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Glen Earrach Pumped Storage Hydro

Environmental Impact Assessment Report

Volume 5: Appendices
Appendix 18.1: Woodland Report — Loch Ness

Glen Earrach Energy Ltd

Quality information

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Table of Contents

1.	Introduction	1
2.	Woodland Characteristics	1
2.1	Introduction	1
2.2	Woodland Specialist Flora	2
2.3	Deadwood Habitat	2
2.4	Relic Native Trees.....	2
3.	Development Requirements	8
3.1	Study Area	8
3.2	Wind Blow Risk.....	8
4.	Woodland Management Impact	8
4.1	Loss of Woodland	8
4.2	Mitigation Opportunities	9
5.	Net Effect/Summary.....	9
6.	Compensatory Planting.....	9

Photographs

Photograph 1 - Looking northeast up Loch Ness, demonstrating relic Sessile oak trees and significant understorey of naturally regenerating oak and hazel	4
Photograph 2 - View looking southeast across Loch Ness. Present: relic Sessile oak specimens, significant naturally regenerating understorey of hazel and non-native regeneration of Sitka spruce.....	5
Photograph 3- Looking northeast along the A82. Indicating the proximity of woodland to the public road. Species present: Downy birch and hazel	6
Photograph 4 - Standing deadwood present.....	7
Photograph 5- Looking northeast up Loch Ness. AWI indicator species present: Woodrush and honeysuckle. Healthy understorey of naturally regenerating hazel and oak, alongside standing and fallen deadwood.....	8

Tables

Table 5-1 Woodland removal for Infrastructure, within Proposed Development.....	9
Table 5-2 Compensatory Planting	9
Table 5-3 Woodland Removal Impact of Infrastructure	9

1. Introduction

- 1.1.1 This report has been prepared by Bidwells. As part of the Environmental Impact Assessment (EIA) process, it was identified that the construction and the access tracks required to construct the Proposed Development would cross a woodland area within a single private or publicly owned landholdings.
- 1.1.2 This woodland report assesses the potential impacts of the Proposed Development on the Loch Ness woodlands, focusing on woodland removal requirements and management recommendations to mitigate ecological impacts. The area of Loch Ness woodland discussed within this report can be found on **Figure 18.1 Loch Ness Woodlands Proposed Felling Requirements (Volume 3: Figures)**.
- 1.1.3 The report provides:
- An overview of woodland composition, site conditions, and existing infrastructure;
 - An assessment of forestry-related constraints and environmental considerations;
 - An evaluation of the feasibility of timber extraction and site access; and
 - Mitigation measures to minimise disruption to the woodland ecosystem and surrounding landscape.
- 1.1.4 The findings aim to inform decision-making by identifying key environmental and logistical factors, ensuring that woodland management aligns with best practices and relevant policy requirements.
- 1.1.5 The impacted woodlands form part of a larger forest complex around Loch Ness, with the Proposed Development removing a section of woodland south of the A82. This report examines the characteristics of the affected woodland, including species composition, soil conditions, exposure levels, and existing felling approvals. It also considers access challenges, particularly in relation to access tracks and watercourse crossings, and outlines recommended operational approaches for sustainable forest management in the context of the Proposed Development.
- 1.1.6 This Appendix presents information relevant to the Glen Earrach Pumped Storage Hydro Proposed Development S36 Application. It should be read in conjunction with the EIAR specifically **Chapter 18: Forestry (Volume 2: Main Report)**, for full details of the project.

2. Woodland Characteristics

2.1 Introduction

- 2.1.1 The Proposed Development intersects a native woodland corridor running along the north side of Loch Ness. The Proposed Development Site has a steep gradient, sloping from the A82 down to the loch shore, which influences soil stability, hydrology, and habitat structure.
- 2.1.2 The woodland consists predominantly of native broadleaf species, including:
- Sessile oak (*Quercus petraea*);
 - Downy birch (*Betula pubescens*);
 - Hazel (*Corylus avellana*);
 - Ash (*Fraxinus excelsior*);
 - Willow (*Salix* spp.); and
 - Holly (*Ilex aquifolium*).

