

**Creag Dhubh to Inveraray 275 kV
Connection Environmental Impact
Assessment**

Volume 4 | Appendix 8.1

Ecology Methodology and Results

August 2022



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LIST OF ABBREVIATIONS

BAP	Biodiversity Action Plan
BRP	Bat Roost Potential
CEMP	Construction Environmental Management Plan
EclA	Ecological Impact Assessment
ECoW	Ecological Clerk of Works
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EPS	European Protected Species
FLS	Forestry and Land Scotland
GEMP	General Environmental Management Plan
GWLTE	Groundwater Dependent Terrestrial Ecosystem
INNS	Invasive Non-native Species
LOD	Limit Of Deviation
NNR	National Nature Reserve
NS	NatureScot
NVC	National Vegetation Classification
OHL	Overhead Line
RSPB	Royal Society for the Protection of Birds
SAC	Special Area of Conservation
SBL	Scottish Biodiversity List
SEPA	Scottish Environment Protection Agency
SNH	Scottish Natural Heritage (now NatureScot)
SPP	Species Protection Plan
SSSI	Site of Special Scientific Interest
ZOI	Zone of Influence

1 INTRODUCTION

1.1 Introduction

1.1.1 This Appendix presents full details of the methodology and results for the field surveys undertaken for the Proposed Development, including references to best practice, and impact assessment methodology. It should be read in conjunction with **Chapter 8: Ecology** and **Chapter 2: Description of The Proposed Development (EIAR Volume 2)**.

1.2 Method of Baseline Data Collection

Extent of Study Area

1.2.1 The Ecology Study Area comprises an Ecology Desk Study Area and a Ecology Field Survey Area as shown on **Figure 8.1: Ecology Constraints** and **Figure 8.2: Phase 1 Habitats (EIAR Volume 3a)**. The Ecology Desk Study Area comprises a 10 km buffer on either side of the Proposed Development. This area is considered to represent the Zone of Influence (ZOI) in which impacts on ecological features could occur. The Ecology Field Survey Area extended to 250 m beyond the Proposed Development on each side and included the 100 m Limit of Deviation (LOD) of the Proposed Alignment and with the exception of one short section, all new access tracks. The LODs of the proposed OHL and access tracks are shown on **Figure 2.1: Proposed Development (EIAR Volume 3a)**.

1.3 Desk Study

1.3.1 A desk study was undertaken to collect existing baseline data about the Ecology Study Area, as defined above. The desk study searched for:

- the locations of statutory and non-statutory designated nature conservation sites;
- other natural features of potential ecological importance, such as ponds; and
- protected or notable species records.

1.3.2 Examples of notable species include, but are not limited to, national or local Biodiversity Action Plan (BAP) species¹, restricted range species, species or species groups listed for Local Nature Conservation Sites (Local Nature Reserves (LNR), former Sites of Importance for Nature Conservation (SINC) and other local wildlife sites) or key species groups such as invertebrates or non-vascular plants. These species are not considered to have the same importance as those protected by legislation; however, their inclusion allows a more holistic approach and therefore a more robust assessment in line with the Applicant's responsibilities under Schedule 9 of the Electricity Act². Specific legislation for protected species is provided in **Chapter 8: Ecology (EIAR Volume 2)**. This information was used to identify the likely key species for the Site prior to field surveys.

1.3.3 The following data sources were used:

- NatureScot (NS) Sitelink³;
- Scotland's environment carbon and peatland map⁴;
- Multi-Agency Geographic Information for the Countryside (MAGIC)⁵ website; and

¹ Argyll and Bute BAP: https://www.argyll-bute.gov.uk/sites/default/files/argyll_and_bute_council_biodiversity_duty_action_plan_final_version_april_2016_2.pdf [Accessed April 2022]

² Electricity Act (1989): <https://www.legislation.gov.uk/ukpga/1989/29/contents> [Accessed April 2022]

³ NS SiteLink: <https://sitelink.nature.scot/home> [Accessed August 2021]

⁴ Scotland's Environment Carbon and Peatland Map: <https://map.environment.gov.scot/sewebmap/> [Accessed January 2022]

⁵ MAGIC Map: <http://magic.defra.gov.uk/> [Accessed August 2021]

- Google™ Earth Pro.

1.4 Field Surveys

1.4.1 Field surveys were undertaken by Ramboll ecologists Elizabeth Butler and Stuart Abernethy in March 2022. Extended Phase 1 surveys were undertaken across the entire Ecology Field Survey Area, along with targeted National Vegetation Classification (NVC) surveys, Habitat Condition Assessment (HCA) and protected species surveys. The methodologies for these surveys are detailed below.

