Chapter 8 Ecology

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List of Abbreviations

Abbreviation	Description
AWI	Ancient Woodland Inventory
BAP	Biodiversity Action Plan
BCT	Bat Conservation Trust
BEMP	Biodiversity Enhancement Management Plan
BNG	Biodiversity Net Gain
CEMP	Construction Environmental Management Plan
DSFB	District Salmon Fisheries Board
CIEEM	Chartered Institute of Ecology and Environmental Management
DDS	Deer Distribution Survey
ECoW	Ecological Clerk of Works
EIA	Environmental Impact Assessment

GWDTE	Groundwater Dependent Terrestrial Ecosystems
IEF	Important Ecological Feature
INNS	Invasive non-native species
JNCC	Joint Nature Conservation Committee
NBN	National Biodiversity Network
NHZ	Natural Heritage Zone
NNR	National Nature Reserve
NPF	National Policy Framework
NVC	National Vegetation Classification
OBEMP	Outline Biodiversity Enhancement Management Plan
SAC	Special Area of Conservation
SBL	Scottish Biodiversity List
SEPA	Scottish Environment Protection Agency
SERAD	Scottish Executive Rural Affairs Department
SNH	Scottish Natural Heritage
SPP	Species Protection Plan
SSSI	Site of Special Scientific Interest
UKBAP	United Kingdom Biodiversity Action Plan
WANE	Wildlife and Natural Environment
WEWS	Water Environment and Water Services
WFD	Water Framework Directive

8. Ecology

8.1. Executive Summary

8.1.1. This chapter evaluates the potential effects of the Proposed Development on non-avian ecology including designated sites, terrestrial and aquatic habitats, and protected species. The assessment is based on best practice guidance including the Chartered Institute for Ecology and Environmental Management's (CIEEM) Guidelines for Ecological Impact Assessment in the UK and Ireland. The scope of the ecological assessment and baseline conditions were determined through a combination of desk study, targeted surveys, and consultation with relevant nature conservation organisations.

8.1.2. This process established ecological features that could potentially be affected by the Proposed Development. No potential effects on statutory designated sites were identified. In terms of habitats, the site comprises upland and mire habitats, predominately blanket bog, wet modified bog, wet heath and unimproved acid grassland. Specific surveys were also undertaken for a range of protected species. Evidence of bats, hares, otter, reptiles and water vole were recorded. Brown trout were recorded within watercourses surveyed in relation to the Proposed Development.

8.1.3. The Proposed Development has been designed to minimise impacts on important habitats, peatland and protected species as far as practicable. This has been achieved through embedded mitigation and the iterative design process. This process, combined with further commitments to certain mitigation measures pre-construction, during construction, and during operation allowed potential effects on several habitats and species present to be scoped-out of the assessment. The following Important Ecological Features (IEFs) were taken forward to the assessment stage: ancient woodland, blanket bog and wet modified bog.

8.1.4. Assessment of potential effects and their significance were determined through consideration of the sensitivity of the feature and the magnitude of change. The most tangible effect during construction of the Proposed Development on IEFs would be direct habitat loss due to the construction of infrastructure, in addition to some indirect drainage effects. The assessment concluded that there would be a Minor adverse and Not Significant effect on ancient woodland, blanket bog and wet modified bog. No significant operational, decommissioning or cumulative effects were identified.

8.1.5. A Biodiversity Enhancement Management Plan (BEMP) for the Proposed Development would be developed to compensate for the effects on blanket bog and wet modified bog within the site, and further enhance habitats. With the implementation of the BEMP, overall effects on wet modified bog and blanket bog would be positive with the restoration and enhancement of habitats. As detailed in **Appendix 3.3**, woodland creation through natural regeneration would be included in a Forestry Plan and would reduce adverse effects on ancient woodland.

8.2. Introduction

8.2.1. This chapter provides an assessment of the potential effects of the Proposed Development on non-avian ecology, including designated sites, terrestrial and aquatic habitats, and protected species. This assessment was undertaken by MacArthur Green. All staff contributing to this chapter have professional experience in ecological impact assessment and ecological survey.

8.2.2. This chapter of the EIA Report is supported by the following Technical Appendix documents provided in **Volume 4**:

- Appendix 8.1: National Vegetation Classification (NVC) and Habitats Survey Report;
- Appendix 8.2: Protected Species Survey Report;

- Appendix 8.3: Bat Survey Report;
- Appendix 8.4: Fisheries Survey Report;
- Appendix 8.5: Outline Species Protection Plan; and
- Appendix 8.6: Outline Biodiversity Enhancement Management Plan.

8.2.3. This chapter of the EIA Report is supported by the following Figures provided in **Volume 2**:

- Figure 8.1: Ecological Designated Sites and Ancient Woodland within 5 km;
- Figure 8.2: Carbon and Peatland Map;
- Figure 8.3: National Vegetation Classification (NVC) Survey Area and Survey Results;
- Figure 8.4: Potential Groundwater Dependent Terrestrial Ecosystems (GWDTEs);
- Figure 8.5: Protected Species Survey Area and Results;
- Figure 8.6: Bat Anabat Locations and Preliminary Bat Roost Assessment Survey Area and Results;
- Figure 8.7: Overall Risk Assessment 2022 (May – August) – Common pipistrelle;
- Figure 8.8: Overall Risk Assessment 2022 (May – August) – Soprano pipistrelle;
- Figure 8.9: Fisheries Electrofishing Survey Points and Barriers to Migration; and
- Figure 8.10: Outline Biodiversity Enhancement Management Plan.

8.2.4. This chapter includes the following elements:

- Legislation, Policy and Guidance;
- Consultation;
- Assessment Methods and Significance Criteria;
- Baseline Conditions;
- Potential Effects;
- Cumulative Effects;
- Mitigation;
- Residual Effects;
- Summary; and
- References.

8.3. Legislation, Policy and Guidelines

8.3.1. Relevant legislation, policy and guidance documents have been reviewed and taken into account as part of this assessment and those of particular relevance are listed below.

8.3.2. Legislation:

- European Union Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (‘Habitats Directive’);
- European Union Council Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for the Community action in the field of water policy (‘Water Framework Directive’);
- Environmental Impact Assessment Directive 85/337/EEC, as amended (“EIA Directive”) (as subsequently codified by Directive 2011/92/EU, as amended by Directive 2014/52/EU);
- The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017;
- The Conservation (Natural Habitats &c.) Regulations 1994 (as amended) (‘the Habitats Regulations’);
- The Water Environment and Water Services (Scotland) Act 2003 (WEWS);
- Nature Conservation (Scotland) Act 2004 (as amended);
- Wildlife and Natural Environment (Scotland) Act 2011 (WANE);

- The Water Environment (Controlled Activities) (Scotland) Regulations 2011;
- Salmon and Freshwater Fisheries (Consolidation) (Scotland) Act 2003;
- Wildlife and Countryside Act 1981 (as amended); and
- Protection of Badgers Act 1992.

8.3.3. Guidance and Information:

- CIEEM (2018). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine;
- Collins, J. (2016). Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edition);
- Highland Environment Forum (2021). Highland Nature: Biodiversity Action Plan 2021 – 2026;
- European Commission, Directorate-General for Environment (2010). Wind energy developments and Natura 2000;
- NatureScot (2020a). General pre-application and scoping advice for onshore wind farms;
- JNCC (2019a). Guidelines for selection of biological Sites of Special Scientific Interest (SSSI);
- Scottish Badgers (2018). Surveying for Badgers: Good Practice Guidelines. Version 1;
- Scottish Environment Protection Agency (SEPA) (2017a). Land Use Planning System Guidance Note 4 – Planning guidance on on-shore windfarm developments;
- SEPA (2017b). Land Use Planning System Guidance Note 31 – Guidance on Assessing the Impacts of Development Proposals on Groundwater Abstractions and Groundwater Dependent Terrestrial Ecosystem;
- Scottish Executive (2000). Nature conservation: implementation in Scotland of EC Directives on the conservation of natural habitats and of wild flora and fauna and the conservation of wild birds ('The Habitats and Birds Directives'). Revised guidance updating Scottish Office Circular no. 6/1995;
- Scottish Executive Rural Affairs Department (SERAD) (2001). European Protected Species, Development Sites and the Planning Systems: Interim guidance for local authorities on licensing arrangements;
- Scottish Government (2016). Draft Peatland and Energy Policy Statement;
- Scottish Government (2017b). Planning Advice Note 1/2013 – Environmental Impact Assessment, Revision 1.0;
- Scottish Government (2017c). Planning Circular 1/2017: Guidance on The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017;
- Scottish Government, SNH, SEPA (2017). Peatland Survey – Guidance on Developments on Peatland;
- Scottish Government (2019). The Scottish Forestry Strategy 2019-2029;
- Scottish Government (2020a). EU Exit: The Habitat Regulations in Scotland;
- Scottish Government (2020b). Securing a green recovery on a path to net zero: climate change plan 2018–2032 – update;
- Scottish Government (2020c). Update to the Climate Change Plan 2018-2032;
- Scottish Government (2021). Freshwater and diadromous fish and fisheries associated with onshore wind farm and transmission line developments: generic scoping guidelines;
- SNH (2015). Scotland's National Peatland Plan;
- SNH (2016a). Decommissioning and Restoration Plans for wind farms;
- SNH (2016b). Planning for Development: What to consider and include in deer assessments and management at development sites (Version 2);

- SNH (2016c). Planning for Development: What to consider and include in Habitat Management Plans. Version 2;
- SNH (2018a). Advising on carbon-rich soils, deep peat and priority peatland habitat in development management;
- SNH (2018b). Environmental Impact Assessment Handbook – Version 5: Guidance for competent authorities, consultation bodies, and others involved in the Environmental Impact Assessment process in Scotland;
- Scottish Renewables, SNH, SEPA, Forestry Commission (Scotland), Historic Environment Scotland & Association of Environmental Clerks of Works (AEECoW) (2019). Good Practice During Windfarm Construction (4th Edition);
- NatureScot (2021). Assessing the cumulative landscape and visual impact of onshore wind energy developments; and
- NatureScot, Natural England, Natural Resources Wales, RenewableUK, Scottish Power Renewables, Ecotricity Ltd, the University of Exeter & Bat Conservation Trust (BCT) (2019, with minor updates 2021). Bats and Onshore Wind Turbines – Survey, Assessment and Mitigation.
- NatureScot (2023a). Advising on peatland, carbon-rich soils and priority peatland habitats in development management.

8.3.4. Planning Policy:

- Joint Nature Conservation Committee (JNCC) and Department for Environment, Food and Rural Affairs (DEFRA) (2012). UK Post-2010 Biodiversity Framework;
- Scottish Government (2022a). Onshore Wind Policy Statement 2022;
- Scottish Government (2023). Scottish Biodiversity Strategy to 2045. Tackling the Nature Emergency in Scotland; and
- Scottish Government (2023). National Planning Framework 4.

8.4. Consultation

8.4.1. Consultation for this ecology assessment was undertaken with the organisations shown in **Table 8-1**.

Table 8-1 – List of Consultee Responses

Consultee	Summary of Consultation Response	Applicant Action
The Highland Council Scoping Response (07/04/2022)	The EIA Report must provide a baseline survey of the bird and animals (mammals, reptiles, amphibians, etc) interest on site, as well as habitats present. It should identify rare and threatened habitats, and those protected by European or UK legislation, or identified in national or local Biodiversity Action Plans. Habitat enhancement and mitigation measures should be detailed, in the contexts of both biodiversity and conservation. Details of any habitat enhancement should be provided. It is expected that the EIA Report will address whether or not the development could assist or impede delivery of elements of relevant Biodiversity Action Plans. The presence of protected species such as European Protected Species must be included and considered as part of the planning application process.	Baseline information for ecology features is contained within **Section 8.6.** The local Biodiversity Action Plan (BAP) has been considered within the assessment. An Outline Biodiversity Enhancement Management Plan (OBEMP) has been developed in consultation with the landowners and is included as **Appendix 8.6**. Potential effects on protected species, designated sites, aquatic interests and wild deer are all considered within this chapter.

	The EIA Report should address the likely impacts on the nature conservation interests of all the designated sites in the vicinity of the Proposed Development. The EIA Report needs to address the aquatic interests within local watercourses, including down stream interests that may be affected by the development. If wild deer are present or will use the site an assessment of the potential impact on deer will be required. This should address deer welfare, habitats and other interests. Protected species should be scoped into the EIA and outline Species Protection Plans be provided. Accepted that decommissioning phase impacts will be considered to be similar to construction impacts, and as such no detailed assessment will be included. The Ness Woods SAC is protected for its otter and woodland features. Part of the SAC is located within the application site. The Glen Tarff Site SSSI is also located within the SAC boundary and is also partly located within the application site. NatureScot advise that an otter survey will be required, and an otter protection plan produced to allow impacts on the SAC otter feature to be identified and mitigated. The proposal has the potential to displace deer into the SAC/SSSI and this could in turn impact of the protected woodland features. NS therefore advise that that this is considered as part of the deer assessment within the EIA Report.	An otter survey has been carried out with detailed results included in **Appendix 8.2** and shown on **Figure 8.5.** No protected features were recorded. An Outline Species Protection Plan is included in **Appendix 8.5**, which includes mitigation for otter. As discussed in **Paragraph 8.7.5**, with standard mitigation in place, no impacts on otter within the site or the Ness Woods SAC are anticipated. The site boundary no longer includes the Ness Woods SAC and Glen Tarff SSSI, however these designated sites and potential effects on their qualifying features are considered within the chapter.
NatureScot Scoping Response (28/03/2022)	We note that the Phase 1 and NVC surveys were originally undertaken in 2014. We advise this information should still be relevant providing the habitat on site has not significantly changed during this time. We advise that NVC survey transects should be updated to include any new infrastructure locations not previously surveyed. An OHMP is likely to be required given the nature of the features on the site and the scale of the Proposed Development. Ness Woods SAC is protected for its woodland and otter features and Glen Tarff is protected for its woodland and beetle features. Part of the SAC and SSSI are located within the application site. With regard to the SAC's otter feature, given the SAC is located within the site boundary then it is considered that any otters recorded within the application site will be connected with the SAC. If the updated otter survey records any signs of otter activity then we advise that the SAC's otter feature is scoped into the EIA in order to allow for the completion of a Habitats	Update NVC surveys were undertaken in May 2022 and are detailed in **Appendix 8.1.** Protected species surveys were carried out and are detailed in **Appendices 8.2, 8.3** and **8.4**, with results summarised in **Paragraphs 8.6.39** to **8.6.66.** An OBEMP is included as **Appendix 8.6** which details proposed habitat management for the site. The site boundary no longer includes the Ness Woods SAC and Glen Tarff SSSI, however these designated sites and potential effects on their qualifying features are considered within the chapter, including the potential effects from wild deer.

