has been assessed using professional judgement of the assessment team, based on the desk and field survey findings. It has been predominately determined by the age of the forest and typical level of forest management which would normally be expected for each site

Assessment Limitations

10.47 For most broadleaf areas there was limited or no data available from the landowner. In these cases, it is considered that adequate information to assess the forest was gathered from site inspections and use of the national database records for ASNW and NWSS. For assessment of the local forest resource data from Forestry Commission Scotland (now Scottish Forestry) data records were used.

10.48 In general, whilst some information gaps have been identified, it is considered that there is sufficient information to enable an informed decision to be taken in relation to the identification and assessment of likely significant environmental effects on forestry.

Existing Conditions

New 132kV OHL

10.49 The New 132kV OHL exits the Erskine substation and passes for a distance of 240m (Poles 1-4) through an area of mature mixed broadleaf woodland identified as ASNW and NWSS. Between Poles 5-6 the New 132kV OHL passes to the south of a number of individual hedge row trees of which three trees will require to be felled and three further trees will require crown pruning. The OHL then travels 65m (Poles 6-7) through an area of mature native broadleaf woodland which is classified as both ASNW and NWSS. Between Poles 9-12 the line passes for a distance of 545m to the east of the motorway and is screened by a mixed broadleaf woodland strip; no tree felling is proposed for this area. The OHL then passes over open farmland with occasional hedgerow trees (no designations) to Pole 23. Between Pole 23 and Pole 27 the OHL passes to the south of a row of field edge trees and then crosses broadleaf trees either side of the M8 which will require felling. Having crossed a further area of open farmland with occasional hedgerow trees, the OHL runs parallel to the M8 motorway between Poles 31 and 53 along this section there are occasional motorway edge side trees which are a combination of remnant landscaping trees from the motorway and naturally regenerated shrub species. An area of broadleaf felling is required between Poles 45 and 46. From Pole 53 the OHL turns south and crosses the railway line (between Poles 56 and 57). Within the railway cutting there are a small number of broadleaf trees including a small section of broadleaf woodland designated as NWSS which require felling. The OHL then passes over a section of open farmland to Pole 75 at which point it passes through an area of low growing scrub woodland for a distance of 44m which requires felling. After a further distance of open farmland, the OHL cuts across the southern corner of a semi mature conifer woodland with no designation between Poles 83-84 for a distance of 30m which requires felling. At Pole 111 the OHL enters an area of young mixed species woodland planting along the southern edge of Knockmountain forest an area owned by Forestry and Land Scotland (FLS). The OHL then passes through this FLS owned land for a distance of 1570m (Poles 111-126) where it passes over areas of designed open ground and young mixed species woodlands which require felling. From Pole 126 the OHL passes through an area of open farmland before passing through 36m of scrub woodland with no designation between Poles 128 and 129. Between Poles 130 and 132 the OHL

passes through an area of mixed birch and willow native woodland designate within this NWSS for a distance of 160m which requires felling.

10.50 From Poles 132 to 142 the OHL passes over open farmland. Between Poles 142 and 143 the OHL passes along the northern corner of Craigmarnloch Wood which is registered both as NWSS and ASNW. From Pole 143 to where the OHL terminates at Pole 182 the OHL passes over open hill farmland with occasional single scrub and hedgerow trees within the route.

10.51 Proposed felling and crowning along the New 132kV OHL is shown in **Figures 10.1a-h**.

Existing 132kV OHL

10.52 The Existing 132kV OHL exits the Erskine substation to its north-west and passes for a distance of 220m (Gantry-G28) through an area of mixed broadleaf woodland identified as ASNW and NWSS.

10.53 At G29 it passes through an area of mature native broadleaf woodland which is classed both ASNW and NWSS.

10.54 Between G33 and G33A the OHL crosses the M8 motorway and the associated broadleaf landscape screening trees.

10.55 Between G38A and G39 the OHL borders mixed broadleaf and conifer woodland to its south. Part of it is registered as NWSS.

10.56 Between G39 and G39A the OHL borders mixed broadleaf and conifer woodland to its north. Part of it is registered as NWSS and ASNW.

10.57 Between G40 and G40B the OHL passes through a strip of mature broadleaf woodland, registered as NWSS and ASNW.

10.58 Between G41 and G41A the existing OHL passes through a strip of mature riparian broadleaf woodland.

10.59 At G45 the OHL passes through mixed broadleaf and conifer woodland, registered as NWSS.

10.60 Between G46 and G47 it passes through a block of mature conifer trees.

10.61 Between G50 and G53 it intersects mature conifers block and NWSS registered birch woodland.

10.62 Between G53 and G58 the OHL passes through afforested areas managed by FLS.

10.63 Between G53 and G54 it intersects Birch woodland registered as NWSS.

10.64 Between G54 and G54 it passes through various stages of broadleaf and conifer plantations, not registered as ancient nor native.

