

EARBA STORAGE

A GILKES ENERGY COMPANY

Earba Pumped Storage Hydro Scheme EIA Report

Chapter 9: Forestry

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9. Forestry

9.1 Executive Summary

Helge Hansen was commissioned by Earba Limited to undertake an assessment of the woodland that is within the development boundary of the proposed Development, to assess the potential effects on trees and woodland in relation to the Proposed Development and to recommend appropriate mitigation where adverse effects are unavoidable. The scope of the assessment has been informed by consultation and scoping responses received from The Highland Council, SEPA and Scottish Forestry.

The assessment process, prior to the implementation of any mitigation measures, has identified that the loss of 7.41 ha of woodland has a minor adverse effect on woodland and trees in the survey area which has a total woodland cover of 111 ha (6.7% of the survey area). Most of the woodland loss happens in semi natural Scots pine woodland which requires felling to build the dam at the northern end of Loch Earba.

To mitigate against the loss of 7.41 ha of woodland, a compensation ratio of at least 1:1 in terms of woodland lost to woodland created is required to comply with the Scottish Government's Control of Woodland Removal Policy (CoWRP). As part of the overall mitigation process, and taking into account losses in biodiversity, a strong compensatory planting scheme of a total of c. 68.4 ha of native woodland is proposed to be planted around infrastructure areas within the site.

The implementation of the compensatory planting plan would increase the total woodland area within the survey area from 111 ha to 172 ha, an increase of over 60%. Once implemented, the mitigation measures set out in this chapter, no significant adverse residual effects on retained woodlands are predicted to arise from the construction and operation of the proposed pumped storage scheme.

In addition to the planting proposed above, an area exceeding 1000 ha encompassing Loch Earba, Binnein Shuas, Binnein Shios and Creag a Chuir would be fenced off from deer to provide areas for regeneration and restoration of native woodland, including at montane elevations. In addition, a 600 ha peatland restoration project and a proposed reduction in deer densities across the wider Ardverikie Estate of 39% from current would also lead to demonstrable benefits for woodland and other moorland habitats. Details of these very significant biodiversity enhancements are detailed in **Appendix 8.6 - Outline Biodiversity Enhancement and Management Plan**. These enhancements would give rise to a Major positive effect on woodlands.

9.2 Introduction

- 9.2.1 This Chapter considers the potential effects, including cumulative effects, of the Proposed Development on trees and woodland during construction and operation. As detailed in **Chapter 2: The Proposed Development**, with proper maintenance the Proposed Development should remain functional indefinitely. If the project were to be decommissioned, it is anticipated that the potential effects on trees and woodlands would be equal to or lesser than the construction impacts. As such, a separate assessment of potential decommissioning effects on trees and woodland is not included in this Chapter. Where likely significant effects are predicted during construction and operation, appropriate mitigation measures are proposed, and the significance predicted residual effects are assessed.
- 9.2.2 This assessment has been carried out by Helge Hansen. A table presenting relevant qualifications and experience of key staff involved in the preparation of this Chapter is included in **Appendix 1.1 – EIA Specialist Team** of this EIA Report.

9.3 Scope of Assessment

Study Area

- 9.3.1 The Study Area (1650 ha) encompasses the area over which all desk-based and field data were gathered to inform the assessment presented in this Chapter. The detailed Study Area comprises of areas that have tree cover and would be directly or indirectly affected by the construction and operation of the proposed development.

Consultation Responses

- 9.3.2 To inform the scope of the assessment for the Proposed Development, consultation was undertaken with statutory and non-statutory bodies. **Table 9.1 – Consultation Responses** summarises the scoping and consultation responses relevant to Forestry and provides information on where and/or how points raised have been addressed in this assessment.
- 9.3.3 Full details on the consultation responses and scoping opinion can be reviewed in **Chapter 4: Assessment Methodology, Scoping and Consultation**, and associated appendices.