	Regulations Appraisal. With regards to the SAC and SSSI woodland features, the EIA Report should demonstrate how any potential impacts on these features will be avoided or mitigated. If there are deer present within the application site then the proposal could potentially displace deer into the SAC/SSSI and this could in turn impact of the protected woodland features. We therefore advise that this is considered as part of the deer assessment within the EIA Report. If surveys record any protected species activity then we advise that the relevant species should be scoped into the EIA for further assessment. If wild deer are present on or will use the development site, an assessment of the potential impacts on deer welfare, habitats, neighbouring and other interests (e.g. access and recreation, road safety, etc.) should be presented. Where significant impacts may be caused, a draft deer management statement will also be required to address the impacts.	
SEPA Scoping Response (04/03/2022)	As much of the site is shown to be peatland and/or wetland, we suggest you may wish to go straight to carrying out NVC survey without carrying out Phase 1 and Sniffer assessments. We welcome that a further suite of surveys is to be completed in Spring/Summer 2022 across the site including NVC survey, incorporating Phase 1 and GWDTE habitats and that additional Phase 1 peat survey will be undertaken where gaps in the 2014 data are identified.	Update NVC surveys have been carried out are detailed in **Appendix 8.1.**
Fisheries Management Scotland Scoping Response (28/02/2022)	The Proposed Development falls within the catchment relating to the Ness DSFB. It is important that the proposals are conducted in full consultation with the local DSFB. Due to the potential for such developments to impact on migratory fish species and the fisheries they support, FMS have developed, in conjunction with Marine Scotland Science, advice for DSFBs and Trusts in dealing with planning applications. We would strongly recommend that these guidelines are fully considered throughout the planning, construction and monitoring phases of the Proposed Development.	Ness DSFB have been consulted (below). A fisheries survey report is included as **Appendix 8.4.** Marine Scotland Science guidance has been followed within this assessment.
Ness District Salmon Fisheries Board, E-mail communication (27/09/2022)	2014 fisheries survey report from 2014 is comprehensive and still relevant. Happy for you to include within the ecological assessment.	The fisheries survey report is included as **Appendix 8.4.**

8.5. Assessment Methods and Significance Criteria

Scope of Assessment

8.5.1. This chapter considers the effects of construction, operation and decommissioning (including cumulatively) of the Proposed Development upon those ecological features identified during the review of desk-based information and field surveys. Effects upon the following features are assessed:

- designated nature conservation sites – effects include direct (i.e., derived from land-take or disturbance to habitats or protected species) and indirect (i.e., habitat fragmentation and modification, including through changes caused by impacts to supporting systems such as groundwater or overland flow);
- terrestrial habitats – effects include direct (i.e., derived from land-take) and indirect (i.e., habitat fragmentation and modification, including through changes caused by impacts to supporting systems such as groundwater or overland flow);
- aquatic habitats – effects are limited to the ecological impacts of changes in water conditions through potential pollution effects (hydrological effects are considered in **Chapter 9: Hydrology, Geology and Hydrogeology**); and
- protected species – effects considered include direct (i.e., loss of life as a result of the Proposed Development, loss of key habitat, displacement from key habitat, barrier effects preventing movement to or from key habitats, and general disturbance) and indirect (i.e., loss/changes of/to food resources, populations fragmentation, degradation of key habitat e.g., as a result of pollution).

Elements Scoped Out of Assessment

8.5.2. On the basis of the professional judgement of the EIA team, experience from other relevant projects and policy guidance or standards, and feedback received from consultees, the following species and habitats/habitat features have been scoped out of detailed assessment:

- Generally common and widely distributed habitats or species which do not fall within the following categories were scoped out of the detailed assessment:
  - Habitats listed in Annex I to the Habitats Directive, and species listed in Annex II to the Habitats Directive;
  - Biodiversity Action Plan (UKBAP) or Scottish Biodiversity List (SBL) Priority Habitats; and
  - Habitats or species protected by other legislation such as The Wildlife and Countryside Act 1981 (as amended), the Nature Conservation (Scotland) Act 2004 (as amended), or The Protection of Badgers Act 1992.

8.5.3. Further ecological features and effects have been scoped out of the detailed assessment based on the results of the desk-based study and survey work undertaken for the Proposed Development, due to a lack of potential significant effect at a relevant species population or habitat extent scale. Details of ecological features and effects scoped out after further data searches and post-survey are provided in **Paragraphs 8.7.2** to **8.7.20**.

Study Area/Survey Area

8.5.4. The area within which the desk-based research and field surveys were undertaken varies depending on the ecological feature and its search/survey requirements. Details of the extents are described in **Technical Appendices 8.1 – 8.4** and shown on their respective Figures (**Figures 8.3, 8.5, 8.6 and 8.9**). Hereafter in this chapter, the areas covered by field surveys are termed the 'Survey Area' and these same areas which are considered as part of the assessment process are then collectively referred to as the 'study area'.

Baseline Survey Methodology

Desk Study

8.5.5. A desk study was undertaken to collate available ecological information in relation to the site and surrounding environment. This comprised a search of available online datasets and desk study resources and consultation with conservation organisations. The following data sources were considered as part of the determination of scope of baseline surveys and assessment:

- National Biodiversity Network (NBN) Atlas Scotland (NBN, 2023) for protected or notable species records within 5 km of the site boundary from the last 15 years (i.e., 2008 and onwards);
- NatureScot Sitelink (NatureScot, 2023) for designated site information within 5 km of the site boundary;
- Ancient Woodland Inventory (AWI) (Scotland) (Scottish Government, 2022c) for ancient woodland sites within 5 km of the site boundary;
- Scotland's Environment Map for the Carbon Peatland Map 2016 (Scotland's Soils, 2016);
- SEPA Water Environment Hub for watercourse classification (SEPA, 2015);
- Highland Nature Biodiversity Action Plan 2021-2026 (Highland Environmental Forum, 2021);
- Saving Scotland's Red Squirrels website for local species records and Priority Areas of Red Squirrel Conservation (Scottish Squirrels, 2023);
- Deer Distribution Survey Results by the British Deer Society (BDS, 2016);
- Deer survey results from the Culachy Estate (Bremner, 2022);
- Baseline information published in the course of previous application (14/04782/FUL), and other nearby, wind development applications; and
- relevant scientific literature on protected species, habitats distribution and conservation status.

Field Surveys

8.5.6. The following field surveys were undertaken to further establish the baseline ecological conditions at the Proposed Development (plus appropriate buffers) to inform the assessment and were undertaken in line with standard methodologies and best practice guidance (respective survey areas shown in **Figures 8.3 – 8.9**) (baseline survey information from the 2014 submission within a similar footprint is also considered as part of the baseline survey information):

- NVC surveys, incorporating Phase 1 habitat characterisation (May 2014, May 2022);
- protected species surveys (May 2014, May 2022) focusing on badger (*Meles meles*), red squirrel (*Sciurus vulgaris*), water vole (*Arvicola amphibius*), otter (*Lutra lutra*) and pine marten (*Martes martes*), with follow-up visits in June and August 2022 focusing on water vole;
- preliminary bat roost assessments (May 2014, May 2022, February 2023);
- bat automated activity surveys (May to August 2014 inclusive and May to August 2022 inclusive);
- fisheries surveys (May to June 2014); and
- incidental records of other protected species (such as signs or features of particular importance i.e., potential signs of wildcat (*Felis silvestris*), or potential hibernacula for reptiles), notable species, or invasive non-native species, were also recorded during field surveys.

8.5.7. The full details of survey methods, species-specific legislation and results for surveys undertaken in 2022 are provided within **Appendices 8.1 – 8.3**, with fisheries field surveys from 2014 detailed in **Appendix 8.4**.

8.5.8. Surveys for beaver (*Castor fiber*) and great crested newt (*Triturus cristatus*) were scoped out of field surveys due to the absence of suitable habitat or the site being located outwith the known range or distribution of these species.

Methodology for the Assessment of Effects

8.5.9. The significance of the potential effects of the Proposed Development has been classified using professional judgement of the sensitivity of the ecological features and the spatial and temporal magnitude of change.

8.5.10. The assessment method follows the process set out in CIEEM (2018), which is in line with the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (Scottish Government, 2017a) and guidance on the implementation of the EU Birds and Habitats Directive (SERAD, 2001).

8.5.11. The assessment involves the following process:

- identification of the potential ecological effects of the Proposed Development on ecological features, including both positive and negative;
- considering the likelihood of occurrence of potential effects;
- defining the nature conservation value and conservation status of the ecological features present to determine sensitivity;
- establishing the magnitude of change associated with the potential effect (both spatial and temporal);
- based on the above information, making a professional judgement as to whether or not the resultant effect is significant in terms of the EIA Regulations;
- if a potential effect is determined to be significant, measures to avoid or reduce the effect are considered;
- considering opportunities for enhancement where appropriate; and
- confirming residual effects after mitigation, and, in the event the remaining residual effects are assessed as significant, considering appropriate proposals for compensation.

Sensitivity of Receptors

8.5.12. The sensitivity of the baseline conditions, including the importance of environmental features on or near to the Proposed Development or the sensitivity of potentially affected receptors, will be assessed in line with best practice guidance, legislation, statutory designations and/or professional judgement.

8.5.13. Determination of the level of sensitivity of an ecological feature is based on a combination of the feature's nature conservation value and conservation status. Nature conservation value is defined on the basis of the geographic context given in **Table 8-2** (which follows the guidance as detailed within CIEEM, 2018).

8.5.14. Attributing a value to an ecological feature is generally straightforward in the case of designated sites, as the designations themselves are normally indicative of an importance level. For example, an SAC designated under the Habitats Directive is implicitly of European (International) importance. In the case of species, assigning value is less straightforward as contextual information about distribution and abundance is fundamental, including trends based on historical records. This means that even though a species may be protected through legislation at a national or international level, the relative value of the population on site may be quite different (e.g., the site population may consist of a single transitory animal, which within

the context of a thriving local/regional/national population of a species, is therefore of local or regional value rather than national or international).

8.5.15. Determination of the level of importance of ecosystems, habitats and species is based on professional judgement and a combination of factors, such as level of protection, rarity, conservation status, population trends, and quality/extent of the feature on site. Published evaluation criteria (e.g., the SBL, JNCC on selection of biological SSSIs) are used where relevant.

8.5.16. As per CIEEM (2018) guidance, it is not necessary to carry out detailed assessment on features that are sufficiently widespread, unthreatened, and resilient to effects of the Proposed Development. Those ecological features affected by the Proposed Development and deemed to be of at least local importance are termed Important Ecological Features (IEFs) and are taken forward for assessment.

Table 8-2 – Approach to Valuing Ecological Features (Adapted from Hill et al., 2005)

Importance of Feature in Geographical Context	Description
International/European	An internationally designated site (e.g., SAC), or undesignated areas that meet the criteria for international designations, or qualifying species whose presence contributes to the maintenance of such a site. Species present in internationally important numbers (>1 % of biogeographic populations).
National (UK)	A nationally designated site (e.g., SSSI, or a National Nature Reserve (NNR)), or sites meeting the criteria for national designation or qualifying species whose presence contributes to the maintenance of such a site. Species present in nationally important numbers (>1 % of UK population).
Regional (Natural Heritage Zone or Local Authority Area)	Regionally significant and viable areas of key habitat identified in a regional BAP. Species present in regionally important numbers (>1 % of Natural Heritage Zone (NHZ) population). Areas of key habitat falling below criteria for selection as a SSSI (e.g., areas of semi-natural ancient woodland larger than 0.25 hectares (ha)).
Local	A site within the local area designated for nature conservation (e.g., Local Nature Reserves). Areas of semi-natural ancient woodland smaller than 0.25 ha. Areas of habitat or species considered to appreciably enrich the ecological resource within the local context, e.g. species-rich flushes or hedgerows.
Negligible	Usually widespread and common habitats and species that do not meet the above criteria. Features falling below local value are not considered in detail in the assessment process.

Magnitude of Change

8.5.17. Magnitude of change refers to the level of change in the extent and integrity of an ecological feature. A suitable definition of ecological 'integrity' is found within Scottish Executive circular 6/1995 updated by Scottish Executive (2000) which states that "*The integrity of a site is the coherence of its ecological structure and function, across its whole area, which enables it to sustain the habitat, complex of habitats and/or the levels of populations of the species for which it was classified*". Although this definition is used specifically regarding European level designated sites (e.g., an SAC), it is applied to wider countryside habitats and species for the purposes of this assessment.

8.5.18. The magnitude of potential change will be identified using professional judgement, and best practice guidance and legislation, and consideration of the predicted degree of change (extent/scale) to baseline conditions, how the ecological features are likely to respond, and the duration, frequency/timing, likelihood of occurrence and reversibility of an effect.

8.5.19. Magnitude of change is considered in terms of space and time. There are five levels of spatial change and five levels of temporal change, as described in **Table 8-3** and **Table 8-4**.

Table 8-3 – Definition of Spatial Effect Magnitude upon the IEFs

Magnitude of Change	Definition
Very High	Would cause the loss of the majority of a feature (>80 %) or would damage a feature sufficiently to immediately affect its integrity.
High	Would have a major effect on the feature or its integrity, for example more than 20 % habitat loss or damage.
Medium	Would have a moderate effect on the feature or its integrity, for example between 10 and 20 % habitat loss or damage.
Low	Would have a minor effect upon the feature or its integrity, for example, less than 10 % habitat loss or damage.
Negligible	Minimal change on a very small scale; effects not dissimilar to those expected within a 'do nothing' scenario.

Table 8-4 - Definition of Temporal Effect Magnitude upon the IEFs

Magnitude of Change	Definition
Permanent	Effects continuing indefinitely beyond the span of one human generation (taken here as >30 years), except where there is likely to be substantial improvement after this period in which case the category Long Term may be more appropriate.
Long Term	Between 15 years up to (and including) 30 years.
Medium Term	Between 5 years up to (but not including) 15 years.
Short Term	Up to (but not including) 5 years.
Negligible	No effect.

Significance of Effect

8.5.20. The significance of potential effects is determined through a standard method of assessment based on professional judgement and available evidence, considering the sensitivity (nature conservation value and conservation status) of the IEF and the nature and magnitude of change, in a reasoned way.

8.5.21. A significant effect may either support or undermine biodiversity conservation objectives. Significant effects include those which result from impacts on the structure and function of defined sites, habitats or ecosystems and the conservation status of habitats and species (including extent, abundance and distribution) (CIEEM, 2018).

8.5.22. **Table 8-5** details the significance criteria that have been used in assessing the effects of the Proposed Development.

Table 8-5 – Significance Criteria

Magnitude of Effects	Definition
Major	The effect is likely to result in a long term effect on the structure and function of defined sites, habitats or ecosystems or on the conservation status of habitat and species.
Moderate	The effect is likely to result in a medium term or partial effect on the structure and function of defined sites, habitats or ecosystems or on the conservation status of habitats and species.
Minor	The effect is likely to affect the feature at a low level by virtue of its limited duration and/or extent, but there will probably be no effect on the structure and function of defined sites, habitats or ecosystems or on the conservation status of habitats and species.
Negligible	No material effect.

8.5.23. Using these definitions, it must be decided whether there would be any effects which would be sufficient to adversely affect the IEF to the extent that its conservation status deteriorates from that which would be expected should baseline conditions remain (i.e., the 'do nothing' scenario).

8.5.24. Major and moderate effects are considered to be significant within the context of the EIA Regulations.

8.5.25. Where adverse effects are identified, mitigation and/or compensation is considered to reduce or offset effects where possible, including avoidance or reduction through implementation of and compliance with best practice guidance and protected species legislation.