- 2.1.3 This species composition is indicative of a W9 woodland community (*Fraxinus excelsior* - *Sorbus aucuparia* - *Mercurialis perennis*), a National Vegetation Classification (NVC)¹ type typically associated with base-rich soils and a diverse herbaceous ground layer.
- 2.1.4 In addition to native tree cover, there is notable non-native regeneration, with Western hemlock (*Tsuga heterophylla*) and Sitka spruce (*Picea sitchensis*) establishing within the woodland.
- 2.1.5 A section of the woodland is designated as Ancient Woodland (AWI) (Ancient or Semi-Natural Origin, Category 1a) by NatureScot² (see **Figure 18.1: Loch Ness Woodland Proposed Felling Requirements**)(Volume 3: Figures). However, significant ancient woodland characteristics extend beyond the formally designated area, suggesting a broader ecological continuity of high conservation value.
- 2.1.6 The woodland contains three key indicators of a healthy ancient woodland habitat, all of which are present in good condition both within and beyond the designated Ancient Woodland areas.

2.2 Woodland Specialist Flora

- 2.2.1 The Proposed Development Site supports ancient woodland indicator species, which are characteristic of long-established woodland and sensitive to environmental change. These species include:
- Herb-robert (*Geranium robertianum*) and wood avens (*Geum urbanum*) – both species are associated with shaded, nutrient-rich soils.
 - Dryopteroid ferns (*Dryopteris* spp.) – important for moisture retention and habitat structure.
 - Honeysuckle (*Lonicera periclymenum*) – a key species for pollinators and nesting birds, often associated with ancient woodland continuity.
 - Greater woodrush (*Luzula sylvatica*) – indicative of undisturbed woodland soil conditions and an important component of the field layer.
- 2.2.2 These species collectively indicate a stable woodland ecosystem with an intact soil profile, supporting a diverse understory.

2.3 Deadwood Habitat

- 2.3.1 A diverse range of deadwood structures is present within the woodland, an essential component of woodland health and biodiversity. This includes:
- Standing dead trees (snags) – ash trees present showing signs of ash dieback disease; and Fallen logs and decaying stumps
 - Woody debris and small branches - The presence of high-quality deadwood features suggests a functioning nutrient cycle and low levels of woodland management intervention, which are characteristic of ancient and semi-natural woodland.

2.4 Relic Native Trees

- 2.4.1 The woodland contains large veteran trees, including sessile oak (*Quercus petraea*) and Downy birch (*Betula pubescens*), which exhibit features associated with long-term ecological stability. These include:
- Substantial trunk girths;
 - Hollowing trunks; and
 - Significant decaying wood presence.
- 2.4.2 These relic trees act as keystone structures, maintaining genetic continuity within the woodland. Their presence enhances the woodland's ecological resilience and historical significance.

¹ JNCC Publication (2004). Available at: [National vegetation classification field guide to woodland | JNCC Resource Hub](#)

² NatureScot (2000). Available at: [Ancient Woodland Inventory](#)

