



Wind Power North Two Limited

Balblair Wind Farm

Environmental Impact Assessment Report (Volume 2)

Chapter 8 - Ecology

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8 ECOLOGY

8.1 Introduction

- 8.1.1 This chapter of the Environmental Impact Assessment Report (EIA Report) evaluates the potential effects of the Balblair Wind Farm (hereafter the 'proposed Development') on non-avian ecology, including designated sites, terrestrial and aquatic habitats, and protected species.
- 8.1.2 The specific objectives of the chapter are to:
- describe the assessment methodology and significance criteria used in completing the impact assessment;
 - describe the ecology baseline conditions;
 - assess the likely significant effects on ecology, including direct, indirect and cumulative effects associated with the proposed Development;
 - describe the mitigation measures proposed to address the likely significant effects; and
 - assess the residual effects remaining following the implementation of mitigation, compensation and/or enhancement, where appropriate.
- 8.1.3 This ecological assessment was undertaken by MacArthur Green in accordance with NatureScot (2018) (formerly Scottish Natural Heritage) and Chartered Institute of Ecology and Environmental Management (CIEEM, 2024) guidance. Staff contributing to this chapter have undergraduate and/or postgraduate degrees in relevant subjects, have extensive professional ecological impact assessment (EclA) and ecological survey experience, hold professional membership of CIEEM, and abide by the CIEEM Code of Conduct.
- 8.1.4 This chapter is supported by the following Technical Appendices, which provide further information and are referenced throughout the text:
- **Technical Appendix 8.1: National Vegetation Classification (NVC) and Habitats Survey Report;**
 - **Technical Appendix 8.2: Protected Species Survey Report;**
 - **Technical Appendix 8.3: Bat Survey Report;**
 - **Technical Appendix 8.4: Fisheries Survey Report;**
 - **Technical Appendix 8.5: Species Protection Plan; and**
 - **Technical Appendix 8.6: Outline Biodiversity Enhancement Management Plan.**
- 8.1.5 The Figures referred to in the chapter are as follows:
- **Figure 8.1: Ecological Designated Sites and Ancient Woodland within 5 km;**
 - **Figure 8.2: Carbon and Peatland Map 2016;**
 - **Figure 8.3: National Vegetation Classification Survey Area and Survey Results;**
 - **Figure 8.4: Potential Groundwater Dependent Terrestrial Ecosystems Survey Area and Survey Results;**
 - **Figure 8.5: Protected Species Survey Area and Survey Results;**
 - **Figure 8.6: Anabat Locations and Preliminary Bat Roost Assessment Survey Area and Results;**

- **Figure 8.7: Seasonal Bat Site Activity 2023 – Common pipistrelle;**
- **Figure 8.8: Seasonal Bat Site Activity 2023 – Soprano pipistrelle;**
- **Figure 8.9: Electrofishing: Atlantic Salmon Presence/Absence;**
- **Figure 8.10: Electrofishing: Trout Presence/Absence;** and
- **Figure 8.11: Outline Biodiversity Enhancement Management Plan.**

8.2 Relevant legislation, policy and guidance

Legislation

8.2.1 The following legislation have been considered in carrying out this assessment:

- 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 Electricity Act 1989;
- 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.

Policy

8.2.2 **Chapter 5: Planning and Energy Policy Context** sets out the planning policy framework that is relevant to this EIA Report. The following planning and biodiversity policy of relevance to ecology have been considered in carrying out this assessment:

- Joint Nature Conservation Committee (JNCC) and Department for Environment, Food and Rural Affairs (DEFRA) (2012). UK Post-2010 Biodiversity Framework;
- Scottish Executive (2004). Scottish Biodiversity Strategy: It's in Your Hands;
- Scottish Government (2000). Planning Advice Note (PAN) 60: Planning for Natural Heritage;
- Scottish Government (2022a). Onshore Wind Policy Statement 2022;
- Scottish Government (2022b). Scottish Biodiversity Strategy to 2045. Tackling the Nature Emergency in Scotland;
- Scottish Government (2023a). National Planning Framework (NPF) 4;
- The Highland Wide Local Development Plan 2012; and
- Caithness and Sutherland Local Development Plan (2018).