Extended Phase 1 Habitat Survey

- 1.4.2 Habitat surveys involved a walkover of the Ecology Field Survey Area and a preliminary assessment of key habitats, land use and ecological features, particularly focusing on areas of natural interest that could be affected by the Proposed Development. The main habitats present were recorded using standard Phase 1 Habitat Survey methodology⁶.
- 1.4.3 Target notes were used to recorded habitats and features of particular interest, incidental records of reptiles and amphibians, and the location of suitable habitat for protected or notable species. Target notes are referenced as TN1-10 on **Figure 8.5: Target Notes (EIAR Volume 3a)**. In addition to general habitat classification, a plant species list was compiled (using the nomenclature of Stace (2010)⁷) in each habitat type, with common and Latin names referred to in the first instance then common names used subsequently).
- 1.4.4 The abundance of each species was estimated for each habitat using standard 'DAFOR' codes:
- dominant;
 - abundant;
 - frequent;
 - occasional; or
 - rare.
- 1.4.5 The Ecology Field Survey Area was searched for signs of Invasive Non-Native Species (INNS) subject to legal controls, such as Himalayan balsam *Impatiens glandulifera*.
- 1.4.6 The extended Phase 1 habitat survey assessed the potential for protected species to identify possible ecological constraints and guide recommendations for further species-specific survey.
- 1.4.7 For each area of habitat mapped during the Phase 1 habitat survey, an HCA was undertaken. The HCA followed Scottish Hydro Electric (SHE) Transmission Guidance⁸ and involved scoring each habitat area using established criteria. If a habitat passes all criteria it is considered to be in good condition. If it fails one criteria it is considered to be of moderate condition and if it fails two or more criteria it is considered to be of poor condition. The condition of each habitat is used in the Biodiversity Net Gain (BNG) analysis.

⁶ Joint Nature Conservation Committee (JNCC) (2010), *Handbook for Phase 1 Habitat Survey – a Technique for Environmental Audit*. Peterborough: JNCC.

⁷ Stace, C. (2010), *New Flora of the British Isles*. 3rd Edition. Cambridge: Cambridge University Press.

⁸ SHE Transmission, Biodiversity Net Gain Toolkit User Guide - TG-NET-ENG-526, October 2020

NVC

1.4.8 NVC surveys⁹ were completed to identify potential Ground Water Dependant Terrestrial Ecosystems (GWDTE)¹⁰ and to provide a greater level of detail than the Phase 1 habitat survey for sensitive habitats, such as peatland. The NVC surveys followed the methodology described in best practice guidance¹¹, with five 2 m² quadrats surveyed within each habitat, and the species composition analysed.

Protected Species

Bats

1.4.9 Each tree, excluding trees within coniferous plantation woodland¹², was assessed for its potential to support roosting bats and categorised dependent on the presence of features suitable to support bat roosts. The categories assigned were: High, Medium, Low and Negligible Potential for use by bats. **Table 1.1** provides criteria for each of these categories¹³. The identified trees with Bat Roost Potential (BRP) were inspected from the ground.

Table 1.1 BRP Categories

Roost Potential	Description
High	A tree with one or more potential roost site(s) that is obviously suitable for use by larger numbers of bats on a regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.
Medium	A structure or tree with one or more potential roost site(s) that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status.
Low	A structure with one or more potential roost site(s) that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection and / or suitable surrounding habitat to be used on a regular basis or by a large number of bats (i.e., unlikely to be suitable for hibernation or maternity). Trees of sufficient size and age to contain potential roost features but with none seen from the ground or features seen with very limited roosting potential.
Negligible	Negligible potential for roosting and bats very unlikely to be present.

⁹ Rodwell, J.S. (2006), *National Vegetation Classification: User's Handbook*. Peterborough: JNCC.

¹⁰ Guidance on Assessing the Impacts of Wind farm Development Proposals on Groundwater Abstractions and Groundwater Dependent Terrestrial Ecosystems: https://www.sepa.org.uk/media/143868/lupsgu31_planning_guidance_on_groundwater_abstractions.pdf [Accessed April 2022]

¹¹ Rodwell, J.S. (2006), *National Vegetation Classification: User's Handbook*. Peterborough: JNCC.

¹² All bat species avoid dense coniferous plantation woodland, such as the woodland present on the Site, because it lacks space for foraging, commuting and roosting. Trees are also often felled before potential roost features, such as cracks and crevices, can develop.

¹³ Collins, J. (ed.) (2016), *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (3rd edition.). London: The Bat Conservation Trust.