10.65 Between G59 and G60 it passes through broadleaf woodland surrounding Leperstone Reservoir and being registered as NWSS.

10.66 Between G60 and 61 is borders mature broadleaves woodland to its south.

10.67 Between G71 and G72 it sections the golf course and passes nearby golf course conifer and broadleaved trees. It terminates at Devol Moor Substation where it crosses through substation screening broadleaf and conifer trees.

The 'Do Nothing' Scenario

10.68 In developing the overall assessment of the baseline on which the EDM Project was assessed, RTS used the site baseline condition as at April 2019. In the absence of the EDM Project the small area of commercial conifer forest (0.93ha) would continue to be managed by the forest owners/managers through a programme of tree felling and replanting to achieve the objectives within their Forest Plans. The balance of the wooded areas is mixed species broadleaf woodland of which some is registered within the ASNW and NWSS designations. It is reasonable to assume that in the "do nothing scenario" these broadleaf woodlands would continue to develop with minor or no management input as is typical for such woodlands in this part of Scotland. This lack of management activity is anticipated due to the lack of income sources from either grant aid or timber sales relating to addressing those costs which would be incurred from active management.

Implications of Climate Change

10.69 The main consequences of climate change on forestry are considered to include the following:

- change to species composition and range;

- increased risk of large windthrow events;
- increased risk of forest fires;
- increase in risk of forest pathogens and pests; and
- increased risk of landslip and pollution runoff from harvesting and restock sites.

10.70 Specific issues relating to the future management of the forests that will be affected by the EDM Project in relation to climate change are anticipated to include:

- A review of the species planted to address the effect of change in temperature and other weather conditions with a move towards species more adaptable to the projected future weather. These species choices will also be required to address the associated change in pests and other pathogens which are likely to increase risk to tree species.
- The risk of increased high wind events resulting in windthrow in commercial woodland is likely to be addressed by the division of larger woodland areas into smaller distinct forest blocks to assist in creating more windfirm boundaries. Current and well used ground preparation techniques are already being used to address tree stability in future crop rotations.
- More dramatic weather events and their associated risk of water runoff from forest sites, particularly post harvesting, will be addressed by individual project design and the inclusion of increased open ground adjacent to watercourses. Open ground acts as filtration for runoff from harvested site. The general breakdown of larger forest blocks into smaller distinct areas helps to reduce the scale of individual harvested site which reduces the risk of the associated runoff.

Project Design Considerations

New 132kV OHL

10.71 The wayleave corridor width considered for the impact of trees on the construction and operation of the New 132kV OHL is 70m. Through the design process a number of alignment changes have been made to avoid or minimise the area of trees affected. These include:

- Pole 18 where the New 132kV OHL was revised to avoid a mature lime tree by moving marginally to the west.
- Pole 64 where the New 132kV OHL was revised by moving to the west away from a small mature mixed species woodland area.
- Poles 68-75 where the New 132kV OHL alignment was amended to minimise the loss of individual field trees.
- At Pole 85 the New 132kV OHL was moved slightly to the north between two existing woodlands. This action has utilised an area of existing windthrown trees within the wayleave and avoids ancient woodland and native woodland.
- Modify alignment to avoid loss of mature trees within the wayleave, particularly along the B789 and 'Chestnut Avenue'.

10.72 The above variations to the original route had the effect of reducing the tree clearance required by approximately 1.5ha.

10.73 Along the route of the New 132kV OHL opportunities have been taken to reduce the felling of trees within the 70m corridor where the tree type and location relative to the conductor allows for pruning works to deliver sufficient separation between the tree and the conductor. This is particularly the case for mature broadleaf trees growing in isolation where it is deemed, they have good root stability and as such have a reduced risk of windthrow.

Infrastructure Location Allowance

10.74 As detailed in **Chapter 4**, during the pre-construction design process, possible effects on forestry can be further avoided or reduced through the refining of the locations of poles and related infrastructure utilising the 50m Infrastructure Location Allowance (ILA) (or micrositing allowance). The implementation of the ILA would be controlled through the proposed detailed Construction and Decommissioning Environmental Management Plan (CDEMP) and in consultation with the forest manager/landowner. At this stage of the routeing design, the micrositing of the poles would only be promoted within areas of NWSS and ASNW where it could be shown to

either maintain or reduce the effect on the woodland. For all other non-designated woodland areas, the micrositing is assessed as having a minimal effect on forestry.