8.5.26. Residual effects are characterised as either adverse, neutral or beneficial and either significant or not significant, taking account of mitigation proposals.

Cumulative Assessment

8.5.27. Cumulative effects require the assessment of effects of the Proposed Development in combination with other developments, projects or activities (NatureScot, 2021). In the interests of focusing on the potential for significant effects, this assessment considers the potential for cumulative effects with other onshore wind farm EIA developments. The context in which these effects are considered is heavily dependent on the ecology of the features assessed. For example, for water voles it may be appropriate to consider effects specific to individual catchments, should the distance between neighbouring catchments be sufficient to assume no movement of animals between them, whereas for blanket bog the region or NHZ may be the relevant spatial scale. Therefore, where it is considered necessary, an assessment of cumulative effects will be made for each feature, appropriate to its ecology.

Assessment Limitations

8.5.28. Limitations exist regarding the knowledge base on how some species, and the populations to which they below, react to impacts. A precautionary approach is taken in these circumstances, and as such it is considered that these limitations do not affect the robustness of this assessment.

8.5.29. Ecological surveys are limited by factors which affect the presence of plants and animals such as the time of year, migration patterns and behaviour. The ecological surveys undertaken to support the Proposed Development have not therefore produced a complete list of plants and animals and the absence of evidence of any particular species should not be taken as conclusive proof that the species is not present or that it will not be present in the future.

8.5.30. No notable limitations were experienced with regards to habitats, protected species or bat field surveys (see **Appendices 8.1 - 8.4**).

8.5.31. Whilst some limitations have been identified, it is considered that there is sufficient information to enable a robust assessment to be made in relation to potential significant effects on ecological features.

Embedded Mitigation

Iterative Design Process

8.5.32. As part of the iterative design process for the Proposed Development, ecological constraints identified through baseline survey results were considered to avoid or reduce negative effects on ecological features where possible (see **Chapter 2: Site Selection and Design Iteration**). This involves:

- Maintenance of a minimum 50 m buffer for any infrastructure or construction activity around all watercourses, except where a minimum number of watercourse crossings are required. This will minimise effects on associated habitats and species;
- Designing track length and alignment to reduce the extent of new track and number of watercourse crossings required, where feasible considering the topography of the site;
- Avoiding deeper peatland (>1 m), blanket bog and wet modified bog, and potential high GWDTEs, for the location of turbines and other infrastructure as far as practicable; and
- Establishing a 50 m buffer from turbine blade tips to edge of habitats, as per NatureScot *et al.* (2019), across the site to safeguard bats.

Pre-construction and Construction

8.5.33. The assessment in this EIA Report has been carried out on the basis that all works would be carried out in accordance with industry good practice construction measures, guidance and legislation.

8.5.34. To ensure all reasonable precautions are taken to avoid negative effects on habitats, protected species and aquatic interests, a suitably qualified Ecological Clerk of Works (ECoW) will be appointed prior to the commencement of construction to advise the Applicant and the Contractor on all ecological matters. The ECoW will be required to be present on-site during the construction phase and will carry out monitoring of works and briefings with regards to any ecological sensitivities on the site to the relevant staff of the Contractor and subcontractors.

8.5.35. A Species Protection Plan (SPP) (draft provided in **Appendix 8.5**) will be implemented during the construction phase. The SPP details measures to safeguard protected species known or likely to be in the area. The SPP includes pre-construction surveys and good practice measures during construction. Pre-construction surveys will be undertaken to check for any new protected species or features in the vicinity of the construction works. The results of the pre-construction surveys will be used to update the outline SPP ahead of construction starting. The SPP will remain a live document to be updated as required and in agreement with the ECoW where changes to the distribution and status of protected species and features are recorded.

8.5.36. Any micrositing of infrastructure will be based on a review of existing ecological data and the completion of pre-construction surveys, to take into consideration the potential for direct encroachment onto protected species features, sensitive habitats or GWDTEs, or indirect alteration of hydrological flows supporting sensitive habitats or GWDTEs. Any micrositing will also take into consideration any buffer distances on protected features identified, as detailed within the SPP (**Appendix 8.5**).

8.5.37. There will be a contractual management requirement for the successful Contractor to develop and implement a comprehensive and site-specific robust Construction Environmental Management Plan (CEMP) (Outline CEMP included in **Appendix 3.1**). This document will detail how the successful Contractor would manage the works in accordance with all commitments and mitigation detailed in the EIA Report, the SPP, statutory consents and authorisations, and industry good practice and guidance for environmental management, including implementation of appropriate pollution prevention (particularly in relation to watercourses).

Operation

8.5.38. In line with best practice guidance on bats (NatureScot *et al.* 2019, minor changes 2021) the development will utilise the method of reduced rotation speed whilst idling by feathering, at all turbines, to reduce collision risks to bats during the bat active period (April to October). The guidance notes that "*The reduction in speed resulting from feathering compared with normal idling may reduce fatality rates by up to 50 %*". Given the known presence of high collision risk bat species on-site (see **Appendix 8.3** and **Section 8.6** below), this measure will be put in place from the start of the operational period of the Proposed Development and does not result in any loss of output.

8.5.39. Operational phase environmental management plans following relevant best practice and guidance will be in place during operation of the Proposed Development, these will for example include provisions for, but not limited to, ongoing pollution prevention control measures.

8.6. Baseline Conditions

8.6.1. This section details the results of the desk study and field surveys, providing the ecological baseline for the site and study area, and includes:

- statutory nature conservation designated sites (not including those designated for only ornithological or geological features);
- habitats and vegetation; and
- protected or notable species.

Desk Study

Designated Sites

8.6.2. There is one SAC and two SSSIs within 5 km of the site boundary that contain ecological qualifying interests (non-avian) (NatureScot, 2023b). Details of these sites are listed in **Table 8-6** and shown in **Figure 8.1**.

8.6.3. The Ness Woods SAC (concurrent with the Glen Tarff SSSI) is approximately 20 m from the site boundary, with the closest new infrastructure approximately 270 m away (temporary construction compound). The SAC is composed of three areas of woodland running alongside and to the south of Loch Ness, containing a mix of woodland habitats which, together with several watercourses that run through the site, provide suitable habitat for otters (NatureScot, 2020c). The woodlands are considered to be in unfavourable condition due to grazing pressure, poorly developed understorey and canopy cover, and limited woodland regeneration. The last site condition monitoring survey in 2011 concluded that otter are also in unfavourable condition at the site due to a decline in field signs recorded; however, the level of confidence in the survey is low due to difficult surveys conditions and access restrictions to an area where field signs had previously been recorded.

8.6.4. Glen Tarff SSSI is notified for its gorge woodland habitats as well as for the rare beetle *Bolitophagus reticulatus* which is found at the site. This beetle is characteristic of old birch woodland, and the species' larvae feeds on the bracket fungus *Fomes fomentarius* which colonises old birch trees. Habitats found within Glen Tarff include rocky ground and tree roots which provide suitable sites for otter holts (NatureScot, 2023b).

Table 8-6 – Ecological Designated Sites within 5 km of the site

Site Name	Distance to Site Boundary	Qualifying Interest	Condition and Last Assessed Date
Ness Woods SAC	0.02 km	Mixed woodland on base-rich soils associated with rocky slopes	Unfavourable No change (30 June 2008)
		Otter (*Lutra lutra*)	Unfavourable Declining (21 September 2011)
		Western acidic oak woodland	Unfavourable No change (30 June 2008)
Glen Tarff SSSI	0.02 km	Beetle (*Bolitophagus reticulatus*)	Favourable Declining (15 July 2015)
		Upland mixed ash woodland	Unfavourable No change (24 May 2016)
Easter Ness Forest SSSI	3.7 km	Upland mixed ash woodland	Unfavourable No change (9 May 2008)
		Upland oak woodland	Unfavourable No change (9 May 2008)

Ancient Woodland

8.6.5. There are a number of places where areas listed on the AWI fall within the site boundary (**Figure 8.1**), all of which are classified as Ancient (of semi-natural origin). Larger areas of ancient woodland fall within the surrounding area, including sections which correspond with the Glen Tarff SSSI and Ness Woods SAC woodlands to the east. There is one area of overlap between AWI and the Proposed Development itself known as Coille a Cholumain; this is a section of existing track that passes through scattered woodland and requires some cut and fill earthworks on both verges.

Local Biodiversity Action Plan

8.6.6. The Highland Nature Biodiversity Action Plan 2021-2026 (Highland Environment Forum, 2021) lists beaver, hedgehog (*Erinaceus europaeus*), mountain hare (*Lepus timidus*), red squirrel, Scottish wildcat, water vole, pine marten, brown long-eared bat (*Plecotus auratus*), Daubenton's bat (*Myotis daubentonii*), Natterer's bat (*Myotis nattereri*), common pipistrelle (*Pipistrellus pipistrellus*), soprano pipistrelle (*Pipistrellus pygmaeus*) and Nathusius' pipistrelle (*Pipistrellus nathusii*) as priority mammal species. Priority fish species include Atlantic salmon (*Salmo salar*), Arctic char (*Salvelinus alpinus*), European eel (*Anguilla anguilla*) and lamprey. The plan also lists a number of trees, plants, bryophtyes, fungi and lichens, and a number of invertebrates that these habitats support.

8.6.7. The plan details the invasive non-native species (INNS) that are of most concern and outlines a commitment to avoid the introduction or spreading of INNS through development activities.

8.6.8. The plan includes aims and commitments for improving habitats. Upland and moorland, and peatland and wetland are both included, which form the majority of the habitat types on site. Woodland and forest is also considered, encouraging native woodland planting and control of grazing by deer. A 50 year vision for freshwater habitats (rivers, burns and lochs) states the aim for the removal of unnecessary river barriers, and the plan more generally outlines the need to improve the quality of freshwater systems within the highlands.

Habitats

Terrestrial Habitats

8.6.9. The Carbon and Peatland Map 2016 (Scottish Soils, 2016) was consulted to determine likely peatland classes present within the site. The map is a predictive tool that provides an indication of the likely presence of peat at a coarse scale. The map has been developed as "*a high-level planning tool to promote consistency and clarity in the preparation of spatial frameworks by planning authorities*". It identifies areas of "*nationally important carbon-rich soils, deep peat and priority peatland habitat*" as Class 1 and Class 2 peatlands. Class 1 peatlands are also "*likely to be of high conservation value*" and Class 2 "*of potentially high conservation value and restoration potential*".

8.6.10. **Figure 8.2** indicates that, according to this predictive tool and map, Class 1 and Class 2 peatlands cover much of the site, with most turbines situated on Class 1 peatland (**Figure 8.2**).

8.6.11. As the Carbon and Peatland Map is a high-level tool, detailed habitat and peat depth surveys have been carried out across the site to inform siting, design and mitigation and the detailed assessment on peatland and associated habitats. The results of the habitat surveys are discussed in **Appendix 8.1**, and the results of the peat depth surveys are presented and discussed in **Chapter 9: Hydrology, Geology and Hydrogeology** and associated Appendices.

8.6.12. A Peatland Action feasibility study exists for an area of land that overlaps with the site boundary (Peatland Action, 2023). Peat depth surveys recorded varying depths of less than 0.5 m to up to 4 m. The condition category information for this study suggests that the peatland was largely either Drained (artificial drainage) or Modified, with scattered points recorded as being in Near Natural condition. Within the site boundary, all points were recorded as either Modified or Drained.

Aquatic Habitats

8.6.13. The site includes several watercourses which fall within River Ness catchment, with watercourses on site feeding into the River Tarff and Loch Ness (see also **Chapter 9: Hydrology, Geology and Hydrogeology**).

8.6.14. The River Tarff/Allt Lagan a'Bhainne (SEPA ID:23915) is designated as a heavily modified water body and was assessed by SEPA in 2014 as part of their Water Framework Directive (WFD) Classification as having Good overall condition, with High water quality and High accessibility for fish migration (SEPA, 2015).

Protected Species (non-avian)

8.6.15. Data from the NBN Atlas Scotland (2023) obtained as part of the desk study indicated that the following protected or notable species have been recorded within 5 km (10 km for bats) of the site within the last 15 years (i.e., 2008 and onwards) (data licences and providers are detailed in **Appendices 8.2** and **8.3**):

- *bolitophagus reticulatus* beetle*;*
- brown hare;
- brown long-eared bat;
- common lizard (*zootoca vivipara*);
- otter;
- red squirrel; and
- soprano pipistrelle.

8.6.16. Sightings of red squirrels have been recorded by Saving Scotland's Red Squirrels (Scottish Squirrels, 2023) within 5 km of the Proposed Development each year since 2013.

Fish

8.6.17. The most recent Annual Report for the Ness District Salmon Fishery Borad (NDSFB) states that the River Tarff, into which watercourses on the site drain, supports populations of Atlantic salmon (*Salmo salar*), but that the river is impacted by hydroelectric schemes (NDSFB, 2021).

8.6.18. The report also outlined measures taken within the catchment to deal with invasive non-native riparian plant species (NDSFB, 2021). Such plant species identified within the wider catchment were American skunk cabbage (*Lysochiton americanus*), giant hogweed (*Heracleum mantegazzianum*), Japanese knotweed (*Fallopia japonica*) and Himalayan balsam (*Impatiens glandulifera*).

Other Species

Deer

8.6.19. Deer are not included in the assessment from a nature conservation perspective, but are considered due to potential welfare issues and their potential to impact on other ecological features through grazing.

8.6.20. Data from the NBN Atlas Scotland (2022) contained records of red (*Cervus elaphus*) and Sika (*Cervus nippon*) deer within 5 km of the site (see **Appendix 8.2**). Data from the Deer Distribution Survey (British Deer Society, 2016) confirmed the presence of the following deer species on site:

- fallow deer (*Dama dama*) – not recorded in 2007 and/or 2011, but confirmed in 2016;
- red deer – recorded in 2007 and/or 2011 and in 2016;
- roe deer (*Capreolus capreolus*) – recorded in 2007 and/or 2011 and in 2016; and
- Sika deer – recorded in 2007 and/or 2011 and in 2016.

8.6.21. Data on red deer numbers and culls was obtained from the Culachy Estate. The most recent density calculation for red deer on the estate, from 2019, was 9 deer/km^2 (Bremner, 2022).

8.6.22. In terms of habitat suitability within the site boundary, discrete areas of broadleaved semi-natural woodland and conifer plantation could provide shelter for deer species, with open areas of grassland and upland habitats throughout providing grazing and commuting opportunities.

8.6.23. The Ness Woods SAC Conservation Advice Package (NatureScot, 2020) details that there are herbivore impacts on the qualifying habitats, including a shortage of young native trees and saplings. Fencing has taken place in some areas to help manage grazing impacts, however, some are not excluding grazing sufficiently.

Invasive Non-Native Species (INNS)

8.6.24. INNS are a threat to biodiversity and there is a legal obligation to control their spread. Records of American mink (*Neovison neovison*) were identified during the desk study within 5 km of the site in the last 15 years (NBN Atlas Scotland, 2023; see also see **Appendix 8.2**).