Protected Terrestrial Mammals

- 1.4.10 The survey searched for evidence of badger *Meles meles*, water vole *Arvicola amphibius*, otter *Lutra lutra*, pine marten *Martes martes*, red squirrel *Sciurus vulgaris* and wildcat *Felis silvestris grampia*. **Table 1.2** identifies the field signs of the aforementioned species and references the relevant survey guidance that was implemented.

Table 1.2 Protected Species Surveys

Protected Species	Field Signs Sought
Badger ¹⁴	Setts, latrines, paths, and foraging signs.
Water Vole ¹⁵¹⁶	Burrows, latrines, feeding stations, runs, or sightings.
Otter ¹⁷	Holts, couches, spraints, feeding remains, footprints, slides, or sightings.
Pine Marten ¹⁸	Scats, footprints, sightings, or dens.
Red Squirrel ¹⁹	Dreys, feeding signs, and sightings.
Wildcat ²⁰	Droppings, footprints, scratch markings, or dens.

1.5 Limitations and Assumptions

- 1.5.1 It should be noted that the availability and quality of the data obtained during desk studies is reliant on third party responses and recorders. This varies from region to region and for different species groups. Furthermore, the comprehensiveness of data often depends on the level of coverage, the expertise and experience of the recorder and the submission of records to the local recorder.
- 1.5.2 The habitat and faunal surveys provide a snapshot of ecological conditions and do not record plants or animals that may be present in the Ecology Field Survey Area at different times of the year. The absence of a particular species cannot definitely be confirmed by a lack of field signs and only concludes that an indication of its presence was not located during the survey effort.

1.6 Impact Assessment Methodology

Criteria for Evaluating the Importance of Ecological Features

- 1.6.1 Habitats and species (i.e. ecological features) identified within the Ecology Field Survey Area have been assigned ecological values using the standard Chartered Institute of Ecology and Environmental Management (CIEEM) scale that classifies ecological features within a defined geographic context²¹.

¹⁴ Badger Surveying: <http://scottishbadgers.org.uk/badger-surveying.asp> [Accessed April 2022]

¹⁵ Capreolus Wildlife Consultancy (2005), *The Ecology and Conservation of Water Voles in Upland Habitats*. Scottish Natural Heritage Commissioned Report No. 099 (ROAME No. F99AC320).

¹⁶ Dean, M., Strachan, R., Gow, D. and Andrews, R. (2016), *The Water Vole Mitigation Handbook*. The Mammal Society Mitigation Guidance Series.

¹⁷ Chanin, P. (2003), *Monitoring the Otter Lutra lutra*. Conserving Natura 2000 Rivers Monitoring Series No 10, Peterborough: English Nature.

¹⁸ Standing Advice for Planning Consultations, Protected Species: Pine Marten: <https://www.nature.scot/sites/default/files/2019-10/Species%20Planning%20Advice%20-%20pine%20marten.pdf> [Accessed April 2022].

¹⁹ Gurnell, J., Lurz, P., McDonald, R. and Pepper, H. (2001), *Practical Techniques for Surveying and Monitoring Squirrels*. Edinburgh: Forestry Commission.

²⁰ Wildcat Survey Methods: <https://www.nature.scot/sites/default/files/2018-04/Guidance-Wildcat-Survey-Methods.pdf> [Accessed April 2022].

²¹ CIEEM (2018), *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine*. Version 1.1.

Winchester: CIEEM.

The classification uses recognised and published criteria^{22,23}, where the ecological features are assessed in relation to their size, diversity, naturalness, rarity, fragility, typicalness, connectivity with surroundings, intrinsic value, recorded history and potential value. **Table 1.3** describes the geographic frame of reference that has been used.

Table 1.3 Geographic Conservation Importance

Importance	Example
International	<p>Internationally designated sites including Special Areas of Conservation (SAC), Ramsar sites, Biogenetic Reserves, World Heritage sites, Biosphere Reserves, candidate SACs and potential Ramsar sites; discrete areas which meet the published selection criteria for international designation but which are not themselves designated as such; or a viable area of a habitat type listed in Annex I of the Habitats Directive²⁴, or smaller areas which are essential to maintain the viability of a larger whole.</p> <p>Resident or regularly occurring populations of species which may be considered at an international level, such as European Protected Species (EPS), the loss of which would adversely affect the conservation status or distribution of the species at an international level; or where the population forms a critical part of a wider population; or the species is at a critical phase of its life cycle.</p>
National	<p>Nationally designated sites including Sites of Special Scientific Interest (SSSI), National Nature Reserves (NNR), Marine Nature Reserves; discrete areas which meet the published selection criteria for national designation but which are not designated as such; or areas of a habitat type identified in the UK Post-2010 Biodiversity Framework²⁵.</p> <p>Resident or regularly occurring populations of species which may be considered at the national level, such as species listed in Schedules 5 and 8 of the Wildlife and Countryside Act²⁶, the loss of which would adversely affect the conservation status or distribution of the species across Britain or Scotland; or where the population forms a critical part of a wider population; or the species is at a critical phase of its life cycle.</p>
Regional	<p>Areas of a habitat type identified in the Regional BAP; viable areas of habitat identified as being of Regional value in the appropriate Natural Heritage Zone(s)²⁷ (or equivalent); or smaller areas of such habitat which are essential to maintain the viability of a larger whole.</p>