Table 9.1 - Consultation Responses

Consultee	Issue Raised	Response
The Highland Council – Scoping Opinion – 27 April 2023	The EIAR should provide a baseline survey of the plants (including fungi, lichens and bryophytes) and trees present on the site to determine the presence of any rare or threatened species. The EIAR should indicate areas of woodland / forestry plantation which may be felled to accommodate new development (including the access), including any off-site works / mitigation. Compensatory woodland is a clear expectation of any proposals for felling, and thereby such mitigation needs to be considered within any assessment.	A phase 1 habitat survey has been conducted. A map showing areas of trees and woodland to be felled has been prepared, Figure 9.1 – Proposed Felling Map . Compensation and enhancement proposals are detailed in this Chapter.
The Highland Council – Scoping Opinion – 27 April 2023	If trees are to be removed, compliance with the Scottish Government’s Control of Woodland Removal Policy must be demonstrated. Areas of retained forestry or tree groups should be clearly indicated and methods for their protection during construction clearly described. Consideration must be given to the full area required for the construction access road through trees / woodlands and the impacts on these identified. Any areas of woodland listed in the Ancient Woodland Inventory should be safeguarded from adverse impacts. Further as part of habitat management proposals and to offset the carbon of the construction process, it is considered that areas of woodland should be planted.	A typical draft tree protection plan (TPP) for the new junction on the A86 has been produced, showing trees and tree groups for retention – (Figure 9.2 - Draft Tree Protection Plan for the A86 Junction) . The TPP also shows trees and groups proposed for removal. TPPs would be provided for approval by THC prior to the commencement of any construction work. Effects on the AWI are assessed in this Chapter. Details of compensatory and enhancement planting are proposed.
SEPA – Scoping Opinion – 27 April 2023	If tree felling is proposed the submission must include a map with the boundaries of where felling will take place and a description of what is proposed for this timber in accordance with Use of Trees Cleared to Facilitate Development on Afforested Land – Joint Guidance from SEPA, SNH and FCS. In addition ensure that any new planting proposals are in line with Briefing Note 18: Publication of GWDTE Practice Guide (forestry.gov.scot).	The felling plan (Figure 9.1 – Proposed Felling Map) shows areas where tree felling is required. Marketable softwood timber will be processed in the Estate’s own sawmill or be sold to other sawmills. Small roundwood including hardwoods will be used as fuel wood.

Consultee	Issue Raised	Response
Scottish Forestry – Scoping Opinion – 27 April 2023	The first consideration for all woodland removal decisions should be whether the underlying purpose of the proposals can reasonably be met without resorting to woodland removal. Scottish Government's Policy on Control of Woodland Removal clearly sets out a strong presumption in favour of protecting Scotland's woodland resources. https://forestry.gov.scot/support-regulations/control-of-woodland-removal	The Proposed Development cannot be built without small areas of woodland removal.
Scottish Forestry – Scoping Opinion – 27 April 2023	In line with Scottish Government's wider objective to protect and expand Scotland's woodland cover, applicants are expected to develop their proposal with minimal woodland removal. Woodland removal should be allowed only where it would achieve significant and clearly defined additional public benefits.	The Proposed Development would deliver clearly defined additional public benefits. This energy storage solution would be a key component for reaching Scotland's ambitious climate change legislation target date for net zero emissions of all greenhouse gases by 2045.
Scottish Forestry – Scoping Opinion – 27 April 2023	The following criteria for determining the acceptability of woodland removal should be considered relevant to this application: 1) Woodlands with a strong presumption against removal Only in exceptional circumstances should the strong presumption against woodland removal be overridden. Proposals to remove these types of woodland should be judged on their individual merits and such cases will require a high level of supporting evidence. Where woodland removal is justified, the Compensatory Planting (CP) area must exceed the area of woodland removed to compensate for the loss of environmental value; 2) Woodland removal with a need for compensatory planting Design approaches that reduce the scale of felling required and/or converting the type of woodland to another type (such as from tall conifer plantation to low-height, slow growing woodland), must be considered from the earliest stages, rather than removing the woodland completely. The purpose of any required CP is to secure, through new woodland on site (replanting) or off site (on appropriate sites elsewhere), at least the equivalent woodland-related net public benefit embodied in the woodland to be removed.	See above. The area of proposed Compensatory Planting is 68.4 ha together with an area exceeding 1000 ha of fenced land for the promotion of a native woodland regeneration and restoration programme. Aerial imagery was used to establish the areas and numbers of individual trees lost due to the development. The compensatory planting will be done in a deer fenced area along the eastern side of Loch Earba. The area of the enclosure exceeds 1000 ha. This will include planting and natural regeneration.