Field Surveys

8.6.25. Details regarding field survey methodologies, survey timings, survey area extents, and results are included within **Appendices 8.1 – 8.4.** The following sections summarise the baseline conditions as identified during these surveys.

Habitats

National Vegetation Classification (NVC) and Phase 1

8.6.26. **Technical Appendix 8.1** presents the detailed descriptions of habitats from the surveys.

8.6.27. The NVC data collected were cross-referenced to the Phase 1 Habitat Survey Classification (JNCC, 2010) to allow a broader characterisation of habitats. The extent of Phase 1 habitat types within the study area[1] was calculated using the correlation of NVC communities to their respective Phase 1 types specific to the site (see **Appendix 8.1** for details), and their extents mapped within ArcGIS software, including within mosaic areas. The NVC communities and non-NVC types recorded within the study area are provided in **Annex A, Annex A**

8.6.28. Table 8-10 (located at the end of this chapter) and include proportions of particular habitat types that are found within the site, including those within mosaic habitats. Full descriptions of the habitats, NVC communities and associated flora of the Proposed Development Area and wider survey area are provided in **Appendix 8.1**.

8.6.29. The habitats are shown on **Figure 8.3** which display all data collected during surveys. Due to changes in the site boundary during the baseline survey period, and to provide survey buffers to account for the presence of potential GWDTE (where land access permission allowed), in some areas the survey area extended beyond the site. The Phase 1 symbology shading in **Figure 8.3** has been used to broadly characterise stands of vegetation based on the dominant NVC community within a particular area[2].

8.6.30. **Diagram 8-1** summarises the Phase 1 habitats which contribute over 1% of the study area and shows that blanket bog 55%, wet modified bog 14%, wet heath 16% and unimproved acid grassland 8%, make up the majority of the study area. As detailed in **Annex A, Annex A**

[1] The habitat extents provided and discussed within this chapter relate only to those within the Proposed Development Area (i.e., the habitats study area) as these form the baseline conditions and the basis for the assessment of potential effects and habitat loss.

[2] The Phase 1 characterisation has been utilised to allow a broader visual representation of the habitats within the survey area. Polygons or areas where there are mosaic NVC communities have generally been assigned a single Phase 1 classification based on the dominant NVC type (despite some polygons containing multiple Phase 1 types, often in low percentages). Therefore, the Phase 1 characterisation is generally a broader overview, and the NVC data should be referred to for further detail in any specific area.

8.6.31. Table 8-10, the study area contains a variety of habitat types, and whilst some relatively homogenous stands of vegetation occur, many of the identified communities form complex mosaics and transitional areas across the study area. The only habitat types that have subsequently been scoped-in to the assessment of effects due to their extent and nature conservation value are blanket bog and wet modified bog. Detailed descriptions of these habitat types are included in **Appendix 8.1**.

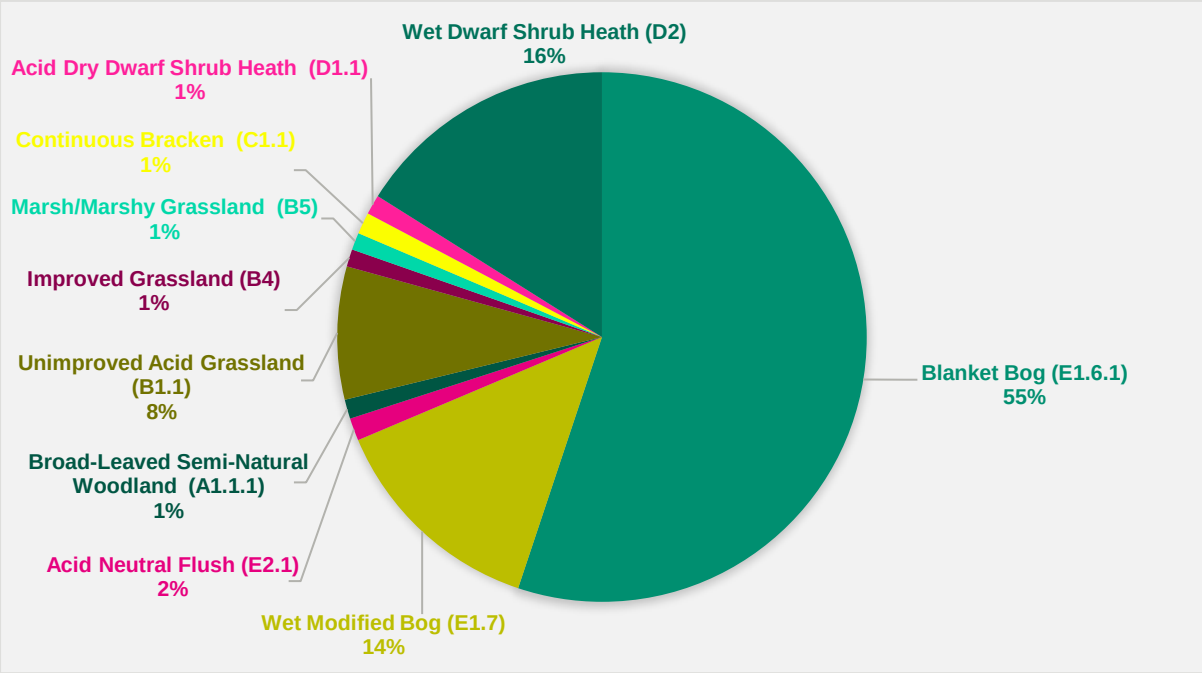

Diagram 8-1 - Predominant Phase 1 Habitat Types Recorded within the study area (habitat types making up <1% of the study area are not included)

Groundwater Dependent Terrestrial Ecosystems (GWDTEs)

8.6.32. The NVC results were referenced against SEPA guidance (SEPA, 2017a and 2017b) to identify those habitats which may be classified, depending on the hydrogeological setting, as being potentially groundwater dependent. Potential GWDTE NVC communities recorded within the survey area are detailed in **Appendix 8.1** (Table 6-3) and shown on **Figure 8.4**.

8.6.33. Within **Figure 8.4**, the potential GWDTE sensitivity of each polygon containing a potential GWDTE community was classified on a four-tier approach as follows:

- 'Highly – dominant' where potential high GWDTE(s) dominate the polygon;
- 'Highly – sub-dominant' where potential high GWDTE(s) make up a sub-dominant percentage cover of the polygon;
- 'Moderately – dominant' where potential moderate GWDTE(s) dominate the polygon and no potential high GWDTEs are present; and
- 'Moderately – sub-dominant' where potential moderate GWDTE(s) make up a sub-dominant percentage cover of the polygon and no high GWDTEs are present.

8.6.34. Where a potential high GWDTE exists in a polygon, it outranks any potential moderate GWDTE communities within that same polygon.

8.6.35. GWDTE sensitivity has been assigned solely on the SEPA listings. However, many of the NVC communities on the list are common habitat types across Scotland and generally of low nature conservation value. Furthermore, depending on several factors such as geology, superficial geology, presence of peat and topography, many of the potential GWDTE communities recorded may in fact be only partially groundwater fed or not dependent on groundwater.

Because designation as a potential GWDTE is related to groundwater dependency and not nature conservation value, GWDTE status has not been used as criteria to determine a habitat's nature conservation value and similarly does not factor in the identification of IEFs within ecological impact assessments. There is however a requirement to consider GWDTEs and the data gathered during the NVC surveys has been used to inform this assessment in **Chapter 9: Geology, Peat, Hydrology and Hydrogeology**.

Annex I Habitats

8.6.36. Many NVC communities can also correlate with various Annex I habitat types listed under the Habitats Directive. The fact that an NVC community can be attributed to an Annex I type however does not necessarily mean all instances of that NVC community constitute Annex I habitat. Its status can depend on various factors such as quality, extent, species assemblages, geographical setting and substrates.

8.6.37. NVC survey data and field observations have been compared to JNCC Annex I habitat listings and descriptions (JNCC, 2023). Those habitats within the site which could be considered Annex I habitats are detailed in **Appendix 8.1** (Table 6-3).

Scottish Biodiversity List (SBL) Habitats

8.6.38. The SBL (NatureScot, 2020b) is a list of animals, plants and habitats that Scottish Ministers consider to be of principal importance for biodiversity conservation in Scotland. The SBL identifies habitats which are the highest priority for biodiversity conservation in Scotland; these are termed 'priority habitats'. Some of the priority habitats are quite broad and can be correlated to many NVC types.

8.6.39. Relevant SBL priority habitat types and corresponding associated NVC types recorded within the site are detailed in **Appendix 8.1** (Table 6-3).

8.6.40. These SBL priority habitats correspond with UK Biodiversity Action Plan (BAP) Priority Habitats (JNCC, 2019b).

Protected Species (non-avian)

8.6.41. This section outlines the results from the protected species surveys. Detailed methodologies, survey timings, and results, including the legal status of each species, are included within **Appendices 8.2** and **8.3**, and presented in **Figures 8.5 to 8.9**.

Badger

8.6.42. No protected features or field signs relating to badger were recorded within the survey area. Habitat within the protected species study area offered very limited suitability for badger, with much of the area covered by peat, which is generally not utilised by badgers for sett building.

Bats

8.6.43. This section provides a summary of the field surveys and associated results for bats. Full details are contained within **Appendix 8.3**.

Preliminary Bat Roost Assessment

8.6.44. No features with high suitability for roosting bats (in line with Collins, 2016) were identified within the study area during ground-based roost assessment surveys undertaken in May 2022. Two trees offering low suitability for roosting bats were noted within the main body of the site (**Figure 8.6**); all trees noted were associated with watercourses.

8.6.45. Further surveys in February 2023 along the access track and other proposed infrastructure in the north of the study area recorded twenty features offering low or moderate suitability for

roosting bats. Five features, three of moderate suitability and two of low suitability, are located within 30 m of planned infrastructure or existing tracks.

8.6.46. Tree inspection surveys carried out as part of the May 2014 survey programme identified one tree roost; no bats were seen but *Pipistrelle* sp. droppings were noted. At this time, it was identified as unlikely to be a maternity roost due to the small cavity size and lack of bats at the time of inspection.

Automated Activity Surveys

8.6.47. Static bat activity surveys carried out between May and August 2022 recorded five bat species in total: common pipistrelle, soprano pipistrelle, brown long-eared bat, Daubenton's bat and Natterer's bat, as shown in **Table 8-7**. Common and soprano pipistrelles accounted for 91.9 % of registrations across all surveyed locations.

Table 8-7- Total Number of Bat Passes for Each Species Across all Locations 2022

Species/Species Group	No of Registrations	Percentage of total (%)
Common pipistrelle	300	57.8
Soprano pipistrelle	177	34.1
Brown long-eared bat	8	1.5
Daubenton's	33	6.4
Natterer's	1	0.2
Total	**519**	**100**

8.6.48. Static bat activity surveys carried out in the same period in 2014 recorded two bat species and one genus-level classification: common pipistrelle, soprano pipistrelle and *Myotis* sp.

Quantifying Activity

8.6.49. The data from the 2022 static bat activity surveys was analysed using the Ecobat tool (Mammal Society, 2017) to gain a measure of relative bat activity at the Proposed Development. The data was then evaluated in accordance with NatureScot et al. (2019) guidance tables to determine overall Site risk level for each species. The guidance explains that: "*The tool compares data entered by the user with bat survey information collected from similar areas at the same time of year…Ecobat generates a percentile rank for each night of activity and provides a numerical way of interpreting the levels of bat activity recorded at a site across regions in Britain*". Data from the site were compared with data from within one month of the survey date, and within the same Region. The full Ecobat Report is provided in Annex F of **Appendix 8.3**.

8.6.50. This Ecobat analysis provides a measure of average annual site activity based on the median (most frequent activity category and representative of the 'typical' bat activity levels in the study area) and maximum (unusually high levels or important peaks of bat activity) percentiles[3]. A reference range representing the number of nights for each species that the data was compared to was also generated. In general, a reference range of more than 200 nights is recommended for confidence in the activity level stated by the Ecobat output.

[3] The percentile rank is attributed to one of the following five bat activity categories as defined within relevant guidance: Low (0-20%), Low-Moderate (20-40%), Moderate (40-60%), Moderate-High (60-80%) and High (80-100%).

8.6.51. Brown long-eared, Daubenton's and Natterer's bats were attributed activity levels of High for both the median and maximum percentiles. However, the reference range for these species was well below the minimum recommended value (being 37, 31 and 1 respectively), so this measure of the relative activity level should be treated with caution.

8.6.52. Common and soprano pipistrelle were both attributed Low (median) to Low-Moderate (maximum) relative activity levels, with reference ranges of 1992 and 2164 respectively allowing this attribution to be treated with confidence.

Assessing Potential Risk

8.6.53. As detailed in **Appendix 8.3**, the site risk level was determined to be Low/Lowest, based on having a Medium project size and a Low habitat risk.

8.6.54. As per NatureScot (2021) guidance, common and soprano pipistrelle were the only bat species recorded which are deemed to have a high collision risk.

8.6.55. The activity levels calculated for the high collision risk species and the site risk level were used to calculate an overall risk assessment score based on both the median and maximum percentiles. Both common and soprano pipistrelles were calculated to have an overall risk assessment score of Low (based on both median and maximum percentiles).

8.6.56. **Figures 8.7 and 8.9** illustrate the results of the median monthly risk assessment scores for high collision risk bat species recorded at the site at each survey location, to provide an overview of how bat activity and risk levels vary across the site through the year and by species. No high or medium risk assessment scores were recorded in any month for either high collision risk species.

8.6.57. A comparison between bat registrations and the known roost emergence times returned only two instances where the timing of the registration indicated the potential proximity of a bat roost. One soprano pipistrelle registration was recorded at anabat Location 5 at the end of August, and one Daubenton's bat was recorded at anabat Location 1 close to the end of August. Both these registrations were outside the maternity roost season (15th June to 30th July).

Fish

8.6.58. Fish habitat and electrofishing surveys were conducted in May and June 2014 by the Ness and Beauly Fisheries Trust (NBFT) to assess salmonid habitat suitability and relative fish abundance. The detailed survey report is included as **Appendix 8.4**.

8.6.59. Six watercourses were surveyed that form tributaries to the Rivers Tarff and Oich, including: Black Burn, Allt Keelie Sike, Allt Lagan a' Bhainne, Allt na Leitire, Connachie Burn, and Allt a' Charnaich (**Figure 8.9**). The survey found that numerous barriers to fish migration existed on the watercourses on the site and found no juvenile salmon at any survey points as a result of this, despite suitable habitat in some areas. Trout, including fry and parr, were present in surveys conducted on the Connachie Burn and Allt Lagain a' Bhainne.

Hares

8.6.60. Three brown hare sightings and two mountain hare sightings were recorded during surveys (one of each species recorded within the main turbine area (mountain hare in the vicinity of the larger borrow pit search area, and brown hare south of T7 and T8), with the other three records along the access track; **Figure 8.5**). The site offers suitable habitat for the species with extensive upland moorland habitat.

Otter

8.6.61. Eleven spraints were recorded in the study area; two were on Allt Coire Uchdachan, three on Allt Doire Thulaichean, two on a tributary to Black Burn and four on Connachie Burn (**Figure**

8.5). The spraints varied in age, suggesting that the watercourses are regularly and have recently been used by otter. No protected features were recorded.