Embedded Mitigation Measures

10.75 In addition to mitigation by design (as detailed above and in **Chapter 3**), a series of forest best practice measures (deemed to be embedded mitigation³) will be put in place through the CDEMP to minimise the effect of the New 132kV OHL on forestry. The assessment has been undertaken on the basis that the following measures will be in place:

- One key element of embedded mitigation is in the avoidance/minimisation of tree felling where it is deemed possible to retain trees. This is delivered by the removal or reduction of the construction and operational risk from these trees by crown pruning. This process has identified 4.71ha of woodland within the 70m wide wayleave where individual trees can have their crown reduced to a height where the New 132kV OHL can be constructed and then operated. This embedded mitigation requires the ongoing commitment of SPEN to manage the heights of these trees over the operational period of the OHL
- Adherence to Forest Industry Safety Accord (FISA) guidance during felling and extraction of forestry;
- Adherence to SF Guidelines e.g. to ensure protection and enhancement of the water environment;
- Implementation of tree harvesting and extraction methods to ensure minimisation of soil disturbance and compaction;
- Restricting the width of the felling corridor to the minimum required for statutory safe clearances. This will predominately be delivered by the identification of any areas where the individual tree is of a species which can be deemed to be low growing to the extent that they can remain in parts of the wayleave without conflicting with the safe construction and operation of the OHL within the wayleave.
- SPEN will commit to working with the landowners through the construction period to facilitate ongoing forest management where possible within the constraints of safe working practices and the associated CDM working.

Assessment of Effects

New 132kV OHL

Construction Effects

Long-Term Loss of Local Forest Resource as a result of Felling for the Wayleave Corridor

10.76 The overall tree felling within the 70m wayleave corridor of the New 132kV OHL results in long-term loss of forest resource of 5.43ha. The local forestry resource is currently 5,373ha. The loss from the local forest resource from the EDM Project is assessed as being 0.1%.

10.77 The sensitivity of the local forest resource to this loss is moderate in that the changes to the woodlands are deemed tolerant of moderate levels of change. The likely magnitude of the effect is **moderate** in that it is small change to the woodlands over a large area. As such, the likely significance of the effect on the local forestry resource is considered to be **moderate (significant** in EIA terms).

Mitigation

10.78 Mitigation works will involve the replanting of certain sections of the wayleave with low growing native shrub species. This work does require the agreement of the landowner and as such cannot form committed mitigation for the EDM Project. These species are deemed not to present a risk to the safe long-term operation of the New 132kV OHL. These areas of planting will be targeted to specific sites where issues of woodland linkage and habitat protection have been identified. In particular they will target those areas designated as ASNW and NWSS (see below).

³ Embedded forestry mitigation is addressed in more detail in **Chapter 4**

Residual Effects

10.79 The measures likely to be most successful in managing the effects of felling are subject to landowner agreement. As noted above, these measures do not form committed mitigation, and have not be taken into account in assessing the residual effect of the New 132kV OHL. As a result of the long-term loss of forestry resources due to felling of trees within the wayleave corridor, the likely residual effect on local forestry resource remains **moderate** and therefore **significant**.

Long – Term Loss of Local Broadleaf Woodland including Ancient Woodland and Native Woodland

10.80 The area of broadleaf woodland permanently lost to the New 132kV OHL is 5.15ha. Of this area 2.54ha is designated as either ASNW or NWSS (in some cases areas have both designation). The local resource of broadleaf woodland is estimated to be 3,223ha, as such the loss equates to 0.16% of the local broadleaf resource.

10.81 The sensitivity of the broadleaf woodland affected by the New 132kV OHL, including ASNW and NWSS, is high in that it includes areas of ASNW and NWSS. The magnitude of the effect is considered to be **moderate** in that there is a number of small changes to the various woodlands over a wide area.

10.82 As such, the likely significance of the effect on local broadleaf woodland is considered to be **Major (significant in EIA terms)**.

Mitigation

10.83 Mitigation works could involve the replanting of certain sections of the wayleave with low growing shrub species which are not deemed to put the ongoing safe operation of the New 132kV OHL at risk. This work does require the agreement of the landowner and as such cannot form committed mitigation for the EDM Project. These areas of planting would be targeted to specific areas, including areas designated as ASNW or NWSS. It is anticipated these sites would present suitable locations to maximise the environmental benefits of this type of mitigation planting work. As the felling of the wayleave corridor in those ASNW and NWSS sites will see areas of adjacent retained /residual native woodland outwith the wayleave, there is good opportunity here, by planting low growing shrubs to develop important woodland linkage and habitat protection.