Guidance

8.2.3 The following guidance have been considered in carrying out this assessment:

- CIEEM (2024). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine (version 1.3). Chartered Institute of Ecology and Environmental Management, Winchester;
- Collins, J. (2016). Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edition);
- Collins, J. (2023) Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edition). The Bat Conservation Trust, London;
- European Commission (2020). Guidance document on wind energy developments and EU nature legislation;
- Highland Nature: Biodiversity Action Plan 2021 – 2026;
- Joint Nature Conservation Committee (JNCC) (2019). Guidelines for selection of biological Sites of Special Scientific Interest (SSSI);
- 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 (2021). Assessing the cumulative landscape and visual impact of onshore wind energy developments;
- NatureScot (2023). Advising on peatland, carbon-rich soils and priority peatland habitats in development management;
- NatureScot (2024b). NatureScot pre-application guidance for onshore wind farms;
- Scottish Badgers (2018). Surveying for Badgers: Good Practice Guidelines;
- Scottish Environment Protection Agency (SEPA) (2017). Land Use Planning System Guidance Note 4 – Planning guidance on on-shore windfarm developments;
- SEPA (2017). 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;
- SERAD (Scottish Executive Rural Affairs Department) (2001). European Protected Species, Development Sites and the Planning Systems: Interim guidance for local authorities on licensing arrangements;
- Scottish Government (2006). European Protected Species – terms of guidance: Chief Planner letter;
- Scottish Government (2016a). Draft Peatland and Energy Policy Statement;
- Scottish Government (2017). Planning Advice Note 1/2013 – Environmental Impact Assessment, Revision 1.0;
- Scottish Government (2017). Planning Circular 1/2017: Guidance on The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017;
- Scottish Government, Scottish Natural Heritage (SNH) and SEPA (2017). Peatland Survey – Guidance on Developments on Peatland;
- Scottish Government (2019). The Scottish Forestry Strategy (SFS);
- Scottish Government (2020). EU Exit: The Habitat Regulations in Scotland;
- Scottish Government (2020). Securing a green recovery on a path to net zero: climate change plan 2018–2032 – update;
- Scottish Government (2020). 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;
- Scottish Government (2023b). Draft Planning Guidance: Biodiversity;
- SNH (2015). Scotland's National Peatland Plan;
- SNH (2016). Decommissioning and Restoration Plans for wind farms;
- SNH (2016). Planning for Development: What to consider and include in deer assessments and management at development sites (Version 2);
- SNH (2016). Planning for Development: What to consider and include in Habitat Management Plans (Version 2);
- SNH (2018). 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 & AEECoW (2019, updated 2024). Good Practice During Windfarm Construction (4th Edition); and
- The Highland Council (2024). Biodiversity Enhancement Planning Guidance.

8.3 Consultation undertaken

Scoping Responses and Consultations

- 8.3.1 In undertaking the assessment, consideration has been given to the scoping responses which were received in relation to ecological matters, as detailed in **Table 8.1**.