8.6.62. The watercourses within the study area provide suitable foraging and commuting habitat for otter, and provide connectivity between the site and the River Tarff, which forms part of the Ness Woods SAC for which otter is a qualifying feature. With the exception of Allt Lagan a' Bhainne in the south, the watercourses on site are generally open with little cover, so sheltering opportunities are limited.

Pine marten and Red Squirrel

8.6.63. No evidence of pine marten or red squirrel were recorded within the survey area. The site offers very limited suitability for the species, with no extensive areas of woodland or forestry present. The steep, wooded banks of Allt Lagan a' Bhainne may provide some suitability/connectivity.

Reptiles

8.6.64. Five sightings of common lizard were recorded during surveys at the site (four of which were within the main turbine site), with the vegetation on site offering suitable foraging and shelter for reptiles. There were a number of features recorded on site, along the access track, that provided some suitability for hibernating reptiles, including collapsed drystone walls, sheep pens and stone piles (**Figure 8.5**).

Water Vole

8.6.65. Widespread evidence of water vole was recorded within the study area in August 2022, which was the third visit to the site to carry out protected species surveys. Preceding visits in May and June 2022 did not record evidence of water vole. Burrows, latrines, droppings and runways were recorded (**Figure 8.5**).

8.6.66. Surveys of the access track carried out in February 2023 also recorded signs likely attributable to water vole where watercourses were crossed, including burrows and runs.

8.6.67. The changing presence of water vole on site suggests that the population is transient.

8.6.68. The watercourses within the study area provide suitable substrate for burrowing, with soft, peaty banks. The rush vegetation along watercourses provides good foraging opportunities for the species.

Other Species

8.6.69. No signs or sightings of notable species, INNS or deer were recorded during field surveys.

The Do-Nothing Scenario

8.6.70. In the absence of the Proposed Development, it is likely that the IEFs would generally remain as they are at present, although numbers and distribution of species may fluctuate naturally. Vegetation and habitat composition and extents in the study area may fluctuate marginally in the long-term in line with increasing or decreasing livestock grazing and fluctuations in deer browsing. The historically degraded peatland habitats on site would likely deteriorate further with existing peat hags, gullies and bare peat becoming further eroded.

8.7. Potential Effects

8.7.1. This section provides and assessment of the likely effects of the Proposed Development on the IEFs identified at the conclusion of the baseline studies. The assessment of effects is based on the project description outlined in **Chapter 3**, and is structured as follows:

- construction effects;
- operational effects; and

- decommissioning effects.

Ecological Features Scoped-Out of the Assessment

8.7.2. In addition to those ecological features and effects already scoped-out as detailed within **Paragraph 8.5.2**, with consideration of the additional desk study and baseline data collected and following the iterative design and embedded mitigation measures described in **Paragraph 8.5.32** and project assumptions below (**Paragraph 8.7.23**), several potential effects on IEFs can be scoped-out of further assessment based on the professional judgement of the EIA team and experience from other relevant projects and policy guidance or standards. This includes effects from the construction and operational phases of the Proposed Development, as well as cumulative effects. The following paragraphs detail the ecological features and effects that have been scoped-out following further desk studies and site surveys.

Designated Sites

8.7.3. There is hydrological connectivity between the Proposed Development and the Ness Woods SAC and Glen Tarff SSSI which are downstream of the site. Watercourse crossings have been kept to a minimum during design, which includes seven new watercourse crossings, in addition to nine existing crossings. The nearest watercourse crossing is approximately 1.2 km upstream of the designated sites. The embedded mitigation includes that construction work would comply with a CEMP developed by the Principal Contractor, as detailed in **Paragraph 8.5.37**, which would be monitored by a suitably experienced ECoW. The CEMP would include good practice mitigation for effective silt and pollution prevention and undertaking works in accordance with SEPA best practice guidance. With this embedded mitigation in place, water pollution impacts and associated likely significant effects associated with the Proposed Development are considered unlikely. No potential effects on qualifying habitats of the SAC or SSSI (listed in **Table 8-6**) are therefore anticipated and are scoped out of the assessment.

8.7.4. The qualifying species, *Bolitophagus reticulatus* beetle, of the Glen Tarff SSSI is associated with the old birch woodland present in the designated site, and therefore, no potential effects on this species are anticipated, due to lack of effects on its habitat, and the species is scoped out of the assessment.

8.7.5. Otter is a qualifying species of the Ness Woods SAC. Otters that form part of the SAC population may use habitat within the site for predominantly commuting and foraging, due to limited habitat available for resting sites. Otter home ranges are large and individuals are unlikely to be fully dependent on prey availability and access within watercourses within the site. Otters that form part of the SAC population may therefore be present within the site, but the likelihood of direct impacts taking place such as mortality through collision with site vehicles is very low considering the size of the construction area and its relation to watercourses, as well as working time primarily being in the day and otter movements being mainly crepuscular/nocturnal. The closest new infrastructure (construction compound) related to the Proposed Development is approximately 270 m west of the Ness Woods SAC and construction and operational impacts are therefore unlikely to disturb any otter which are utilising the SAC itself, including protected features. Furthermore, the proposed embedded mitigation of the provision and implementation of the SPP, CEMP (including Pollution Prevention Plan) and presence of an ECoW during construction (incorporating pre-construction otter surveys and ongoing otter monitoring during the construction period), would ensure that all reasonably practicable measures are taken during construction so that provisions of the relevant wildlife legislation are complied with and no impacts on a European designated site will result (NatureScot, 2018). These measures would ensure direct and indirect effects on otter are avoided or reduced to a negligible level. Should otter be affected by minor and non-significant levels of disturbance and/or temporarily displaced during construction, there are abundant foraging and sheltering opportunities locally (outwith the study area) for this mobile and wide-

ranging species that would ensure that there are no risks to the otters' population viability or overall distribution within the SAC and locally. The Proposed Development is also not considered likely to result in fragmentation of otter populations or territories, nor create any barrier effects with respect to the movement of otters within the SAC or locally. In taking account of the above and standard and proven mitigation measures, any adverse effects on the SAC's conservation objectives for otter can be discounted and a likely significant effect from the Proposed Development on otter can be ruled out.

Terrestrial Habitats

8.7.6. As per **Paragraph 8.5.2**, habitats that are considered to be of low conservation value and are very common habitat types locally and regionally are scoped out of the assessment. Within the study area these include:

- coniferous plantation woodland;
- unimproved and semi-improved acid grassland;
- improved grassland; and
- bracken.

8.7.7. Marshy grassland and wet heath are scoped out of the assessment. Marshy grassland covers 7 ha (1 % of the study area) and comprises M23 and M25 communities (see **Appendix 8.1**). Wet heath covers 107.4 ha (15.8 % of the study area) and is entirely made up of the M15 *Trichophorum germanicum – Erica tetralix* wet heath NVC community. The range of marshy grassland and wet heath communities present within the study area are common habitat types locally, regionally and nationally and the relatively small direct and indirect losses predicted, as per **Annex A**

8.7.8. Table 8-10, are of minor significance. These marshy grassland and wet heath communities are considered potential GWDTE's in line with guidance (SEPA, 2017a). However, designation as a GWDTE does not infer an intrinsic biodiversity value, and GWDTE status has not been used as criteria to determine conservation value in the ecology assessment. There is however a statutory requirement to consider GWDTEs and the data gathered during the NVC surveys has been used to inform this assessment (see **Chapter 9**).

8.7.9. A number of other habitats recorded within the study area are of local importance, some due to their listing as Annex I habitats or SBL Priority Habitats (see **Appendix 8.1**). However, as they occupy such small areas within the study area, they are species-poor examples, and/or any direct or indirect effects on the habitat will not occur or will be negligible in magnitude (see **Annex A**

8.7.10. Table 8-10), all effects on them are scoped out of the assessment. These habitats include:

- broadleaved semi-natural woodland;
- dense/continuous scrub;
- acid dry swarf shrub heath;
- lichen/bryophyte heath;
- acid/neutral flush; and
- basic flush.

Aquatic Habitats and Species

8.7.11. Effects on aquatic habitats including standing water, running water and fisheries interests are scoped out of the assessment. Migratory salmonids are unlikely to be able to access the site as a result of barriers to migration downstream of the Proposed Development. Some watercourses surveyed by the Ness District Salmon Fisheries Board were found to contain trout fry and/or parr, suggesting the presence of resident brown trout populations. The Proposed

Development has the potential to impact negatively on water quality and hydrogeomorphology in the absence of mitigation. However, to avoid direct or indirect impacts on these features a minimum 50 m buffer distance between infrastructure and watercourses has been maintained where possible, except where a watercourse crossing cannot be avoided (see **Chapter 9: Hydrology, Geology and Hydrogeology**). The design of permanent and temporary access track water crossings would comply with SEPA good practice guidance to minimise impacts on fish and their habitat, as detailed in **Paragraphs 8.5.32** to **8.5.38**. With this embedded mitigation in place, water pollution impacts and associated likely significant effects associated with the Proposed Development on watercourses and aquatic ecology are considered unlikely and therefore these pollution impacts are scoped out of further assessment.

Protected Species

8.7.12. Effects on badger, beaver, brown hare, great crested newt, pine marten, red squirrel and wildcat are scoped out of the assessment due to the absence of protected features, lack of suitable habitat, limited desk-based or field evidence within the study area (see **Section 8.6)**, and/or lack of potential effects from the Proposed Development.

8.7.13. Effects on otter are scoped out of the assessment, with the rationale outlined in **Paragraph 8.7.5**

8.7.14. Effects on mountain hare are scoped out of the assessment. These are mobile species capable of avoiding disturbance except when the juveniles (leverets) are very young. Best practice guidance during construction, as detailed in the SPP (**Appendix 8.5**) will ensure that all reasonably practicable measures are taken during the hares' breeding season to comply with wildlife legislation, and no significant effects are anticipated on the species.

8.7.15. Effects on roosting bats are scoped out of the assessment. Whilst features with the potential to support roosting bats were identified, no key features capable of supporting maternity roosts, significant hibernation roosts and/or swarming sites within 200 m plus rotor radius have been detected. Analysis of bat emergence timings demonstrated that there is unlikely to be any significant roost near a turbine location, with two single registrations being the only instances of bats recorded within the timeframe expected for emergence from a roost. Five features (three with moderate suitability for roosting bats and two with low), were recorded within 30m of the proposed access track; the SPP (**Appendix 8.5**) includes suitable mitigation measures to ensure compliance with protected species legislation during construction.

8.7.16. Operational and cumulative effects arising from collision mortality for low collision risk bat species are scoped out of the assessment (as per NatureScot *et al*., 2019, minor changes in 2021).

8.7.17. Bat activity for high collision risk bat species (common and soprano pipistrelle bats) recorded for the site ranged from Low (median percentile) to Low-Moderate (maximum percentile). These activity levels, coupled with the Low site risk assessment, resulted in overall risk to bats from collision with or barotrauma from moving turbine blades being classified as Low for both species (median and maximum percentiles). With the embedded mitigation in place during operation (**Paragraph 8.5.38**), it is considered that there are no likely significant effects on high collision risk bat species.

8.7.18. Whilst evidence of water vole activity was shown to be widespread throughout the site, their presence is not constant, demonstrated by Telfer *et al.,* (2001) and reflected in the field survey results described in **Paragraph 8.6.65**, whereby evidence of water vole was absent for two survey visits, then widespread for a third visit (refer to **Paragraph 8.5.6** for dates). Therefore, it is considered likely that if water vole populations within the site were to be disturbed, they would be able to disperse to unoccupied areas of habitat. Embedded mitigation by design has ensured that proposed infrastructure is 50 m from any watercourse except where a minimum number of

crossings are required, which will avoid any fragmentation of suitable water vole habitat. This, in combination with the SPP, will result in no likely significant effects of the Proposed Development on water vole.

8.7.19. Common lizards were recorded during surveys; however, these are mobile species capable of avoiding disturbance except during hibernation and are scoped out of the assessment.

8.7.20. The SPP (**Appendix 8.5**) will ensure that all reasonably practicable measures are taken during construction so that provisions of the relevant wildlife legislation are complied with in relation to all protected species, should any evidence be found during pre-construction surveys.

8.7.21. Effects on all IEFs during operation of the Proposed Development been scoped out (although note that indirect drying impacts on blanket bog and wet modified bog which may occur during the operational period are considered below under the construction period for clarity). Maintenance of the Proposed Development will involve vehicular access along the access tracks only, and any maintenance of turbines will be occasional, typically carried out by a small number of maintenance staff inside the turbines during normal working hours. This is unlikely to result in any operational effects on any species or habitats recorded at and around the Proposed Development.

Other Species

Deer

8.7.22. Effects on deer are scoped out of the assessment. Red, roe, fallow, and sika deer may be present in the local area. No large areas of woodland that is present on site would be felled. Operational effects are not anticipated as there is no deer fencing around the site and therefore deer may use and pass through uninhibited. The Proposed Development is relatively small and habitat loss has been minimised. Due to the extensive amount of similar suitable habitat in the surrounding land and its availability and accessibility, this loss of grazing and sheltering habitat is expected to be negligible to the wide-ranging species. The size of the Proposed Development is not considered to pose a significant barrier to any local movements or migrations of deer. Construction effects, due to disturbance, are expected to be minimal due to the timing of works (primarily be in the day with deer more active during evening/nights) and short-term construction period (approximately 24 months).

8.7.23. If individuals are displaced during construction, there are suitable routes around the site which will not force deer into areas of risk, including public roads, or towards built-up areas. As a result of the size and location of the Proposed Development, temporary construction period, the retention of woodland, minimal habitat loss and the extensive suitable habitat and commuting corridors locally within the site and beyond, no negative effects on deer are predicted. Due to minimal displacement expected outwith the site during construction and operation, no negative effects, through increased browsing/trampling on surrounding habitats, including the Ness Woods SAC, are expected.

Important Ecological Features

8.7.24. A summary of the Nature Conservation Value of the remaining IEFs identified within the site and surrounding area (as confirmed through survey results and consultation outlined above) which have been scoped-in to the assessment is given in **Table 8-8,** together with the justification for inclusion. These comprise blanket bog and wet modified bog.