- 2.4.3 The woodland exhibits a natural age-class distribution, with seedling, sapling, and mature trees present throughout. This suggests active regeneration of native species, reinforcing its status as a self-sustaining woodland ecosystem:
- Native regeneration is well-represented, particularly among hazel, oak, holly and birch, which contribute to the structural complexity and long-term stability of the woodland; and
 - The understory layer is intact, with shrubs, young trees, and herbaceous plants present.
- 2.4.4 However, non-native conifer encroachment from Western hemlock and Sitka spruce poses a potential risk to native regeneration by:
- Shading out native saplings, reducing biodiversity in the understory; and
 - Altering soil conditions, impacting the long-term ecological composition.
- 2.4.5 This section of the Proposed Development is sheltered by high ground to the north. The area is moderately exposed with a maximum DAMS score (Detailed Aspect Method of Scoring) of 8³.
- 2.4.6 Access to the Lower Control Works (LCW) will primarily be water via Loch Ness during the Construction phase, however some vehicular access will be required from the A82, necessitating a single priority junction allowing 2-way access for elements of Construction, Operation and maintenance of the Proposed Development.. The chosen location of the proposed junction on the A82 has been governed by the location of the LCW platform, the geometry of the A82, and associated driver visibility. As the proposed access road needs to drop 10 m in elevation to tie in with the LCW platform, the junction with the A82 has been positioned to the north of the platform, at a distance of 310 m, to ensure gradients of the access road are not excessive.
- 2.4.7 Timber extraction to the A82 is feasible; however, most materials will be transported by water via Loch Ness, where feasible. Where materials are required to be transported by road, there is a risk of pollution incidents, particularly sediment runoff and fuel spills. To mitigate these risks, strict environmental management practices will be implemented, including sediment control barriers, designated refuelling zones, and real-time monitoring of watercourses. Additionally, all works will be carried out in accordance with SEPA (Scottish Environment Protection Agency) guidelines to ensure compliance with environmental regulations.
- 2.4.8 Due to the Proposed Development Site's landform and the sensitivity of the surrounding environment, traditional mechanised extraction methods may not be appropriate. Instead, operations will need to rely on hand cutting and low-impact winch removal to minimise soil disturbance and protect existing vegetation. This approach will also reduce the likelihood of erosion and habitat degradation. The use of specialist low-ground-pressure equipment may be considered for areas where winching is impractical.
- 2.4.9 Photographs 1 – 5 show the typical form of woodland in the vicinity of Loch Ness and the A82.

³ Forest Research (2025). Available at: <http://www.forestdss.org.uk/geoforestdss/>

The Detailed Aspect Method of Scoring (DAMS) is a system used to assess wind exposure in forestry and land management. It provides a numerical score that quantifies the level of exposure a site experiences based on factors such as elevation, topography, and aspect (the direction a slope faces). The DAMS score helps foresters predict wind risk, which is crucial for understanding tree stability, growth potential, and the likelihood of windthrow (trees being uprooted or broken by wind). The scoring system ranges from 0 to 24, with higher scores indicating more exposure to wind.



Photograph 1 - Looking northeast up Loch Ness, demonstrating relic Sessile oak trees and significant understorey of naturally regenerating oak and hazel



Photograph 2 - View looking southeast across Loch Ness. Present: relic Sessile oak specimens, significant naturally regenerating understorey of hazel and non-native regeneration of Sitka spruce



**Photograph 3- Looking northeast along the A82. Indicating the proximity of woodland to the public road.
Species present: Downy birch and hazel**



Photograph 4 - Standing deadwood present



Photograph 5- Looking northeast up Loch Ness. AWI indicator species present: Woodrush and honeysuckle. Healthy understorey of naturally regenerating hazel and oak, alongside standing and fallen deadwood

3. Development Requirements

3.1 Study Area

- 3.1.1 The Study Area for this assessment is based on the required Proposed Development footprint (see **Figure 18.1 Loch Ness Woodland Proposed Felling Requirements**)(Volume 3: Figures)). This includes the proposed LCW and permanent access requirements.

3.2 Wind Blow Risk

- 3.2.1 There is minimal risk of windblow as a result of the proposed felling, as indicated by the DAMS score and the topography of the site.

4. Woodland Management Impact

4.1 Loss of Woodland

- 4.1.1 The removal of the woodland within the Proposed Development site will have a limited impact on the surrounding woodland and its ongoing management.
- 4.1.2 The total loss of Native Broadleaved woodland resulting from the Proposed Development is 1.27 hectares (ha).

4.2 Mitigation Opportunities

- 4.2.1 Within the Proposed Development site there is opportunity for the landscape planting of native woodland to screen the site from the A82. **Figure 18.3 Mitigation Plan (Volume 3: Figures)** indicates the proposed compensatory planting areas within the Balmacaan Estate boundary to benefit the environmental value in the area.

5. Net Effect/Summary

- 5.1.1 **Table 5-1 Woodland removal for Infrastructure, within Proposed Development** outlines the operational requirements for forestry management within the Proposed Development Site. It details the areas designated for clear felling, within the Proposed Development Site. **Table 5-2 Compensatory Planting** sets out the associated compensatory planting requirements. **Table 5-3 Woodland Removal Impact of Infrastructure** summaries the net loss of woodland areas.