Consultee	Issue Raised	Response
Scottish Forestry – Scoping Opinion – 27 April 2023	Adopted and published by Scottish Ministers on Monday 13 February 2023, National Planning Framework 4 - Policy 6 Forestry, Woodlands and trees identifies several themes that should be considered relevant to this application: b) Development proposals will not be supported where they will result in: i. Any loss of ancient woodlands, ancient and veteran trees, or adverse impact on their ecological condition; ii. Adverse impacts on native woodlands, hedgerows and individual trees of high biodiversity value, or identified for protection in the Forestry and Woodland Strategy; iii. Fragmenting or severing woodland habitats, unless appropriate mitigation measures are identified and implemented in line with the mitigation hierarchy; c) Development proposals involving woodland removal will only be supported where they will achieve significant and clearly defined additional public benefits in accordance with relevant Scottish Government policy on woodland removal. Where woodland is removed, compensatory planting will most likely be expected to be delivered; d) Development proposals on sites which include an area of existing woodland or land identified in the Forestry and Woodland Strategy as being suitable for woodland creation will only be supported where the enhancement and improvement of woodlands and the planting of new trees on the site (in accordance with the Forestry and Woodland Strategy) are integrated into the design.	The Ancient Woodland Inventory shows a narrow band of ancient woodland (of semi-natural origin) along the north-western shore of Lochan na h-Earba (Figure 9.1 – Proposed Felling Map). The site survey concluded that this consist of mainly fragmented and isolated trees in mostly poor or moderate condition. The public benefits delivered by this scheme are discussed elsewhere in the EIA Report. A robust compensatory planting scheme has been developed.
Scottish Forestry – Scoping Opinion – 27 April 2023	Scottish Government's policy on control of woodland removal: implementation guidance February 2019 https://forestry.gov.scot/support-regulations/control-of-woodland-removal provides guidance on the level and detail of information Scottish Forestry will expect within the EIA Report, to help us reach an informed decision on the potential impact of the proposed development on woodland. Scottish Forestry recommends that the EIA Report contain detailed information on the types and areas of woodland to be felled and restocked as a result of the proposed development, for both proposed inundation area and all associated infrastructure e.g. proposed grid connections etc. Detailed information on any compensatory planting proposals should also be provided. All felling, restocking and compensatory planting proposals must be compliant with the UK Forestry Standard. https://forestry.gov.scot/sustainable-forestry/ukfs-scotland	This Chapter and Appendix 8.6 – Outline Biodiversity Enhancement and Management Plan addresses the cited implementation guidance. For regulatory reasons, the proposed grid connection will be covered by a separate planning application by SSN Transmission.

Consultee	Issue Raised	Response
Scottish Forestry – Scoping Opinion – 27 April 2023	The applicant should note that any compensatory planting required as a result of the proposed development, may also need to be considered under The Forestry (Environmental Impact Assessment) (Scotland) Regulations 2017. https://forestry.gov.scot/support-regulations/environmental-impact-assessment and should follow the process for preparing a woodland creation proposal, as set out in our guidance booklet: Woodland Creation Application Guidance. https://forestry.gov.scot/support-regulations/woodland-creation	Proposals for compensatory planting are detailed in this Chapter and Appendix 8.6 – Outline Biodiversity Enhancement and Management Plan . These would be designed, consented and implemented in accordance with the Regulations and Guidance described.

Issues Scoped out of Assessment

9.3.4 None.

9.4 Legislation, Policy and Guidance

Legislative Context

9.4.1 Forestry in Scotland is regulated by Scottish Forestry (SF).

9.4.2 The following legislation has been considered in the assessment:

- The Forestry and Land Management (Scotland) Act 2018

9.4.3 The act places duties on the Scottish Ministers associated with the preparation and publication of a forestry strategy. It grants ample powers in respect of sustainable management of land and forestry and in particular with respect to, among other things, the felling of trees, restocking of forest land, enforcement.

Policy Context

9.4.4 The following policy has been considered in the assessment:

National Planning Framework 4 (NPF4), Policy 6 (Forestry, woodland and trees)

9.4.5 NPF 4 was adopted and published by the Scottish Ministers on 13 February 2023.

9.4.6 Policy 6 replaces the provisions in Scottish Planning Policy (SPP). The policy intent is to protect and expand forests, woodland and trees. NPF4 policy 6 states that development proposals that enhance, expand and improve woodland and tree cover will be supported. The enhancement/ improvement/ planting of new trees must be integrated into the design.