Table 8-8 – Nature Conservation Value of Scoped-In IEFs

IEF	Nature Conservation Value	Relevant Legislation/Guidance & Justification
Ancient Woodland	Regional	The site boundary includes 12.95 ha of habitat listed on the AWI[4]. Ancient woodland is an irreplaceable resource[5] due to age and ecological complexity which is associated with a rich biodiversity that cannot be recreated when lost. Some habitat listed on the AWI may be no longer wooded, however the associated ground flora in the area can still preserve elements of the natural woodland composition and contribute a high species richness. Woodland is a priority habitat in the Highland BAP, and actions include to protect, regenerate, and restore native woodland, and working at a landscape scale to create woodland networks that improve forest diversity and biodiversity. National Planning Policy (Scottish Government, 2023) protects ancient woodland through Policy 6 (see also **Chapter 5: Planning and Energy Policy**). Similarly, Forestry and Land Scotland (FLS) Policy on Control of Woodland Removal (Forestry Commission Scotland, 2009) asserts a strong presumption against removing ancient semi-natural woodland, or Plantations on ancient woodland sites, amongst other types of woodland. There is approximately 609,990 ha of ancient woodland UK wide[6] of which approximately 352,766 ha is in Scotland. There is 1540.28 ha of ancient woodland within 5 km of the site Boundary. Considering the above, and the area of ancient woodland within the site Boundary and its connectivity to ancient woodland in the wider area a Nature Conservation Value of Regional is considered appropriate.
Blanket Bog and Wet Modified Bog	Local	The Proposed Development would result in direct and indirect habitat loss for blanket bog and wet modified bog habitats. Blanket bog is the most common and extensive habitat found across the survey area and covers 368.51 ha (54.07%) of the study area, whilst wet modified bog covers 90.3 ha (13.25%) (**Annex A** Table 8-10). The blanket bog is mainly represented by M17 and M19 communities. There are some areas which are relatively more intact, active and better-quality bog, with frequent to abundant *Sphagna* in the basal layer. However, degraded areas of M17 and M19 are widespread and there is extensive evidence of historical drainage of the peatland and also large areas of peat hagging and eroding bare peat, some of which is likely as a result of impacts arising from deer populations and moorland management practices. The M1, M2 and M3 bog pool communities were also recorded within these blanket bog areas. Wet modified bog habitat present comprises the M20 and M25a sub-community and has a lower relative quality. The M20 community appears to have been derived from blanket bog through grazing that has led to the scarcity or absence of *Calluna vulgaris* in the sward. The M25a community

[4] https://data.gov.uk/dataset/c2f57ed9-5601-4864-af5f-a6e73e977f54/ancient-woodland-inventory-scotland
[5] https://www.nature.scot/doc/guide-understanding-scottish-ancient-woodland-inventory-awi
[6] https://www.woodlandtrust.org.uk/trees-woods-and-wildlife/habitats/ancient-woodland/

may also be derived from blanket bog as a result of grazing and burning, which can lead to increases in *Molinia* and decreasing of dwarf shrubs.

The habitats are associated with SBL blanket bog habitat with some areas also corresponding to Annex 1 type 7130 blanket bog habitat, including M1, M2, M3, M17, M19 and M20.

National Planning Policy (Scottish Government, 2023) protects peatlands through Policy 5 (see also **Chapter 5: Planning and Energy Policy**).

The study area contains large areas of Class 1 and Class 2 peatland from the SNH Carbon and Peatland Map (**Figure 8.2**); see discussion in **paragraph 8.6.9**. It is recognised that this definition is not solely for nature conservation and so not directly applicable to evaluating the value of a peatland. Despite some of these communities being associated with Annex I and SBL blanket bog classifications, the habitat within the study area is not considered to be Nationally or Regionally important due to its size, and quality and anthropogenic effects. Therefore, assigning a Nature Conservation Value higher than Local is not deemed appropriate. In addition, mire habitat of this quality (and greater) is relatively widespread across the local area and beyond, which further reduces the relative value of this habitat within the study area.

Assumptions of the Assessment

8.7.25. The following assumptions are included in the assessment of otherwise unmitigated effects on IEFs:

- The short-term construction period, of approximately 24 months, would include borrow pit creation, construction of access tracks, turbine hardstandings and other ancillary infrastructure, wind turbine erection, and site restoration (as detailed in **Chapter 3: Proposed Development Description**).
- All electrical cabling between the wind turbines and the associated infrastructure would be underground in shallow trenches which would be reinstated post-construction and, in all cases, follow the access tracks.
- The construction compound and any temporary laydowns or holding areas will be temporary infrastructure. Any disturbance or earthworks extents areas around permanent infrastructure during construction would be temporary and areas reinstated or restored before the construction phase ends. The only excavation in these areas would be for cabling as noted above and otherwise may only be periodically used for side-casting of spoil until reinstatement.
- The embedded pre-construction and construction phase mitigation described in **Paragraphs 8.5.32 to 8.5.38** will be fully applied e.g., the presence of an ECoW, adherence to the SPP and CEMP.

Predicted Construction Effects

8.7.26. This section provides an assessment of the likely effects of the construction of the Proposed Development upon the scoped-in IEF.

8.7.27. The most tangible effect during construction of the Proposed Development would be direct habitat loss due to the construction of infrastructure such as new access tracks, turbines, hardstandings, substation and battery energy storage system (BESS). Much of this infrastructure would be permanent, however the temporary construction compound, temporary tether pads of the turbine hardstand, and borrow pits would be restored at the end of construction.

8.7.28. There may also be some indirect habitat losses to blanket bog habitats due to drainage effects. For the purpose of this assessment, it is assumed that blanket bog habitat losses due to indirect

drainage effects may extend out to 10 m from infrastructure (i.e., in keeping with standard indirect drainage assumptions within carbon calculator guidance (SEPA, undated).

8.7.29. **Table 8-9** details the estimated relative losses expected to occur, by habitat type, for all new permanent infrastructure.

8.7.30. Temporary habitat losses due to the creation of a temporary construction compound, batching plant and up to two borrow pits have been calculated separately and are detailed in **Table 8-9.** These have been considered separately to permanent infrastructure as it is possible that not all borrow pit areas will be required or fully utilised and although these areas would be restored at the end of the construction period (and therefore would not show a loss in habitat extent), the habitat type resulting after restoration may not be the same as the original due to changes in topographical or hydrological conditions. In particular, areas of land take for this temporary infrastructure may represent permanent losses for habitat types such as blanket bog/wet modified bog due to the effects on the structure and function of the habitat type, and the complexities and long timescales involved in restoring or re-creating these particular habitat types.

Table 8-9 – Estimated Loss of IEF Habitats for Permanent and Temporary Infrastructure

Phase 1 Habitat Type	Phase 1 Site Extent (ha)	NVC Community Code or Habitat Type	Direct Habitat Loss (ha)	Direct Habitat Loss as a % of Phase 1 Type in Site	Direct & Indirect Habitat Loss (ha) in study area	Direct & Indirect Habitat Loss as a % of Phase 1 Type in Site
Permanent						
Ancient woodland	12.95	N/A	0.32	2.47	N/A	N/A
Blanket Bog (E1.6.1)	368.51	M1, M2, M3, M17, M17a-c, M19a-c	4.71	1.28	11.02	2.99
Wet Modified Bog (E1.7)	90.30	M20, M20a, M20b, M25a	1.50	1.66	3.29	3.64
Temporary						
Blanket Bog (E1.6.1)	368.51	M1, M2, M3, M17, M17a-c, M19a-c	8.15	2.21	N/A	N/A
Wet Modified Bog (E1.7)	90.30	M20, M20a, M20b, M25a	2.19	2.42	N/A	N/A

8.7.31. The following sections assess the effect of these losses for each IEF scoped in.

Ancient Woodland

8.7.32. **Effect:** Direct loss and disturbance of ancient woodland for permanent track infrastructure, leading to a reduction in the extent of ancient woodland habitat and associated biodiversity.

8.7.33. No woodland fragmentation is expected in areas of ancient woodland as a result of the Proposed Development. During construction, there may be an increase in traffic, and therefore an increase in air pollution along the access track which passes through and alongside some areas of ancient woodland at Coille a Cholumain. However, due to the short-term nature of this impact and the small area affected, effects are considered to be negligible. There is some hydrological connectivity between the Proposed Development and several patches of AWI woodland present downstream, along Allt Lagan a' Bhainne. With embedded mitigation in place (detailed in **Paragraph 8.5.33**), no pollution effects are anticipated.

8.7.34. **Nature Conservation Value:** Regional (as detailed in Table 8-8**).**

8.7.35. **Conservation Status:** Due to their age and associated complex biodiversity, ancient woodland is considered an irreplaceable habitat. Nationally ancient woodland is generally under threat from development and wider impacts such as overgrazing and air pollution, many stands have also historically been felled and replanted with non-native conifers. Overall, the Conservation Status of ancient woodland is likely to be considered unfavourable.

8.7.36. **Magnitude of Effect:** The UK has approximately 609,990 ha of ancient woodland, of which approximately 352,766 ha is in Scotland. There is 1540.28 ha of ancient woodland within 5 km of the site Boundary, of which approximately 12.95 ha is within the site Boundary (**Figure 8.1**).

8.7.37. Cut and fill earthworks would be required on verges of the existing track at Coille a Cholumain within ancient woodland habitat. This would include the direct loss of approximately 0.32 ha (2.5% of the habitat within the site boundary) of land classified as ancient woodland i.e., included on the AWI; however, approximately 0.13 ha of this is currently an existing track. Furthermore, due to the sparse layout of trees in this area, the actual loss due to felling of trees is expected to be two or three mature trees.

8.7.38. The ancient woodland within Coille a Cholumain is classified as Ancient (of semi-natural origin). The woodland here is very open/sparse in character and due to its location along an existing track is likely to already experience some anthropogenic disturbance. While trees are sparse in this area, it is recognised that the associated ground flora in the area can still preserve elements of the natural woodland composition.

8.7.39. When considering the small scale of change and the location and character of woodland here, while there may be a minor loss in the extent of the feature this would not be expected to have an effect on the integrity of the feature, and an effect magnitude of **Low spatial** and **Permanent temporal** is deemed appropriate.

8.7.40. **Significance of Effect:** Given the above consideration of Nature Conservation Value, Conservation Status and Magnitude of Effect, the significance of effect is considered to be **Minor adverse** and **Not Significant**.

Blanket Bog and Wet Modified Bog

8.7.41. **Effect:** Effects upon blanket bog and wet modified bog habitats will be direct (through permanent and temporary habitat loss) and indirect (through potential drying effects upon neighbouring bog habitats) occurring from the construction period into the operational period. Direct loss would occur in areas where permanent infrastructure such as access tracks, turbine foundations, and hardstandings are sited on these habitat types. The excavation of these habitat types for temporary infrastructure would also lead to the losses of blanket bog and wet modified bog due to the long-term effect on the ecological and hydrological structure and function of these habitat types. In addition, there may be indirect losses as a result of drainage around infrastructure (around 10 m from infrastructure is assumed) and disruption to hydrological flows.

8.7.42. Fragmentation could involve the creation of smaller areas of habitat which in turn could impair the functioning and reduce the resilience of essential hydrological processes. This could make the impacted habitat more vulnerable to future decline in condition and potentially lead to a transition to a different habitat type such as blanket bog to wet modified bog/wet heath or wet modified bog to dry modified bog/wet heath, or more subtle sub-community shifts.

8.7.43. For blanket bog and wet modified bog, fragmentation effects are a function of the extent of the hydrological unit, location of impact within the unit and magnitude of direct and indirect impact in the context of the hydrological unit. **Figure 8.3** shows that blanket bog and wet modified bog habitats exist together and with other wetland habitats (e.g., mires, flushes and marshy grasslands) in large expansive hydrologically connected mosaics across the study area. The large scale of these wetland habitat mosaics reduces the likelihood that small, fragmented habitat patches would be created. **Figure 8.3** shows that no small-scale habitat fragments will be created by the location of tracks and other infrastructure, and floating tracks have been proposed across wetland habitats where possible to allow the maintenance of sub-surface hydrological connectivity between areas. It is therefore unlikely that the potential effects of fragmentation would lead to further loss of blanket bog and wet modified bog in addition to that predicted to occur as a result of direct loss and precautionary indirect loss figures detailed above.

8.7.44. **Nature Conservation Value:** Local (as detailed in **Table 8-8**).

8.7.45. **Conservation Status:** Conservation Status of this habitat as assessed in the 2019 JNCC report by the UK on blanket bog is 'Unfavourable-Bad' and 'Stable' at the UK level (JNCC 2019c).

8.7.46. **Magnitude of Effect:** The UK has an estimated 2,182,200 ha of blanket bog (JNCC 2019c) of which around 1,759,000 to 1,800,000 ha is in Scotland (JNCC 2019d, NatureScot 2023c) (approximately 23% of the land area), with the Highlands region contains Europe's largest expanse of blanket bog (Highland Environment Forum, 2021).

8.7.47. Blanket bog covers 368.51 ha (54.07 %) of the study area, of which the majority is comprised of M17b, M19a and M17c (with M17a, M3, M19b, M19c, M17, M2 and M1 also contributing). The direct habitat loss for blanket bog is predicted to be 4.71 ha due to permanent infrastructure, with up to an additional 8.15 ha due to temporary works areas (**Table 8-9**). This results in a potential total direct loss of 12.86 ha, equivalent to 3.49 % of the blanket bog within the study area. Wet modified bog covers 90.3 ha (13.25 %) of the study area and is comprised of lower quality M20b, M20a, M25a and M20 (Annex A, **Annex A**

8.7.48. Table 8-10). The direct habitat loss for wet modified bog is predicted to be 1.5 ha due to permanent infrastructure, with up to an additional 2.19 ha due to the temporary works areas (**Table 8-9**). This results in a potential total direct loss of 3.69 ha, equivalent to 4.08 % of the wet modified bog within the study area.

8.7.49. For this blanket mire resource as a whole, i.e., combining blanket bog and wet modified bog, direct losses amount to 6.21 ha for permanent infrastructure and 10.34 ha for temporary works areas infrastructure and earthworks extents: a total of 16.55 ha, or 3.61 % of the combined resource within the study area.

8.7.50. In addition, there may be some indirect losses because of the zone of drainage around infrastructure. The actual distance of the effects of drainage on a peatland is highly variable and depends on various factors such as the type of peatland and its characteristics and properties of the peat; the type, size distribution and frequency of drainage features, and whether the drainage affects the acrotelm, penetrates the catotelm, or both. Consequently, drainage effects can be restricted to just a few metres around the feature or extend out to tens of metres, or further e.g., see review within Landry & Rochefort (2012). The hydraulic

conductivity of the peatland is one of the key variables which effect the extent of drainage. In general, less decomposed and more fibrous peatlands (which tend to be found in fen type habitats) generally have a higher hydraulic conductivity and drainage effects can extend to around 50 m, whilst in more decomposed (less fibrous) peat, drainage effects may only extend to around 2 m. Blanket bog habitats are commonly associated with more decomposed peats (Nayak *et al.* 2008). As detailed in **Appendix 9.3**, the peat coring data for the site confirmed high levels of humification and therefore low hydraulic conductivity. For this assessment, indirect effects are assumed to extend out to 10 m from permanent infrastructure.

8.7.51. If indirect drainage effects are fully realised out to 10 m from infrastructure in all blanket bog and wet modified bog areas, then predicted losses increase for blanket bog to 11.02 ha and for wet modified bog to 3.29 ha for permanent infrastructure. This worst-case scenario of direct and indirect habitat loss for permanent and temporary works areas is a total of 19.17 ha or 5.2 % of the study area for blanket bog and 5.48 ha or 6.06 % of the study area for wet modified bog. For this blanket mire resource as a whole, i.e., combining blanket bog and wet modified bog, direct and indirect losses for permanent and temporary works areas amount to 24.65 ha, or 5.37 % of the combined resource within the study area.