²² Ratcliffe, D. (1977), *A Nature Conservation Review*. Cambridge University Press.

²³ Wray, S., Wells, D., Long, E. and Mitchell-Jones, T. (2010), *Valuing Bats in Ecological Impact Assessment*. In Practice. December 2010 pp23-25.

CIEEM, Winchester.

²⁴ EC Directive on the Conservation of Natural Habitats and Wild Flora and Fauna, 92/43/EEC:

http://ec.europa.eu/environment/nature/legislation/habitatsdirective/index_en.htm [Accessed April 2022]

²⁵ UK Post-2010 Biodiversity Framework: <http://jncc.defra.gov.uk/page-6189> [Accessed April 2022]

²⁶ The Wildlife and Countryside Act (as amended): <http://www.legislation.gov.uk/ukpga/1981/69> [Accessed April 2022]

²⁷ The region here is taken to be Natural Heritage Zones 13, 14 and 15: <https://www.nature.scot/sites/default/files/2017-06/B464892%20-%20National%20Assessment%20of%20Scotland%27s%20landscapes%20%28from%20NHF%29.pdf> [Accessed April 2022]

Importance	Example
	Resident or regularly occurring populations of species which may be considered at an international level, or at the national level, the loss of which would adversely affect the conservation status or distribution of the species across the region; or where the population forms a critical part of a wider population; or the species is at a critical phase of its life cycle.
County	<p>Designated nature conservation sites at the local authority level in Scotland including statutory Local Nature Reserves (LNR) and non-statutory Local Nature Conservation Sites; or discrete areas which meet the published selection criteria for designation but which are not designated as such.</p> <p>Resident or regularly occurring populations of species which may be considered at the local authority level, the loss of which would adversely affect the conservation status or distribution of the species across the local authority area.</p>
Local	<p>Features of local value include areas of habitat or populations/communities of species considered to appreciably enrich the habitat resource within the immediate surrounding area, for example, species-rich hedgerows.</p> <p>Resident or regularly occurring populations of species which may be considered at an international level, or at the national level, the loss of which would adversely affect the conservation status or distribution of the species across the immediate surrounding area; or where the population forms a critical part of a wider population; or the species is at a critical phase of its life cycle.</p>

- 1.6.2 A wide range of sources can be used to assign importance to ecological features, including legislation and policy. In the case of designated nature conservation sites, their importance reflects the geographic context of the designation. For example, sites designated as SACs are recognised as being of importance at an international level. Ecological features not included in legislation and policy may also be assigned importance due to, for example, local rarity or decline, or provision of a functional role for other ecological features. Professional judgement is used to assign such importance.

Characterising Impacts

- 1.6.3 The potential impacts upon ecological features have been considered in relation to the Proposed Development. The impacts have been assessed without consideration of any specific mitigation measures that will be employed. The assessment of likely ecological impacts has been made in relation to the baseline conditions of the Ecology Study Area. The likely impacts of development activities upon ecological features have been characterised according to several variables detailed in **Table 1.4**.

Table 1.4 Impact Characterisation

Parameter	Description
Direction	Impacts are either adverse (negative) or beneficial (positive).
Magnitude	This is defined as high, medium, low or negligible, with these being classified using the following criteria:

Parameter	Description
	<p>High: Total/near total loss of a population due to mortality or displacement or major reduction in the status or productivity²⁸ of a population due to mortality or displacement or disturbance. Total/near total loss of a habitat.</p> <p>Moderate: Partial reduction in the status or productivity of a population due to mortality or displacement or disturbance. Partial loss of a habitat.</p> <p>Low: Small but discernible reduction in the status or productivity of a population due to mortality or displacement or disturbance. Small proportion of habitat lost.</p> <p>Negligible: Very slight reduction in the status or productivity of a population due to mortality or displacement or disturbance. Reduction barely discernible, approximating to the 'no change' situation. Slight loss of habitat that is barely discernible from the habitat resource as a whole.</p>
Extent	The geographical area over which an impact occurs.
Duration	The time for which the impact is expected to last prior to recovery of the feature or replacement of the feature by similar resource (in terms of quality and / or quantity). This is expressed as a short-term, medium-term, or long-term effect relative to the ecological feature that is impacted.
Frequency	The number of times an activity occurs will influence the resulting effect (if appropriate, described as low to high and quantified, where possible).
Timing	The timing of an activity or change may result in an impact if it coincides with critical life-stages or seasons e.g. the breeding season.
Reversibility	<p>Irreversible impacts: permanent changes from which recovery is not possible within a reasonable time scale or for which there is no reasonable chance of action being taken to reverse it.</p> <p>Reversible impact: temporary changes in which spontaneous recovery is possible or for which effective mitigation (avoidance/cancellation/reduction of effect) or compensation (offset/recompense/offer benefit) is possible.</p>

- 1.6.4 The assessment only describes those characteristics relevant to understanding the ecological impact and determining the significance of the effect.

Assessment of Potential Effect Significance

- 1.6.5 Significant effects are assessed with reference to the geographic importance of the ecological feature. However, the scale of significance of an effect may not be the same as the geographic context in which the feature is considered important. For example, a significant effect on a species protected by national legislation does not necessarily equate to a significant effect on its national population.
- 1.6.6 For the purposes of Ecological Impact Assessment (EclA), apart from in exceptional circumstances, a significant effect, as defined by the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017²⁹, is only considered to be possible where the feature in question is considered to be of regional, national, or international importance. That is not to say that impacts from the Proposed Development could not result in significant effects on features of county or local importance, simply that those effects are not likely to be significant under EIA Regulations, unless the effect is likely to undermine biodiversity conservation objectives (such as local policies for no net loss) or biodiversity

²⁸ Status is defined as the conservation status of the species and indicates whether the species is likely to become extinct in the near future. Productivity is defined as the rate of population growth.

²⁹ Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017: <http://www.legislation.gov.uk/ssi/2017/101/contents/made>
 [Accessed April 2022].

in general. Whether an effect at local or county importance is considered to be significant or not significant under the EIA Regulations is made clear in the impact assessment of each ecological feature.

Requirements for Mitigation

- 1.6.7 Mitigation and/or compensation is proposed for all effects considered significant under the EIA Regulations. Where appropriate, as part of additional good practice, mitigation and/or compensation may be proposed for significant effects on features of county or local importance, or where required in relation to protected species where legislation may require actions to protect populations or individuals.

Assessment of Cumulative Effect Significance

- 1.6.8 Cumulative effects can result from individually insignificant but collectively significant actions taking place over a period of time or concentrated in a location. Cumulative effects are particularly important in EclAs as many ecological features are already exposed to background levels of threat or pressure and may be close to critical thresholds, where further impacts could cause irreversible decline and significant cumulative effects. Further impacts can also make habitats and species more vulnerable or sensitive to change.
- 1.6.9 Developments included in the cumulative effects assessment are the following types of future development within the same ZOI³⁰:
- proposals for which consent has been applied;
 - projects that have been granted consent but have not yet been started or have been started but are not yet completed (i.e. under construction);
 - proposals that have been refused permission but are subject to appeal; and
 - to the extent that their details are in the public domain, proposed projects that will be implemented by a public body but for which no consent is needed from a competent authority.
- 1.6.10 It may also be necessary to consider developments that are operational but whose full environmental effects are not yet known and cannot be accounted for in the baseline.
- 1.6.11 The ZOI for cumulative effects is considered to be 10 km for ecological features, primarily bat species and otter, due to the distance they are able to travel.

³⁰ CIEEM (2018), *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine*. Version 1.1. Winchester: CIEEM.

2 RESULTS

This section contains the detailed results of the desk study and field surveys undertaken for the baseline data collection.

2.1 Desk Study

Designated Nature Conservation Sites

- 2.1.1 **Table 8.1.5** details the statutory designated nature conservation sites that occur within 10 km of the Proposed Development but are not considered to have connectivity with the Proposed Development. As a result, they are not considered further in this assessment.
- 2.1.2 No non-statutory designated nature conservation sites without connectivity to the Proposed Development occur within 10 km of the Proposed Development.
- 2.1.3 Details of statutory and non-statutory designated nature conservation sites that have potential connectivity with the Proposed Development are included in **Chapter 8: Ecology (EIAR Volume 2)**.
- 2.1.4 All designated nature conservation sites are shown on **Figure 8.1: Ecology Constraints (EIAR Volume 3a)** and detailed in **Table 2.1**.