9.4.7 Development proposals will not be supported where they will result in:

- Any loss of ancient woodlands, ancient and veteran trees or adverse impact on their ecological condition

- Adverse impacts on native woodlands, hedgerows and individual trees of high biodiversity value or identified for protection in the forestry and woodland strategy
- Fragmenting or severing woodland habitats, unless appropriate mitigation measures are identified and implemented in line with the mitigation hierarchy
- Conflict with Restocking Direction, Remedial Notice or Registered Notice to Comply issued by Scottish Forestry
- Development proposals involving woodland removal will only be supported where they will achieve significant and clearly defined additional public benefits in accordance with relevant Scottish Government policy on woodland removal.
- Where woodland is removed, compensatory planting will most likely to be expected to be delivered.

Scotland's Forestry Strategy 2019 to 2029

- 9.4.8 The policy presents a 50-year vision and 10-year framework to action, expand, protect and enhance Scotland's forests and woodlands

Scottish Government's Policy on Control of Woodland Removal (2009 with updated implementation guidance February 2019)

- 9.4.9 The purpose of this policy is to provide direction for decisions on woodland removal in Scotland. The guiding principles are as follows:

- There is a strong presumption in favour of protecting Scotland's woodland resources;
- Woodland removal should be allowed only where it would achieve significant and clearly defined public benefits. In appropriate cases a proposal for compensatory planting may form part of this balance;
- Approval for woodland removal should be conditional on the undertaking of actions to ensure full delivery of the defined additional public benefits;
- Planning conditions and agreements are used to mitigate the environmental impacts arising from development and Forestry Commission Scotland will also encourage their application to development-related woodland removal; and
- Where felling is permitted but woodland removal is not supported, conditions conducive to woodland regeneration should be maintained through adherence to good forestry practice as defined in the UK Forestry Standard.

HwLDP policies 51 (Trees and Development) & 52 (Principle of Development in Woodlands)

Technical Guidance

- 9.4.10 The following technical guidance has been considered in the assessment:

- UK Forestry Standard (UKFS)

9.4.11 The UKFS is the reference standard for sustainable forest management in the UK. The UKFS, supported by its series of Guidelines, outlines the context for forestry in the UK, sets out the approach of UK governments to sustainable forest management, defines standards and requirements, and provides a basis for regulation and monitoring.

9.5 Methodology

Desk Study

9.5.1 As part of the desk study a map search for tree and woodland designation was conducted using <https://www.environment.gov.scot/maps/scotlands-environment-map/>. The search showed a strip of Ancient (of semi-natural origin) Woodland along the north-western shore of Lochan na h-Earba (**Plate 1**).