8.7.52. It is considered unlikely that indirect drainage effects of this scale (i.e., out to 10 m either side of infrastructure) would occur or would have such an effect on the habitat as to result in any notable effect on the type of bog present or shifts to a lower conservation value habitat type (such as acid grassland for example). For instance, Stewart & Lance (1991) in their study found that a lowering of the water table next to drains was slight and confined to just a few metres either side of the drain, on sloping ground the uphill zone of drawdown was even narrower. Subtle variations in plant species abundance were noted, with species dependent on high water-tables having a lower cover-abundance near to drains, and species with drier heathland affinities having higher cover than at places farther away. However, there were no wholescale changes in vegetation or the species assemblage; for instance, declines in *Sphagna* cover were highly localised and took nearly 20 years to achieve statistical significance. It should also be noted that the predicted indirect losses due to drainage are calculated in GIS and based on the habitat survey mapping, there may be small-scale local specific factors such as those relating to natural breaks in hydrology, geology or topography, or the presence of non-wetland habitats that act as a barrier or buffer, that would prevent the full predicted indirect drainage effects from materialising, and impacts given are therefore worst-case.

8.7.53. Overall, evidence suggests that if some drainage occurs locally around the infrastructure of the Proposed Development the most likely effect will not be a major change in overall bog habitat type but rather a potential change in vegetation micro-topography, certain species cover, or abundance that may result in a subtle NVC community or sub-community shift, and which may only be apparent in the long term. If severe indirect drying effects were to occur over a long term, then wet modified bog/blanket bog surface vegetation may transition to wet heath (e.g., NVC type M15), dry modified bog, or dry heath. Wet and dry heaths are also habitats of conservation interest, being Annex I, UKBAP and SBL Priority Habitats also.

8.7.54. The habitat surveys identified widespread degradation of bog habitats within the study area, with extensive evidence of historical drainage of the peatland and also large areas of peat hagging and eroding bare peat; no specific areas of better quality near-natural peatland were identified.

8.7.55. When considering the scale of the above habitat losses (i.e., direct and indirect effects for permanent and temporary works areas on up to 5.37 % of the combined blanket bog and wet modified bog within the study area), and accounting for the relative abundance, distribution and degraded quality of the wet modified bog and blanket bog within the study area, an effect magnitude of **Low spatial** and **Long-Term temporal** is appropriate.

8.7.56. **Significance of Effect:** Given the above consideration of Nature Conservation Value, Conservation Status and Magnitude of Effect, the significance of effect is considered to be **Minor adverse** and **Not Significant**.

Predicted Operational Effects

8.7.57. No operational effects on scoped-in IEFs are predicted.

8.7.58. All likely direct and indirect effects on habitats have been considered in the Construction Effects section above.

8.7.59. Although the majority of habitat loss is associated with infrastructure required for the operation of the Proposed Development (rather than temporary construction infrastructure), the physical loss of habitat would occur during the construction phase and is therefore considered above.

8.7.60. Indirect effects on wetland habitats would largely occur during the operational phase as potential drying effects become established. However, for ease and clarity assessing effects on habitats, these are considered together in Construction Effects.

Predicted Decommissioning Effects

8.7.61. Due to the distant time frame until their occurrence (>35 years), decommissioning effects are difficult to predict with confidence. In general decommissioning effects are usually considered for the purposes of assessment to be similar to (or likely less than) those of construction effects in nature and are likely to be of shorter duration (12 months). Prior to decommissioning, a Decommissioning Environmental Management Plan (DEMP) would be prepared and agreed with the relevant statutory consultees, which would include the need for pre-works surveys.

8.7.62. Decommissioning of the Proposed Development would involve the removal of infrastructure and restoration of the associated ground. It is proposed to leave the buried portion of the foundations of the turbines in situ on decommissioning, which is considered to have less impact on the future hydrological system (**Chapter 3**). Restoration would seek to return areas to their pre-construction habitat type, or as similar as feasible depending on local substrates, topography, hydrology etc. As a result, decommissioning will not lead to any further direct or indirect habitat losses above those already occurred during construction.

8.8. Cumulative Effects

8.8.1. The primary concern regarding the assessment of cumulative effects is to identify situations where effects on habitats or species populations that may be non-significant from individual developments, are judged to be significant when combined with nearby existing or proposed projects that are subject to an EIA process. In the interests of focusing on the potential for similar significant effects, this assessment considers the potential for cumulative effects with other wind farm developments, including those that are operational, under construction, consented or at application stage. Wind farm projects at scoping stage have been scoped out of the cumulative assessment because they generally do not have sufficient information on potential effects to be included, as the baseline survey period is ongoing, or results have not been published. Projects that have been refused or withdrawn have also been scoped out.

8.8.2. Small projects with three or fewer turbines have also been excluded from the cumulative assessment as often these projects are not subject to the same level of detail of assessment, and so there are no directly comparable data. Because of the small scale of such projects, effects are likely to be negligible on the IEFs assessed.

8.8.3. There are no wind farm developments that fall within 5 km of the Proposed Development and fulfil the criteria outlined above. As such, no cumulative effects on IEFs are anticipated.

8.9. Mitigation

Construction Phase

8.9.1. General and embedded mitigation measures for habitats and species, such as complying with best practice, micrositing, presence of an ECoW and adherence with a detailed CEMP and SPP are included in **Paragraphs 8.5.32** to **8.5.37,** and detailed in **Chapter 3**.

8.9.2. No significant construction effects were identified, and no non-standard mitigation is proposed for the construction phase.

Operational Phase

8.9.3. No IEFs are scoped-in to the assessment of potential operational effects, and as such no mitigation beyond that embedded mitigation detailed in **Paragraph 8.5.38** is required.

Decommissioning Phase

8.9.4. None proposed.

8.10. Residual Effects

8.10.1. No significant effects identified with all scoped-in IEFs remaining as Minor adverse, or less, and **Not Significant** (as per **Paragraph 8.7.56**).

8.10.2. Whilst no significant adverse effects are concluded on ancient woodland, compensatory woodland regeneration areas (detailed in **Appendix 3.3**) would reduce effects.

8.10.3. Whilst no significant adverse effects are concluded on blanket bog (and wet modified bog), the BEMP will ensure the loss of bog is compensated for and enhancement is delivered by restoring 424.6 ha of peatland habitat, compared to the loss of approximately 24.65 ha of degraded bog habitat. The BEMP will include provisions for the maintenance, restoration and/or enhancement of bog habitats and other upland habitats within the site, as detailed in the outline BEMP (**Appendix 8.6**).

8.10.4. The detailed BEMP will be agreed with the Local Authority and NatureScot in advance of construction and will secure significant biodiversity enhancements, through restoring degraded habitats and strengthening nature networks. In the longer term, with the implementation of the BEMP, there may be a residual positive Significant effect at a local level, as the effect would be likely to result in a long term effect on the structure and function of the habitat.

8.11. Biodiversity Enhancement

8.11.1. In line with NPF4 (Scottish Government, 2023), the Onshore Wind Policy Statement (Scottish Government, 2022a), and the Scottish Biodiversity Strategy to 2045 (Scottish Government, 2023), consideration has been given to how the Proposed Development can deliver significant enhancements to biodiversity over its lifetime.

8.11.2. The OBEMP (**Appendix 8.6**) for the Proposed Development proposes measures which will conserve, restore and enhance biodiversity including nature networks. A Biodiversity Net Gain (BNG) toolkit has been used to quantify the biodiversity value of habitats and demonstrates net positive enhancements for biodiversity following implementation of the BEMP, as detailed in **Appendix 8.6**.

8.11.3. Combining blanket bog and wet modified bog, the Proposed Development would impact approximately 24.65 ha of degraded peatland habitat (considering permanent and temporary, direct and indirect loss). An area of 424.6 ha (i.e. 17 times this amount) is proposed for

restoration[7]. Peatland restoration associated with the Proposed Development will be achieved through drain blocking and hagg stabilising and will be adequately monitored to ensure success of the works. Blocking drainage channels encourages water retention, and thereby allows blanket bog species to recolonise. Furthermore, maintenance and restoration of peat habitats prevents the loss of carbon to the atmosphere, an important factor in controlling climate change, and helps to improve water quality and ameliorate flood events in surrounding watercourses.

8.11.4. Measures to create and maintain areas highly suitable for use by raptors and black grouse are detailed further in **Appendix 8.6** and **Chapter 7: Ornithology**; these measures will also provide an enhancement to biodiversity from an ecology standpoint, through improvements in plant species diversity and quality.

8.12. Summary

8.12.1. The ecological assessment is based on best practice guidance including the Chartered Institute for Ecology and Environmental Management's (CIEEM) Guidelines for Ecological Impact Assessment in the UK and Ireland. The scope of the assessment and baseline conditions were determined through a combination of desk study, targeted surveys, and consultation with relevant nature conservation organisations.

8.12.2. This process established ecological features that could potentially be affected by the Proposed Development. No potential effects on statutory designated sites were identified. The Proposed Development has been designed to minimise impacts on important habitats, peatland and protected species as far as practicable. This has been achieved through embedded mitigation and the iterative design process. This process, combined with further commitments to certain mitigation measures pre-construction, during construction, and during operation allowed potential effects on several habitats and species present to be scoped-out of the assessment. The following Important Ecological Features (IEFs) were taken forward to the assessment stage: ancient woodland, blanket bog and wet modified bog.

8.12.3. Assessment of potential effects and their significance were determined through consideration of the sensitivity of the feature and the magnitude of change. The most tangible effect during construction of the Proposed Development on IEFs would be direct habitat loss due to the construction of infrastructure, in addition to some indirect drainage effects. The assessment concluded that there would be a Minor adverse and Not Significant effect on ancient woodland, blanket bog and wet modified bog. No significant operational, decommissioning or cumulative effects were identified.

8.12.4. A Biodiversity Enhancement Management Plan (BEMP) as proposed in outline in **Appendix 8.6** would be finalised prior to commencement of development which will compensate for the identified effects on blanket bog and wet modified bog within the site. With the implementation of the BEMP, overall effects on wet modified bog and blanket bog would be positive with the restoration and enhancement of habitats. As detailed in **Appendix 3.3**, woodland creation through natural regeneration would be included in a Forestry Plan and would reduce adverse effects on ancient woodland.

[7] This follows NatureScot (2023a) guidance which recommends compensation to be in the order of 1:10 ratio (lost:restored) (i.e. 246.5 ha), plus additional restoration measures required for enhancement to be in the region of an additional 10% of the baseline extent of priority peatland habitat (i.e. 45.88 ha).

Table 8.10 – Summary of Effects

Description of Effect	Significance of Potential Effect		Mitigation Measure	Significance of Residual Effect	
	Significance	Beneficial/Adverse		Significance	Beneficial/Adverse
Direct and indirect habitat loss of blanket bog and wet modified bog (combined loss due to permanent and temporary works total 24.65 ha)	Not significant	Adverse	In addition to embedded mitigation, compensation would be delivered through a BEMP which includes bog and upland habitat restoration (**Appendix 8.6**).	Not significant and adverse in the short term. Potentially changing to a Significant positive effect in the long-term through restoration/ enhancement of bog habitats as implemented by the BEMP.	Adverse in short-term, potentially becoming Positive in the long-term
Direct habitat loss of ancient woodland habitat (approximately 0.19 ha)	Not significant	Adverse	In addition to embedded mitigation, compensation would be delivered through natural woodland regeneration (as detailed in **Appendix 3.3**)	Not significant	Adverse

References

Bremner, S. (2022). Culachy Red Deer Culls. pers. comm.

CIEEM (2018). *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine.* Chartered Institute of Ecology and Environmental Management, Winchester.

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

European Commission, Directorate-General for Environment (2010). *Wind energy developments and Natura 2000: guidance document.*

Highland Environment Forum (2021). *Highland Nature Biodiversity Action Plan 2021 – 2026.* Available at: https://www.highlandenvironmentforum.info/.

Hill, D., Fasham, M., Tucker, G., Shewry, M., and Shaw, P (2005). Handbook of Biodiversity Methods: Survey, Evaluation and Monitoring. Cambridge University Press.

JNCC (2010). Handbook for phase 1 habitat survey – a technique for environmental audit. JNCC, Peterborough.

JNCC and Defra (on behalf of the Four Countries' Biodiversity Group) (2012). *UK Post-2010 Biodiversity Framework.* JNCC, Peterborough.

JNCC (2019a). *Guidelines for selection of biological SSSIs*.

JNCC (2019b). *UK BAP Priority Habitats.* Available at: https://jncc.gov.uk/our-work/uk-bap-priority-habitats/.

JNCC (2019c). *Conservation status assessment for the habitat: H7130 – Blanket bogs. United Kingdom.*

JNCC (2019d). *Conservation status assessment for the habitat: H7130 – Blanket bogs. Scotland.*

JNCC (2023). *Habitats List.* Available at: https://sac.jncc.gov.uk/habitat/.

Landry, J. and Rochefort, L. (2012). The Drainage of Peatlands: Impacts and Rewetting Techniques. Peatland Ecology Research Group, Université Laval, Quebec.

Mammal Society (2017). Ecobat. [Online] Available from – http://www.mammal.org.uk/science-research/ecostat/ [Accessed: November 2022]

National Biodiversity Network (NBN) Atlas Scotland (2023). Available at: https://scotland.nbnatlas.org/.

NatureScot (2018). The handling of mitigation in Habitats Regulations Appraisal – the People Over Wind CJEU judgement. NatureScot Guidance Note. Available from: https://www.nature.scot/doc/natura-casework-guidance-how-consider-plans-and-projects-affecting-special-areas-conservation-sacs

NatureScot (2020a). *General pre-application and scoping advice for onshore wind farms*.

NatureScot (2020b). *The Scottish Biodiversity List.* Available at: https://www.nature.scot/doc/scottish-biodiversity-list

NatureScot (2020c). Ness Woods SAC – Conservation Advice Package.

NatureScot (2021). *Guidance - Assessing the cumulative landscape and visual impact of onshore wind energy developments (update to 2012 guidance)*.

NatureScot (2023a). Advising on peatland, carbon-rich soils and priority peatland habitats in development management.

NatureScot (2023b). *SiteLink.* Available at: https://sitelink.nature.scot/home.

NatureScot (2023c). Blanket Bog [Online]. Available at: https://www.nature.scot/landscapes-and-habitats/habitat-types/mountains-heaths-and-bogs/blanket-bog [Accessed July 2023]

NatureScot, Natural England, Natural Resources Wales, RenewableUK, Scottish Power Renewables, Ecotricity Ltd, the University of Exeter & Bat Conservation Trust (BCT) (2019, with minor updates 2021). *Bats and Onshore Wind Turbines – Survey, Assessment and Mitigation*.

Nayak, R.A., Miller, D., Nolan, A., Smith, P., Smith, J. (2008). *Calculating carbon savings from wind farms on Scottish peat lands – A New Approach*.

Ness District Salmon Fishery Board (2021). *2021 Annual Report.* Available at: https://ness.dsfb.org.uk/files/2022/02/2021-Annual-report-draft-cmpressed.pdf

Scotland's Soils (2016). *Carbon and Peatland 2016 Map.* Available at: https://soils.environment.gov.scot/maps/thematic-maps/carbon-and-peatland-2016-map/.

Scottish Badgers (2018). *Surveying for Badgers: Good Practice Guidelines. Version 1*.