Table 2.1: Designated Sites (Statutory)

Site Name	Qualifying Features	Distance from Proposed Development at Closest Point (km)	Connectivity with Proposed Development
Ben Lui SAC and SSSI	<ul style="list-style-type: none"> Acidic scree, alpine and subalpine calcareous grasslands, base-rich fens, high altitude plant communities associated with areas of water, montane acid grasslands, mountain willow scrub, species rich grasslands with mat-grass in upland areas, tall herb communities and wet heathland with cross-leaved heather. 	12 km to the north east	Separated from the Proposed Development by extensive upland habitat, therefore no direct or indirect impacts on the qualifying features are considered to be possible.
Glen Shira SAC	<ul style="list-style-type: none"> Old sessile oak <i>Quercus petraea</i> woodland with <i>Ilex</i> and <i>Blechnum</i>. Western acidic oak woodland. 	5 km to the east	Separated from the Proposed Development by forestry and the A819 road, therefore no direct or indirect impacts on the qualifying features are considered to be possible.
Coille Leitire SSSI	<ul style="list-style-type: none"> Upland oak woodland. 	7 km to the north	Separated from the Proposed Development by extensive upland habitats and Loch Awe, therefore no direct or indirect impacts on the qualifying features are considered to be possible.
Beinn an Lochain SSSI	<ul style="list-style-type: none"> Siliceous scree (including boulder fields). 	9.5 km to the south east	Separated from the Proposed Development by forestry and Loch Fyne, therefore no direct or

Site Name	Qualifying Features	Distance from Proposed Development at Closest Point (km)	Connectivity with Proposed Development
	<ul style="list-style-type: none"> Tall herb ledge. Upland assemblage. 		indirect impacts on the qualifying features are considered to be possible.
Hells Glen SSSI	<ul style="list-style-type: none"> Upland oak woodland. Bryophyte assemblage. Lichen assemblage. 	12 km to the south east	Separated from the Proposed Development by forestry and Loch Fyne, therefore no direct or indirect impacts on the qualifying features are considered to be possible.
Ardchyline Woods SSSI	<ul style="list-style-type: none"> Upland oak woodland. 	6 km to the south east	Separated from the Proposed Development by Loch Fyne, therefore no direct or indirect impacts on the qualifying features are considered to be possible.
Dalavich Oakwood SSSI	<ul style="list-style-type: none"> Upland oak woodland. Wet woodland. 	11 km to the west	Separated from the Proposed Development by extensive upland habitat, forestry and Loch Awe, therefore no direct or indirect impacts on the qualifying features are considered to be possible.

2.2 Field Survey

Phase 1 Habitats

2.2.1 The Phase 1 habitats recorded in the Ecology Field Survey Area are described below and shown on **Figure 8.2: Phase 1 Habitats (EIAR Volume 3a)**.

A.1.1.1 Semi-natural Broadleaved Woodland

2.2.2 This habitat type is scattered throughout the Ecology Field Survey Area, with many stands associated with watercourses such as the Allt Barain, Allt a Mhagarain and Allt Thomais. The habitat type is dominated by silver birch *Betula pendula*, ash *Fraxinus excelsior*, sessile oak and alder. Throughout the understory, bracken *Pteridium aquilinum* and broad-buckler fern *Dryopteris dilatata* are abundant, with frequent hard fern *Blechnum spicant*, bilberry *Vaccinium myrtillus*, feather moss *Eurhynchium striatum*, broom fork-moss *Dicranum scoparium*, tufted hair-grass *Deschampsia cespitosa* and sweet vernal-grass *Anthoxanthum odoratum*. Ground-elder *Aegopodium podagraria*, goat willow *Salix caprea*, downy birch *Betula pubescens* and meadowsweet *Filipendula ulmaria* are frequent. Soft rush *Juncus effusus*, bramble *Rubus fruticosus* agg., bog-moss *Sphagnum* sp., and purple moor-grass *Molinia caerulea* are occasional.

A1.1.2 Broadleaved Plantation Woodland.

2.2.3 An area of planted oak *Quercus* sp. and downy birch saplings is present surrounding the farm stead at High Balantyre. These saplings look to have been planted in the past year over marshy grassland habitat. The saplings are protected by tree guards (**Target Note 5, Figure 8.5: Target Notes, EIAR Volume 3a**).