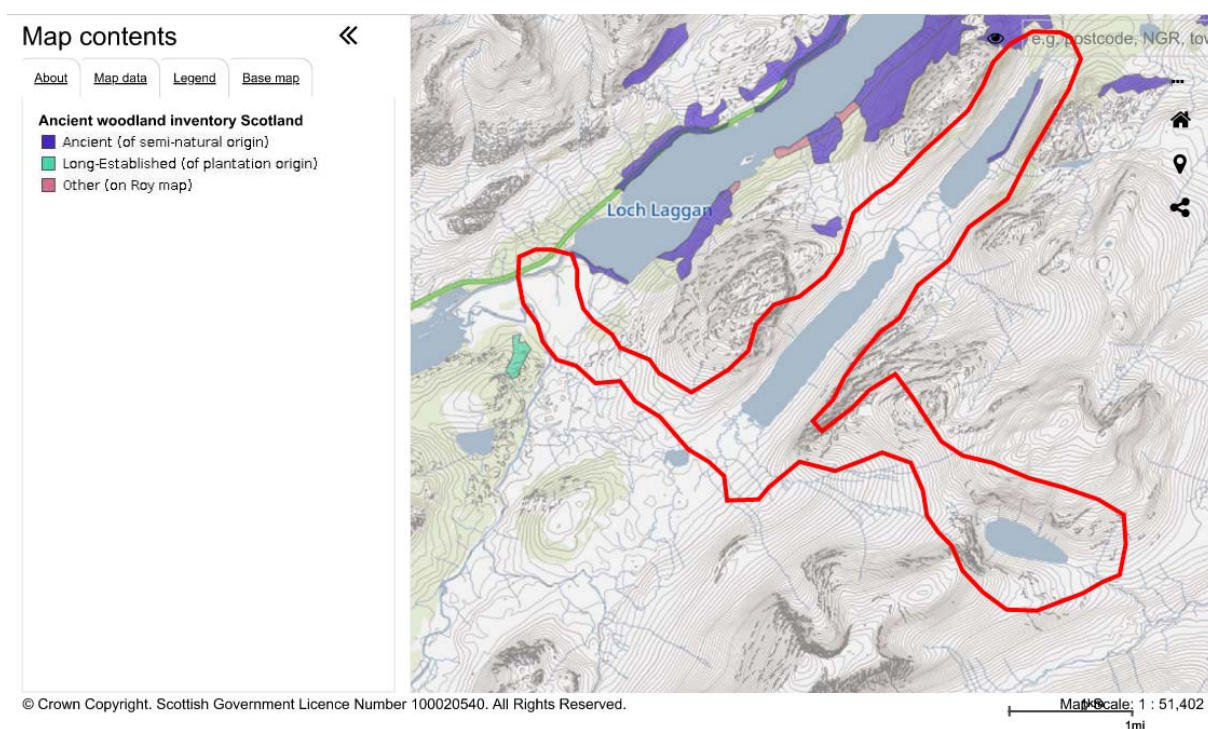


Plate 1: The approximate total survey area (1650 ha) in red with a strip of ancient woodland shown at the north-east of Lochan na h-Earba. Note that only areas with tree cover are part of the forest chapter for this report.

Field Study

9.5.2 Helge Hansen conducted the field survey in July 2023. Most of the site has no or very scattered tree cover. Significant tree cover, although scattered, can be found along the banks and slopes of the northern part of Lochan an na-h Earba. Generally, the lower slopes have very scattered tree cover and would not meet the woodland criteria of 20% tree cover.

9.5.3 Areas with woodland cover are as follows:

Area 1

- 9.5.4 An area at the northern end of Lochan na h-Earba dominated by (planted) semi to early mature Scots Pine in moderate to good condition with a canopy cover of approximately 70%.

Area 2

- 9.5.5 This area (5.35 ha) is recorded as ancient woodland in the Ancient Woodland Inventory (ASNO1860).
- 9.5.6 The area consists of a sparsely stocked narrow riparian strip between the existing estate track and the lochan. Individually trees are often spaced 20 or more meters apart (**Plate 1**). Tree species found here are downy birch, willow, alder, rowan, Scots pine, larch and sycamore.
- 9.5.7 Generally, trees in this area are in moderate to poor condition. There is a lack of young trees probably due to high browsing pressure over the past 20 years or so. Due to the low degree of tree cover this area is not currently considered to be woodland. At the southern end of this area (**Plate 3**) is a small cluster of dense tree cover of approximately 30 early mature and mature Scots pine trees and a similar amount of downy birch and alder trees that are shown as mixed woodland on **Figure 3f** of the habitat survey by Tracks Ecology (EIA Report **Appendix 8.3 – Loch Earba Habitats**).



Plate 2 - shows the scattered nature of the tree cover along the shores of the northern part of the Lochan. The picture shows the view to the north. The lower parts of the slopes to the west of the Lochan are covered by a loose mix of semi to early mature downy birch and Scots Pine



Plate 3 - Small area (0.32ha) of Scots pine, birch, sycamore, alder and willow

Area 3

- 9.5.8 A small (0.9ha) area of mixed woodland consisting of semi to early mature birch (mostly at the lower western edge of this area) and early mature Scots pine. The trees in this area are in moderate to good condition. Tree cover is around 70%. No young trees present.



Plate 4 - Area 3 is a small mixed woodland further up the slopes on the eastern part of Lochan na h' Earba

Area 4

- 9.5.9 This larger (4ha), birch dominated area sits above area 3 and spreads along the middle slopes of the eastern part of the lochan. The early mature trees are generally in good to moderate condition and canopy cover is approximately 50%. No young trees present.

Area 5

- 9.5.10 This small (0.57ha) area is a patch of riparian woodland along a burn that originates from Loch a Coire Chuir. Tree species are mainly willow and birch with some rowans present as well. Trees are predominately semi mature in age.

Area 6

- 9.5.11 This small area (0.8ha) is located to the south of area 5 and consists mainly of semi to early mature birch. Canopy cover is approximately 60%.