Scottish Executive (2000). *Nature conservation: implementation in Scotland of EC Directives on the conservation of natural habitats and of wild flora and fauna and the conservation of wild birds ('The Habitats and Birds Directives'). Revised guidance updating Scottish Office Circular no. 6/1995.*

SEPA (undated). Carbon Calculator User Guidance.

SEPA (2015) Water Environment Hub. Available at: https://www.sepa.org.uk/data-visualisation/water-environment-hub/.

SEPA (2017a). Land Use Planning System Guidance Note 4 – Planning guidance on on-shore windfarm developments.

SEPA (2017b). Land Use Planning System Guidance Note 31 – Guidance on Assessing the Impacts of Development Proposals on Groundwater Abstractions and Groundwater Dependent Terrestrial Ecosystem. Version 3.

SERAD (2001). European Protected Species, Development Sites and the Planning Systems: Interim guidance for local authorities on licensing arrangements.Scottish Government (1981). *Wildlife and Countryside Act 1981.* Available at: https://www.legislation.gov.uk/ukpga/1981/69.

Scottish Government (1992a). *Council Directive 92/43/EEC*. Available at: https://www.legislation.gov.uk/eudr/1992/43/contents.

Scottish Government (1992b*). Protection of Badgers Act 1992*. Available at: https://www.legislation.gov.uk/ukpga/1992/51/contents.

Scottish Government (1994) *The Conservation (Natural Habitats, &c.) Regulations 1994.* Available at: https://www.legislation.gov.uk/uksi/1994/2716/contents.

Scottish Government (2000). *Directive 2000/60/EC of the European Parliament and of the Council.* Available at: https://www.legislation.gov.uk/eudr/2000/60/contents.

Scottish Government (2003a). *Salmon and Freshwater Fisheries (Consolidation) (Scotland) Act 2003*. Available at: https://www.legislation.gov.uk/asp/2003/15/contents.

Scottish Government (2003b). *Water Environment and Water Services (Scotland) Act 2003*. Available at: https://www.legislation.gov.uk/asp/2003/3/contents.

Scottish Government (2004). *Nature Conservation (Scotland) Act 2004.* Available at: https://www.legislation.gov.uk/asp/2004/6/contents.

Scottish Government (2011a). *The Water Environment (Controlled Activities) (Scotland) Regulations 2011*. Available at: https://www.legislation.gov.uk/ssi/2011/209/contents/made.

Scottish Government (2011b). *Wildlife and Natural Environment (Scotland) Act 2011*. Available at: https://www.legislation.gov.uk/asp/2011/6/contents/enacted.

Scottish Government (2014a). *Directive 2014/52/EU of the European Parliament and of the Council*. Available at: https://www.legislation.gov.uk/eudr/2014/52.

Scottish Government (2014b). *Scottish Planning Policy*. Scottish Government, Edinburgh.

Scottish Government (2016). *Draft Peatland and Energy Policy Statement.* Scottish Government, Edinburgh.

Scottish Government (2017a). *The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017.* Available at: https://www.legislation.gov.uk/ssi/2017/101/contents.

Scottish Government (2017b). *Planning Advice Note 1/2013 – Environmental Impact Assessment, Revision 1.0.* Scottish Government, Edinburgh.

Scottish Government (2017c). *Planning Circular 1/2017: Guidance on The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017*. Scottish Government, Edinburgh.

Scottish Government (2019). *The Scottish Forestry Strategy 2019-2029*. Scottish Government, Edinburgh.

Scottish Government (2020a). *EU Exit: The Habitats Regulations in Scotland*. Scottish Government, Edinburgh.

Scottish Government (2020b). *Securing a green recovery on a path to net zero: climate change plan 2018–2032 – update.* Scottish Government, Edinburgh.

Scottish Government (2020c). *Update to the Climate Change Plan 2018-2032.* Scottish Government, Edinburgh.

Scottish Government (2021). Freshwater and diadromous fish and fisheries associated with onshore wind farm and transmission line developments: generic scoping guidelines.

Scottish Government (2022c). *Ancient Woodland Inventory (Scotland).* Available at: https://www.data.gov.uk/dataset/c2f57ed9-5601-4864-af5f-a6e73e977f54/ancient-woodland-inventory-scotland.

Scottish Government (2022a). *Onshore Wind Policy Statement 2022.*

Scottish Government (2023). *Scottish biodiversity Strategy to 2045: Tackling the Nature Emergency in Scotland.* Scottish Government, Edinburgh.

Scottish Government (2023). National Planning Framework 4.

Scottish Government, SNH, SEPA (2017). *Peatland Survey. Guidance on Developments on Peatland.*

Scottish Renewables, SNH, SEPA, Forestry Commission (Scotland), Historic Environment Scotland & AEECoW (2019). *Good Practice During Windfarm Construction (4th Edition).*

Scottish Squirrels (2023). *Sightings of Red and Grey Squirrels across Scotland.* Available at: https://scottishsquirrels.org.uk/squirrel-sightings/.

SNH (2015). *Scotland's National Peatland Plan*. Available at: https://www.nature.scot/doc/scotlands-national-peatland-plan-working-our-future.

SNH (2016a). *Decommissioning and Restoration Plans for wind farms.*

SNH (2016b). *Planning for Development: What to consider and include in deer assessments and management at development sites (Version 2).*

SNH (2016c). *Planning for Development: What to consider and include in Habitat Management Plans. Version 2.*

SNH (2018a). *Advising on carbon-rich soils, deep peat and priority peatland habitat in development management*. Available at: https://www.nature.scot/doc/advising-carbon-rich-soils-deep-peat-and-priority-peatland-habitat-development-management.

SNH (2018b). *Environmental Impact Assessment Handbook – Version 5: Guidance for competent authorities, consultation bodies, and others involved in the Environmental Impact Assessment process in Scotland.*

Stewart, A.J.A. & Lance, A.N. (1991). Effects of Moor Draining on the Hydrology and Vegetation of Northern Pennine Blanket Bog. Journal of Applied Ecology 28: 1105-1117

Telfer, S., Holt, A., Donaldson, R., and Lambin, X. (2001). *Metapopulation processes and persistence in remnant water vole populations.* OIKOS 95: 31 – 42.

The British Deer Society (BDS) (2016). *Deer Distribution Survey.* Available at: https://bds.org.uk/science-research/deer-surveys/deer-distribution-survey/.

Peatland Action (2023). Open Data. Available at: https://www.nature.scot/climate-change/nature-based-solutions/peatland-action-project/how-apply/peatland-action-open-data

Annex A

Table 8-10 Habitat Baseline Composition and Habitat Loss Calculations for study area/Proposed Development Area

		study area (baseline)				Permanent Direct loss		Permanent Indirect Loss (only applies to Wetland Habitats[8])		Permanent Direct + Indirect Loss		Temporary Direct Loss	
Phase 1 Description (Code)	NVC	study area Phase 1 Area (ha)	study area Phase 1 Area (%)	NVC Area (ha)	% of NVC Type within study area	% Loss of Phase 1 type within study area	NVC Area Loss (ha)	% Loss of Phase 1 type within study area	NVC Area Loss (ha)	% Loss of Phase 1 type within study area	NVC Area Loss (ha)	% Loss of Phase 1 type within study area	NVC Area Loss(ha)
Grand Totals		**681.495**	**100.00%**	**681.495**	**100.00%**		**12.084**		**13.153**		**25.237**		**19.865**
Broad-Leaved Semi-Natural Woodland (A1.1.1)	W11	7.880	1.16%	4.899	0.72%	0.92%	0.010	0.00%	0.000	0.92%	0.010	0.76%	0.060
	W17b			1.502	0.22%		0.000		0.000		0.000		0.000
	W17			1.216	0.18%		0.000		0.000		0.000		0.000
	W10			0.131	0.02%		0.062		0.000		0.062		0.000
	W4b			0.132	0.02%		0.000		0.000		0.000		0.000
Coniferous Plantation Woodland (A1.2.2)	CP	0.952	0.14%	0.952	0.14%	3.13%	0.030			3.13%	0.030	3.24%	0.031
Dense/Continuous Scrub (A2.1)	W23	0.373	0.05%	0.373	0.05%	6.36%	0.024	0.00%	0.000	6.36%	0.024	7.57%	0.028
Unimproved Acid Grassland (B1.1)	U5	54.200	7.95%	22.609	3.32%	1.82%	0.275	0.77%		2.59%	0.275	2.94%	0.453
	U4			21.202	3.11%		0.580				0.580		0.623
	U6a			3.717	0.55%		0.062		0.091		0.153		0.283
	U6c			3.832	0.56%		0.007		0.016		0.023		0.006
	U6			1.919	0.28%		0.043		0.311		0.354		0.184
	U4a			0.566	0.08%		0.011				0.011		0.016
	U5b			0.298	0.04%		0.006				0.006		0.026
	U4d			0.057	0.01%								
Semi-Improved Acid Grassland (B1.2)	U4b	1.257	0.18%	1.257	0.18%	6.66%	0.084	0.00%	0.000	6.66%	0.084	7.26%	0.091
Improved Grassland (B4)	MG6	7.112	1.04%	7.112	1.04%	6.42%	0.456			6.42%	0.456	5.61%	0.399
	Je	7.004	1.03%	4.848	0.71%	2.78%	0.175	8.66%	0.510	11.44%	0.686	5.14%	0.341

[8] Based upon the precautionary 10 m indirect drainage assumption.

		study area (baseline)				Permanent Direct loss		Permanent Indirect Loss (only applies to Wetland Habitats[8])		Permanent Direct + Indirect Loss		Temporary Direct Loss	
Phase 1 Description (Code)	**NVC**	**study area Phase 1 Area (ha)**	**study area Phase 1 Area (%)**	**NVC Area (ha)**	**% of NVC Type within study area**	**% Loss of Phase 1 type within study area**	**NVC Area Loss (ha)**	**% Loss of Phase 1 type within study area**	**NVC Area Loss (ha)**	**% Loss of Phase 1 type within study area**	**NVC Area Loss (ha)**	**% Loss of Phase 1 type within study area**	**NVC Area Loss(ha)**
Marsh/Marshy Grassland (B5)	M23b			1.177	0.17%		0.000		0.002		0.002		0.000
	M25b			0.838	0.12%		0.019		0.091		0.110		0.017
	M23a			0.140	0.02%		0.000		0.004		0.004		0.002
Continuous Bracken (C1.1)	U20a	8.818	1.29%	7.221	1.06%	2.06%	0.178			2.06%	0.178	4.07%	0.342
	U20			1.417	0.21%		0.004				0.004		0.017
	U20b			0.179	0.03%								
Acid Dry Dwarf Shrub Heath (D1.1)	H10	8.009	1.18%	1.767	0.26%	0.22%	0.007	0.00%	0.000	0.22%	0.007	1.06%	0.022
	H9c			1.122	0.16%		0.000		0.000		0.000		0.047
	H12b			1.485	0.22%		0.000		0.000		0.000		0.001
	H10a			1.469	0.22%		0.003		0.000		0.003		0.007
	H12a			1.280	0.19%		0.000		0.000		0.000		0.002
	H12c			0.464	0.07%		0.000		0.000		0.000		0.000
	H18a			0.189	0.03%		0.000		0.000		0.000		0.000
	H9d			0.117	0.02%		0.007		0.000		0.007		0.007
	H9a			0.115	0.02%		0.000		0.000		0.000		0.000
Wet Dwarf Shrub Heath (D2)	M15b	107.427	15.76%	61.176	8.98%	1.13%	0.775	3.71%	2.661	4.84%	3.436	4.82%	2.829
	M15a			34.257	5.03%		0.331		1.075		1.406		1.123
	M15c			11.775	1.73%		0.106		0.255		0.362		1.224
	M15d			0.219	0.03%								
Lichen/Bryophyte Heath (D3)	H14	0.104	0.02%	0.035	0.01%	0.00%	0.000	0.00%	0.000	0.00%	0.000	0.00%	0.000
	U10			0.069	0.01%		0.000		0.000		0.000		0.000
Blanket Bog (E1.6.1)	M17b	368.508	54.07%	152.843	22.43%	1.28%	2.640	1.71%	2.546	2.99%	5.186	2.21%	3.751
	M19a			105.846	15.53%		1.114		2.291		3.405		1.828
	M17c			65.276	9.58%		0.304		0.751		1.055		0.249

		study area (baseline)				Permanent Direct loss		Permanent Indirect Loss (only applies to Wetland Habitats[8])		Permanent Direct + Indirect Loss		Temporary Direct Loss	
Phase 1 Description (Code)	**NVC**	**study area Phase 1 Area (ha)**	**study area Phase 1 Area (%)**	**NVC Area (ha)**	**% of NVC Type within study area**	**% Loss of Phase 1 type within study area**	**NVC Area Loss (ha)**	**% Loss of Phase 1 type within study area**	**NVC Area Loss (ha)**	**% Loss of Phase 1 type within study area**	**NVC Area Loss (ha)**	**% Loss of Phase 1 type within study area**	**NVC Area Loss(ha)**
	M17a			18.056	2.65%		0.282		0.533		0.815		1.807
	M3			10.746	1.58%		0.156		0.133		0.288		0.190
	M19b			9.956	1.46%		0.093		0.017		0.110		0.165
	M19c			5.094	0.75%		0.114		0.024		0.138		0.151
	M17			0.443	0.07%		0.007		0.014		0.021		0.004
	M2			0.130	0.02%								
	M1			0.119	0.02%								
Wet Modified Bog (E1.7)	M20b	90.304	13.25%	42.477	6.23%	1.66%	0.864	1.98%	0.673	3.64%	1.537	2.42%	1.284
	M20a			34.074	5.00%		0.425		0.532		0.957		0.650
	M25a			13.103	1.92%		0.204		0.555		0.759		0.244
	M20			0.650	0.10%		0.009		0.027		0.036		0.008
Acid Neutral Flush (E2.1)	M6c	9.196	1.35%	9.117	1.34%	0.19%	0.018	0.45%	0.042	0.65%	0.059	0.38%	0.035
	M6d			0.048	0.01%								
	M6a			0.032	0.00%								
Basic Flush (E2.2)	M10a	0.215	0.03%	0.145	0.02%	0.00%	0.000	0.00%	0.000	0.00%	0.000	0.00%	0.000
	M10			0.070	0.01%		0.000		0.000		0.000		0.000
Standing Water (G1)	SW	0.628	0.09%	0.628	0.09%							3.75%	0.024
Running Water (G2)	RW	1.610	0.24%	1.610	0.24%	0.49%	0.008	0.00%	0.000	0.49%	0.008	1.74%	0.028
Quarry (I2.1)	QY	1.292	0.19%	1.292	0.19%	45.99%	0.594			45.99%	0.594	44.10%	0.570
Building (J3.6)	BD	0.311	0.05%	0.311	0.05%	0.00%	0.000	0.00%	0.000	0.00%	0.000	0.00%	0.000
Bare Ground (J4)	BG	6.272	0.92%	6.272	0.92%	31.78%	1.993			31.78%	1.993	11.12%	0.698
Other Habitat (J5)	DG	0.022	0.00%	0.022	0.00%	0.00%	0.000	0.00%	0.000	0.00%	0.000	0.00%	0.000