A1.2.2 Coniferous Plantation Woodland

- 2.2.4 Coniferous woodland is one of the most common habitat types within the Ecology Field Survey Area. The habitat is dominated by spruce *Picea sp.*, with occasional Scots pine *Pinus sylvestris*, larch *Larix decidua* and fir *Abies sp.*

A1.3.1 Mixed Semi-natural Woodland

- 2.2.5 Stands of mixed woodland are present within the Ecology Field Survey Area between Carn Odhar and Balantyre Woods. These areas consist of a mixture of broadleaved and coniferous species. Spruce *Picea sp.*, ash and sessile oak are abundant, with occasional Scots pine, larch, downy birch, alder and silver birch.

B2.2 Semi-improved Neutral Grassland

- 2.2.6 An area of semi-improved neutral grassland is present at High Balantyre, occupied as grazing land. The habitat is dominated by meadow grasses *Poa sp.*, mat grass *Nardus stricta*, wavy hair-grass *Deschampsia flexuosa* and tufted hair-grass. White clover *Trifolium repens*, Yorkshire fog *Holcus lanatus* and creeping buttercup *Ranunculus repens* are frequent, along with heath bedstraw *Galium saxatile* and common sorrel *Rumex acetosa*. Soft rush and purple moor-grass are occasional in wetter depressions.

B5 Marshy Grassland

- 2.2.7 This habitat is common throughout the Ecology Field Survey Area on lower-lying lands where conditions are wetter. This habitat type is dominated by soft rush and with abundant mosses, including common haircap *Polytrichum commune*, broom fork-moss and red-stemmed feather-moss *Pleurozium schreberi*. Grasses are frequent, including cock's-foot *Dactylis glomerata* and false oat-grass *Arrhenatherum elatius*. Tormentil *Potentilla erecta* is frequent, along with creeping-Jenny *Lysimachia nummularia*, colt's-foot *Tussilago farfara* and common sorrel. Purple moor-grass and deergrass *Trichophorum cespitosum* are occasional, along with rare pockets of bog-moss, including red bog-moss *Sphagnum capillifolium* and blunt-leaved bog-moss *S. palustre*.

C1 Bracken (Continuous)

- 2.2.8 Stands of continuous bracken are present within the Ecology Field Survey Area, commonly recorded intersecting Operational Corridor (OC) and following watercourses. These areas are dominated by bracken, with occasional broad-buckler fern.

D2 Wet Heath (Wet Dwarf Shrub Heath)

- 2.2.9 This is one of the most common habitat types recorded within the Ecology Field Survey Area. This habitat type is dominated by purple moor-grass, cross-leaved heath *Erica tetralix* and common heather *Calluna vulgaris*. Mosses are abundant, including red-stemmed feather-moss, broom fork-moss, common haircap and springing turf-moss *Rhytidiadelphus squarrosus*. Bog asphodel *Narthecium ossifragum*, bog myrtle *Myrica gale*, heath bedstraw, hare's-tail cottongrass *Eriophorum vaginatum*, common cottongrass *E. angustifolium* and deergrass are frequent. Bog-mosses *Sphagnum sp.*, cranberry *Vaccinium oxycoccos*, common sorrel and reindeer moss *Cladonia portentosa* are occasional, along with black sedge *Carex nigra* and bottle sedge *Carex rostrata*. Spruce *Picea sp.* saplings are rare.

E1.6.1 Blanket Bog

- 2.2.10 This habitat type is common throughout the Ecology Field Survey Area. The bog habitat is dominated by bog-mosses *Sphagnum sp.*, including red bog-moss, blunt-leaved bog-moss and papillose bog-

moss *Sphagnum papillosum*, with abundant feathery bog-moss *S. cuspidatum* and flat-topped bog-moss *S. fallax*. Other mosses, including red-stemmed feather moss and common haircap, are abundant. Soft rush is also frequent, along with hare's-tail cottongrass, common cottongrass, cranberry, tormentil and bog myrtle. Purple moor-grass is occasional, along with black sedge, deergrass, common sorrel, common heather and reindeer moss.

11.1.1 Inland Cliff (Exposure)

2.2.11 Areas of exposed rock occur on higher areas of land within the Ecology Field Survey Area. These areas are mostly exposed rock-face with occasional bracken and broad-buckler fern. Alder and willow species *Salix sp.* are occasional on areas with deeper topsoils.

Habitat Extents

2.2.12 **Table 2.2** provides the extents of all habitat types recorded in the Ecology Field Survey Area.