Table 5-1 Woodland removal for Infrastructure, within Proposed Development

Item	Woodland Type	Area (ha)
Proposed Development felling	Native Broadleaved Woodland	0.51
	Native Broadleaved Woodland (AWI)	0.76
Total area		1.27

Table 5-2 Compensatory Planting

Item	Woodland Type	Area (ha)
Compensatory Planting Area	Native Broadleaved Woodland	1.27
Total area		1.27

Table 5-3 Woodland Removal Impact of Infrastructure

Item	Area (ha)
Total Loss of Woodland Area	1.27
Total Compensatory Planting Area	1.27
Total Net Loss of Woodland Area	0

6. Compensatory Planting

- 6.1.1 Only areas directly impacted by the Proposed Development will be included in the compensatory planting total, in accordance with the Control of Woodland Removal Policy (CoWRP) ⁴. This policy ensures that woodland loss due to development is mitigated by appropriate replanting or regeneration efforts, but it specifically applies to areas where tree removal is necessary for the project. See **Figure 18.3: Mitigation Plan (Volume 3: Figures)**.
- 6.1.2 A total of 1.27 hectares of native woodland is identified for removal as part of the Proposed Development. This includes areas of W9 woodland, containing species such as oak, Downy birch, hazel, ash, willow, and holly, some of which fall within NatureScot's Ancient Woodland Inventory (Ancient or Semi-Natural Origin, Category 1a).

⁴ Forestry Commission Scotland (2009). Control of Woodland Removal Policy. Available at: <https://www.forestry.gov.scot/publications/285-the-scottish-government-s-policy-on-control-of-woodland-removal/viewdocument/285>

- 6.1.3 In line with CoWRP guidance, the total net felling area requiring compensation is 1.27 ha, ensuring no net loss of woodland cover at a national level.
- 6.1.4 The National Planning Framework 4 (NPF4)⁵ sets out Scotland's long-term spatial planning strategy, with a strong emphasis on climate resilience, biodiversity enhancement, and sustainable land use. Under NPF4 Policy 6 (Forestry, Woodland, and Trees), there is a presumption against the loss of ancient and semi-natural woodland and a requirement to compensate for any woodland removal through replanting or enhancement measures.
- 6.1.5 Given that the Proposed Development requires felling of native woodland, a robust replanting strategy is necessary to ensure compliance with NPF4 and mitigate the loss of habitat, carbon sequestration, and biodiversity value.
- 6.1.6 To align with CoWRP and National Planning Framework 4 policy obligations, the Applicant proposes a comprehensive compensatory planting scheme within the Balmacaan Estate. This initiative aims to not only replace the woodland lost due to the Proposed Development but also enhance long-term ecological resilience and biodiversity. **See Figure 18.3: Mitigation Plan (Volume 3: Figures).**
- 6.1.7 Key Commitments of the Compensatory Planting Scheme are as follows:
- Establishment of over 674 hectares of new native woodland, significantly expanding existing habitat networks and increasing overall forest cover.
 - Enhancement and protection of existing ancient woodland, ensuring its long-term viability through restoration, natural regeneration, and targeted conservation measures.
 - Support for climate adaptation efforts, reinforcing Scotland's Net Zero commitments by increasing carbon sequestration and ecosystem resilience.
- 6.1.8 To maximise biodiversity gains and enhance the overall sustainability of the replanting effort, the scheme will incorporate:
- Locally appropriate native tree species, ensuring habitat continuity for native flora and fauna while reflecting the region's natural forest composition.
 - A diverse range of age classes and structural complexity, promoting natural regeneration and creating a more resilient woodland ecosystem over time.
 - Strategic habitat connectivity, linking fragmented woodlands to improve species movement corridors, enhance genetic diversity, and support a broader range of wildlife.
- 6.1.9 Soil and hydrology restoration measures, ensuring that replanting efforts contribute to improved water retention, soil stabilisation, and peatland restoration where appropriate. **Figure 18.3 Mitigation Plan (Volume 3: Figures)** provides an overview of the proposed compensatory planting areas.

⁵ Scottish Government (2023) Available at: [National Planning Framework 4](#)