Area 7

- 9.5.12 A strip of woodland to the south of the A86 from which access to the site is proposed. This strip contains a few rows of mature Sitka spruce directly to the south of the A86. Then there is a belt of mixed broadleaves that sits between the Sitka and the river Spean. Species include alder, willow, birch, sycamore and Scots pine.



Plate 5 - shows the A86 viewing south with Sitka plantation to the right and a few rows of Sitka to the left.



Plate 6 - shows the riparian strip of woodland to the north of the River Spean

Assessment Methodology

The assessment methodology reported in this is based upon the requirements of the 2017 EIA Regulations.

The assessment is made based on professional judgement, with reference to:

- the sensitivity of the different types of woodland present in the study area taking account of the degree and rate of change in the woodland, both in the recent past and that anticipated in the near future, and therefore the susceptibility/vulnerability of the woodland to change; the quality of the woodland and the extent to which it is rare or distinctive, and the value attributed to the woodland through designations;
- magnitude of change and extent of woodland removal;
- duration and reversibility - timescale of effect (days/weeks/months/years) until recovery. Permanent effects are described as such, and likelihood of recovery is detailed where appropriate; and
- adverse/beneficial - if the effect will be beneficial or detrimental to the feature.

Criteria for Assessing Sensitivity / Importance of Receptors

Four categories of sensitivity / importance of a forest or woodland are defined in **Table 9.2 - Sensitivity Criteria** below.

Table 9.2 – Sensitivity Criteria

Category	Description
High	- Highly valued, subject of national designation e.g Ancient Woodland Category 1a & 2a; - Particularly rare or distinctive in a national context; or - Considered susceptible to small changes.
Medium	- Valued more locally; - Rare or distinctive in a regional context; and/or - Are tolerant of moderate levels of change.
Low	- Generally, more commonplace, not designated; - Considered potentially tolerant of noticeable change; or - Undergoing substantial development such that their character is one of change
Negligible	- Already fundamentally changed (e.g second rotation commercial coniferous plantation); - Considered tolerant of noticeable change; or - Having undergone substantial development such that their character is one of change.

9.5.13 Criteria for assessing the magnitude of change to a forest or woodland is defined in **Table 9.3 - Magnitude of Change**.

Table 9.3 - Magnitude of Change

Category	Description
High	A noticeable change to the woodland over a wide area or an intensive change over a limited area
Medium	Small changes to the woodland over a wide area or a noticeable change over a limited area
Low	Very small changes to the woodland over a wide area or small changes over a limited area
Negligible/None	No discernible change to the woodland

9.5.14 The sensitivity of the woodland and magnitude of change criteria are then used to inform a professional judgement on the likely significance of the effect.

9.5.15 The below **Table 9.4 - Matrix for Determining Significance of Effects** provides a framework for reaching a judgement as to the significance of predicted effects.

Table 9.4 - Matrix for Determining Significance of Effects

		Sensitivity of Receptor/Receiving Environment to Change			
		High	Medium	Low	Negligible
Magnitude of Impact /	High	Major	Major	Moderate	Negligible
	Medium	Major	Moderate	Minor	Negligible
	Low	Moderate	Minor	Minor	Negligible
	Negligible	Negligible	Negligible	Negligible	Negligible

9.5.16 The 2017 EIA Regulations consider major and moderate effects as significant.

Assumptions and Limitations

9.5.17 The assessment has been conducted on 1650 ha owned by Ardverikie Estate, approximately 30km southwest of Kingussie. Of the 1650 ha only 111ha have woodland cover. Seven areas that are affected by the proposed development have been described in more detail.

9.5.18 The felling proposals assume a 20 m hold back distance between infrastructure off the new development (dams and powerhouse etc) and woodland and 5 m hold back distance between the new service track and woodland.

9.5.19 The assessment assumes that the proposed compensatory planting proposal will be implemented.

9.6 Baseline Conditions

Existing Baseline

9.6.1 **Table 9.5** summarises the woodland habitat type by area and percentage of survey area. The total woodland area is 111.02 ha which amount to only 6.71% of the total survey area.