Table 2.2 Habitat Types

Habitat Type	Area within Ecology Field Survey Area (ha)
A1.1.1 Semi-natural Broadleaved Woodland	77.6
A1.1.2 Broadleaved Woodland Plantation	11.2
A1.2.2 Coniferous Woodland Plantation	152.2
A1.3.1 Mixed semi-natural Woodland	37.5
B2.2 Semi-improved Neutral Grassland	4.9
B5 Marshy Grassland	68.0
C1.1 Continuous Bracken	7.3
D2 Wet Heath	171.8
E1.6.1 Blanket Bog	87.3
I1.1.1 Inland Cliff Exposure	9.0

NVC

2.2.13 The NVC habitats recorded in the Ecology Field Survey Area are shown on **Figure 8.3: NVC (EIAR Volume 3a)** and listed below.

- H2c *Calluna vulgaris* – *Ulex minor* heath with *Molinia caerulea* sub-community;
- M6c *Carex echinata* – *Sphagnum recurvum/ auriculatum* mire with *Juncus effusus* sub-community; and
- M15c *Scirpus cespitosus* - *Erica tetralix* wet heath with *Cladonia sp.* sub-community.

Target Notes

2.2.14 Target Notes recorded during the Phase 1 habitat survey are detailed in

2.2.15 **Table 2.3** and shown on **Figure 8.5: Target Notes (EIAR Volume 3a)**.

Table 2.3 Target Notes

Grid Reference	Target Note Number	Note
NN 08659 18974	TN1	Pine marten <i>Martes martes</i> scat on forestry track.
NN 08215 15321	TN2	Area of silver birch with negligible BRP.
NN 08059 12184	TN3	Large area of planted saplings – oak <i>Quercus sp.</i> and downy birch.
NN 08638 19132	TN4	NVC survey Location 1 on wet heath habitat. M15c <i>Scirpus cespitosus</i> - <i>Erica tetralix</i> wet heath with <i>Cladonia sp.</i> sub-community. Potential moderately GWDTE.
NN 08434 19247	TN5	NVC survey Location 2 on wet heath habitat. H2c <i>Calluna vulgaris</i> – <i>Ulex minor</i> heath with <i>Molinia caerulea</i> sub-community.
NN 08577 19010	TN6	NVC survey Location 3 on marshy grassland habitat. M6c <i>Carex echinata</i> – <i>Sphagnum recurvum/ auriculatum</i> mire with <i>Juncus effusus</i> sub-community. Potential highly GWDTE.
NN 09175 17581	TN7	NVC survey Location 4 on wet heath habitat. M15c <i>Scirpus cespitosus</i> - <i>Erica tetralix</i> wet heath with <i>Cladonia sp.</i> sub-community. Potential moderately GWDTE.
NN 09110 17259	TN8	NVC survey Location 5 on blanket bog habitat. M6c <i>Carex echinata</i> – <i>Sphagnum recurvum/ auriculatum</i> mire with <i>Juncus effusus</i> sub-community. Potential highly GWDTE.
NN 08500 15800 ³¹	TN9	Water vole signs (burrows, latrines and feeding stations)- over 70 m from Towers T17 and T18 bases
NN 08100 15400 ³²	TN10	Water vole signs (burrows, latrines and feeding stations)- over 70 m from Tower T20 base
NN 08080 12393 ³³	TN11	Ancient Woodland along the Allt Criche watercourse within deeply incised gully and including six oak trees with low or medium bat roost potential.
NN 08026 11834	TN12	Three oak trees with low bat roost potential alongside the Erallich Water.

Protected Species

Bats

2.2.16 Nine trees with bat roost potential were identified within the Ecology Field Survey Area as set out in **Table 2.4**.

³¹ Approximate midpoint between cluster of recorded field signs.

³² Approximate midpoint between cluster of recorded field signs.

³³ Approximate midpoint of group of BRP trees

Table 2.4 Trees with Bat Roost Potential

Grid Reference	Note
NN 08102 12377	Oak tree with medium BRP due to split in branch
NN 08112 12375	Oak tree with medium BRP due to split in trunk
NN 08080 12382	Dead oak tree with low BRP under loose bark
NN 08080 12393	Oak tree with low BRP under loose bark
NN 08075 12403	Oak tree with low BRP under ivy and loose bark
NN 08080 12404	Oak tree with medium BRP due to split in branch
NN 08026 11834	Two oak trees with no obvious BRP features but due to age, height and difficulty of viewing upper sections as in full leaf, listed here as having low BRP on a precautionary basis
NN 0795011864	Oak tree with no obvious BRP features but due to age, height and difficulty of viewing upper sections as in full leaf, listed here as having low BRP on a precautionary basis

2.2.17 All other protected species results are provided within **Chapter 8 Ecology, EIAR Volume 2.**