10.84 The decommissioning of the Existing 132kV OHL also presents several opportunities to replant or encourage natural regeneration of the corridor to native woodland. Specific areas where this would be investigated with the required support of the landowner are where the decommissioned OHL passes through areas designated as ASNW or NWSS. SPEN does not have direct control over the majority of this land and as such the opportunities to undertake woodland establishment on these sites has to be deemed as non-committed offsetting or enhancement rather than committed mitigation .Specific examples of these areas include the first section of Existing 132kV OHL as it leaves the Erskine substation and passes for a distance of 220m through an area of ASNW/NWSS mature broadleaf woodland. Further areas of designated woodland suitable for restoration, with the landowner's consent exist at G29, G38A-G40B and G53-G58. SPEN intend to discuss these options with all landowners and have identified that in some cases (G53-G58) the land is within the ownership of FLS who also have woodland restoration remit which would link to these mitigation objectives. These areas are shown on **Figure 10.2**.

Residual Effects

10.85 The measures requiring landowner approval do not form committed mitigation, and have not been taken into account in assessing the residual effect of the New 132kV OHL on the loss of broadleaf woodland including ancient woodland and native woodland.. Due to the net loss of broadleaf woodland, including areas of ASNW or NWSS, the likely residual effect on local broadleaf forest loss remains **Major (significant in EIA terms)**.

Temporary Loss of Local Forest Resource due to Felling for Access Tracks and Pulling Areas

10.86 For the New 132kV OHL the area of woodland which will require tree clearance to facilitate access and cable pulling during construction is 0.27ha. This includes 0.17ha to the south of Pole 130 where an access track will require to be created through a lightly wooded area to the north-east of a Scottish Water (Leperstone) reservoir and 0.1ha at Pole 1 in vicinity of the Erskine Substation. Within the site there will be opportunities to microsite the access track at Pole 130 to minimise the tree clearance, however the worst case scenario will result in the felling of 0.27ha of mixed species woodland out of which 0.13ha is designated as NWSS.

ⁱ <https://www.forestresearch.gov.uk/tools-and-resources/forest-planning-and-management-services/forestgales/latest-version-forestgales/>

ⁱⁱ <https://forestry.gov.scot/publications/105-the-uk-forestry-standard/viewdocument>

ⁱⁱⁱ <http://ukwas.org.uk/>

10.87 The sensitivity of the local forest resource to this loss is low in that the area is largely tolerant to this level of change. The magnitude of the effect is minor in that it is a minor change over a limited area. As such the likely effect on local forestry resource is considered to be **None (Not significant)**.

Mitigation

10.88 SPEN is committed to seeking the restoration of all access tracks and construction compounds created during the construction process although ultimately undertaking such restoration will be dependent upon landowner agreement. While SPEN will work with the landowner to seek to achieve restoration of areas of broadleaf woodland by replanting this cannot form committed mitigation for the EDM Project.

Residual Effects

10.89 As a result of the level of control over the replanting of this area, which will be by way of the agreement between SPEN and the landowners, the significance of the likely residual effect on local forestry resource is unchanged and remains **None (not significant in EIA terms)**.

Interrelationship between Effects

10.90 It is anticipated that effects discussed in this chapter are or relevance to effects detailed in **Chapter 6** in terms of effects on landscape and visual amenity, **Chapter 7** in terms of effects of forestry felling on water quality and sedimentation and **Chapter 8** in terms of habitat loss and species disturbance/displacement.

Further Survey Requirements and Monitoring

New 132kV OHL

10.91 There is no proposal for ongoing surveys relating to forestry. With regard to the issue of the risk of subsequent windthrow where agreement has not been reached with the landowner to address this during the construction phase, it is clear that the Scottish Ministers through agency, SF, have the authority to require the replanting of these areas should they be subject to wind damage.

Summary of Significant Effects

10.92 Table 10.5 below summarises the predicted significant effects prior to mitigation of the EDM Project on Forestry.

Table 10.5: Summary of Significant Effects

Predicted Effect	Significance	Mitigation	Significance of Residual Effect
New 132kV OHL			
Long-term loss of local Forest Resource	Moderate	Measures likely to be most successful in managing the effects of felling are subject to landowner agreement. These measures do not form committed mitigation, and have not be taken into account.	Moderate
Long-term loss of Local Broadleaf Woodland including Ancient Woodland and Native Woodland	Major	As above.	Major

^{iv} <https://forestryandland.gov.scot/what-we-do/planning>

^v <https://data.nbn.org.uk>