Table 9.5 – Woodland Habitat Type by Area

Phase 1 Habitats	Area (ha)	% of Survey Area
A1.1.1 - Broadleaved Woodland - semi-natural	27.77	1.68
A1.1.2 - Broadleaved Woodland - plantations	1.53	0.09
A1.2.1 - Coniferous Woodland - semi-natural	55.58	3.36
A1.2.2 - Coniferous Woodland - plantations	25.82	1.56
A1.3.1 - Mixed Woodland - semi-natural	0.32	0.02
Totals	111.02	6.71

- 9.6.2 There are areas that have scattered tree cover but don't meet the woodland criteria of 20% tree cover.
- 9.6.3 One of those areas is a 5.35 ha strip of habitat that is recorded as ancient woodland in the Ancient Woodland Inventory (ASNO1860). This area comprises remnants of ancient woodland but is in poor. Given the poor condition of the area recorded in the AWI it would not be reasonable to try to safeguard it.

9.7 Potential Significant Effects

- 9.7.1 This section considers the potential impacts and associated effect significance of the construction and operation of the Proposed Development based on the typical activities described in Chapter 2: The Proposed Development.

Construction Effects

- 9.7.2 The construction of the proposed pumped storage hydro scheme and associated infrastructure require the removal of 7.41 ha of woodland, with a species mix detailed in Table 9.6 below

Table 9.6 – Felling by Species

Species	Area (ha)
Scots Pine	5.48
Sitka Spruce	0.05
Native mixed broadleaves	1.88

- 9.7.3 Due to inundation some areas with scattered tree cover will be lost and this will result in the loss of approximately 500 trees that are not part of the woodland area. Tree species breakdown is approximately 40% downy birch, 40% Scots Pine and some alder, rowan and willow. Approximately 100 of the affected trees are from the 5.35 ha area that is listed on the AWI as ASNO(1860).
- 9.7.4 One of those areas recorded either as woodland (Area 2) or as scattered trees, is a 5.35 ha strip of habitat recorded as ancient woodland in the Ancient Woodland Inventory (ASNO1860). This area comprises remnants of ancient woodland but is in poor condition. Given its poor condition, it is assessed that it would not be reasonable to try to safeguard it.
- 9.7.5 The felling plan (**Figure 9.1**) shows areas where tree felling is required. Where trees are felled, marketable softwood timber will be processed in the Estate's own sawmill or be sold to other sawmills. Small roundwood including hardwoods will be used within Ardverikie Estate as fuel wood.
- 9.7.6 Based on the above, the sensitivity of the construction effects has been assessed as **Medium**, the magnitude of change as **Low**, and the significance of effects as **Minor** (negative).

Operational Effects

- 9.7.7 No adverse significant effects are expected during the operational phase of the scheme.
- 9.7.8 The significant areas of fenced planting and Estate-wide deer reduction detailed in **Appendix 8.6 – Outline Biodiversity Enhancement and Management Plan** would lead to a sensitivity of the construction effects assessed as **High**, the magnitude of change as **High**, and the significance of effects as **Major** (positive).

Cumulative Effects

- 9.7.9 The combination of the proposed woodland regeneration and restoration proposals detailed in **Appendix 8.6 – Outline Biodiversity Enhancement and Management Plan** would take place adjacent to other areas outside Ardverikie Estate that already have significant woodland regeneration schemes ongoing, namely The Creag Meagaidh NNR and Corrour Estate. The adjacency of these schemes to the one submitted for consideration for the Proposed Development should lead to positive cumulative effects on woodland by increasing the area under lower deer densities and by providing connectivity between these areas.

9.8 Mitigation

Mitigation During Construction

Protection of retained woodland and trees

- 9.8.1 After tree felling and extraction of trees is completed, all retained trees and their root systems would be protected. Trees and groups of trees to be removed would require marking by a suitably qualified forest manager. A Tree Protection Plan (TPP) would be prepared by a qualified forest manager for all of the trees that could be affected by the construction of the Proposed Development prior to the commencement of any construction work on site, which would not start until the TPP has been accepted by THC. **Figure 9.1 - Draft TPP for the A86 Access Junction** is attached as an example of the standard of TPP that would also be provided in other areas of the site.

Compensatory planting

- 9.8.2 The permanent loss of 7.41 ha of woodland would be compensated for at a compensation ratio of at least 1:1 in terms of woodland lost to woodland created to be in compliance with the Scottish Government's Control of Woodland Removal Policy (CoWRP). As part of the overall mitigation process, and taking into account losses in biodiversity, a strong compensatory planting scheme of a total of c. 68.4 ha of native woodland is proposed to be planted around infrastructure areas within the site, together with a fenced area of over 1000 ha to include native woodland restoration.
- 9.8.3 The 68 ha of planting is concentrated mainly on the southeastern margins of the proposed inundation zone of Loch Earba where the proposed powerhouse building is situated. Further clusters of planting are along the proposed access track adjacent to existing plantation habitat, and adjacent to the river Spean.

- 9.8.4 The compensatory planting plan (**Figure 2.38 – Landscape Planting Plan**) comprises an upland tree mix and a riparian mix for damper ground, planted at an average density of 1600 trees/ha.
- 9.8.5 The proposed planting mixes are as follows:
- Upland planting mix (c. 47.5 ha):
 - o Downy birch (*Betula pubescens*) 30%
 - o Scots pine (*Pinus sylvestris*) 30%
 - o Woolly willow (*Salix lanata*) 10%
 - o Aspen (*Populus tremula*) 10%
 - o Rowan (*Sorbus aucuparia*) 10%
 - o Hawthorn (*Crataegus monogyna*) <5%
 - o Blackthorn (*Prunus spinosa*) <5%
 - o Juniper (*Juniperus communis*) <5%
 - Riparian planting mix (c. 20.9 ha):
 - o Downy birch (*Betula pubescens*) 30%
 - o Alder (*Alnus glutinosa*) 30%
 - o Willow (*Salix* sp.) 20%
 - o Aspen (*Populus tremula*) 20%
- 9.8.6 Where not within the proposed 1000 ha fenced enclosure, additional deer fences would be erected to protect young trees from browsing damage. Any new fencing proposed would be made visible through the use of pine slats or bright plastic markers, to protect black grouse from collision risk.
- 9.8.7 A qualified and experienced forest manager would be employed to plan, implement, monitor, and manage all works relating to the compensatory planting.

Mitigation During Operation

- 9.8.8 Not required.

9.9 Residual Effects

- 9.9.1 This section considers the potential residual effects and associated effect significance of the construction and operation of the Proposed Development, following the implementation of the mitigation measures proposed in Section 9.8.
- 9.9.2 No residual effects on retained trees are expected.

9.10 Conclusion

- 9.10.1 An assessment has been undertaken of the woodland within the development boundary of the Proposed Development, to assess the potential effects on trees and woodland in relation to the Proposed Development and to recommend appropriate mitigation where adverse effects are unavoidable. The scope of the assessment has been informed by consultation and scoping responses received from The Highland Council, SEPA and Scottish Forestry.
- 9.10.2 The assessment process, prior to the implementation of any mitigation measures, has identified that the loss of 7.41 ha of woodland has a minor adverse effect on woodland and trees in the survey area which has a total woodland cover of 111 ha (6.7% of the survey area). The 2017 EIA regulations consider moderate effects to be significant. Most of the woodland loss happens in semi natural Scots pine woodland which requires felling to build the dam at the northern end of Loch Earba.
- 9.10.3 To mitigate against the loss of 7.41 ha of woodland, a compensation ratio of at least 1:1 in terms of woodland lost to woodland created is required to comply with the Scottish Government's Control of Woodland Removal Policy (CoWRP). As part of the overall mitigation process, and taking into account losses in biodiversity, a strong compensatory planting scheme of a total of c. 68.4 ha of native woodland is proposed to be planted around infrastructure areas within the site.
- 9.10.4 The implementation of the compensatory planting plan would increase the total woodland area within the survey area from 111 ha to 172 ha, an increase of over 60%. Once implemented, the mitigation measures set out in this chapter, no significant adverse residual effects on retained woodlands are predicted to arise from the construction and operation of the proposed pumped storage scheme.
- 9.10.5 In addition to the planting proposed above, an area exceeding 1000 ha encompassing Loch Earba, Binnein Shuas, Binnein Shios and Creag a Chuir would be fenced off from deer to provide areas for regeneration and restoration of native woodland, including at montane elevations. In addition, a 600 ha peatland restoration project and a proposed reduction in deer densities across the wider Ardverikie Estate of 39% from current would also lead to demonstrable benefits for woodland and other moorland habitats. Details of these very significant biodiversity enhancements are detailed in **Appendix 8.6 - Outline Biodiversity Enhancement and Management Plan**. These enhancements are predicted to give rise to a Major positive effect on woodlands.