Table 8.1: Summary of consultation responses relevant to this chapter

Consultee	Issues Raised	Response/Action Taken
<p>Energy Consents Unit (ECU) (Scoping opinion 27/05/2024).</p>	<p>Note the requirements of Policy 3(b) of NPF 4 whereby biodiversity enhancements are to be provided in addition to any proposed mitigation. Information on predicted losses and proposed offsetting and delivery of positive effects on biodiversity should be clearly set out in the EIA report.</p>	<p>Noted. An Outline Biodiversity Enhancement Management Plan (OBEMP) has been provided with details of proposed measures, including peatland restoration/enhancement and riparian planting (see Technical Appendix 8.6).</p>
	<p>The Scottish Ministers recommend that the Company seek the agreement of the Highland Council, Historic Environment Scotland and NatureScot regarding the designated sites, protected areas and protected species to be included in the EIA report. Where required, sufficient information should be included in the EIA report regarding Habitats Regulations Appraisal (HRA).</p>	<p>Noted. Consultees that have responded on ecological matters are included in this table. Consideration of designated sites is presented in the Existing environment and Predicted effects sections of this chapter (including consideration of the requirement for HRA).</p>
	<p>The EIA report should provide a baseline survey of the animals and bird interests on site. Before an application is submitted it needs to be categorically established which species are present on the site, and where they are present. Further, the EIA report should provide an account of the habitats present on the site of the proposed Development. It should identify rare and threatened habitats, and those protected by European or UK legislation, or identified in national or local Biodiversity Action Plans.</p>	<p>See Existing environment and Technical Appendices 8.1 – 8.4 for full details of all baseline desk study and field survey information relevant to ecological interests.</p>
	<p>It is recommended by Scottish Ministers that the Company consider the comments raised by Kyle of Sutherland District Salmon Fisheries Board with regards to the potential impacts on Special Areas of Conservation (SACs). The Company should include River Evelix SAC in the EIA process to assess the potential impact on freshwater pearl mussels, and other fauna. The Company should also take into consideration the comments raised by NatureScot regarding protected areas.</p>	<p>See Existing environment and Technical Appendix 8.4 for full details of all baseline desk study and field survey information relevant to fisheries interests. Consideration of designated sites is presented in the Existing environment and Predicted effects sections of this chapter.</p>
<p>The Highland Council (Scoping opinion)</p>	<p>EIA Report chapters covering ecology and habitats will be required. This must provide a baseline survey of the bird and animals interest onsite. It needs to be categorically established which species are</p>	<p>Full details of the baseline desk study and field survey information are summarised in Section 8.5 and full</p>

Consultee	Issues Raised	Response/Action Taken
27/05/2024).	<p>present on the site, and where, before a future application is submitted. Further the EIA Report should provide an account of the habitats present on the proposed development site. 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 EIAR will address whether or not the development could assist or impede delivery of elements of relevant Biodiversity Action Plans.</p>	<p>details are in Technical Appendices 8.1 – 8.4 and their respective figures.</p> <p>An OBEMP has been prepared and provided for the proposed Development (see Technical Appendix 8.6).</p>
	<p>The applicant's commitment to developing a Biodiversity Enhancement and Management Plan (BEMP) is welcomed and it is noted that an outline BEMP will be submitted with the application. The application should be supported by a Biodiversity Net Gain (BNG) Metric.</p>	<p>An OBEMP has been prepared and provided for the proposed Development (see Technical Appendix 8.6). A BNG metric is not included (as this is not a statutory requirement).</p>
Scottish Environment Protection Agency (SEPA) (Scoping opinion 29/05/2024).	<p>In relation to Groundwater Dependent Terrestrial Ecosystems (GWDTE), a National Vegetation Classification (NVC) survey should be submitted.</p>	<p>The findings of the NVC survey and information relating to areas of potential GWDTE are provided in Technical Appendix 8.1 and Figures 8.3 and 8.4.</p> <p>The GWDTE assessment is presented within Chapter 9: Geology, Hydrology, Hydrogeology and Peat.</p>
NatureScot (Scoping opinion 08/05/2024).	<p>The River Oykel SAC is protected for its freshwater pearl mussel and Atlantic salmon.</p> <p>There also appears to be connectivity to the headwaters of the River Evelix SAC, protected for freshwater pearl mussels.</p> <p>Full adherence to best practice construction measures to avoid pollution will be important in context to completing shadow HRA's for inclusion within the EIA Report.</p>	<p>Consideration of European designated sites is presented in the Existing environment and Predicted effects sections of this chapter.</p> <p>Measures to minimise the risk of pollution incidents are included in the Outline Construction Environmental Management Plan (CEMP) – see Technical Appendix 2.1 This, alongside the accompanying Species Protection Plan (Technical Appendix 8.5), are considered as Embedded Mitigation, as outlined in the relevant section of this chapter.</p>
	<p>Water vole expected at the location.</p>	<p>Protected species surveys included determining the presence of water vole on Site have been undertaken,</p>

Consultee	Issues Raised	Response/Action Taken
	<p>Mountain hare has been noted approximately 3 km east. Prudent to include in further surveys.</p> <p>NatureScot Best Practice Guidance on Protected Species should be used throughout the development.</p>	<p>no mountain hare recorded during surveys (see Technical Appendix 8.2).</p> <p>A Species Protection Plan has been provided; see Technical Appendix 8.5. This follows NatureScot Best Practice Guidance.</p>
<p>Fisheries Management Scotland (Scoping opinion 30/05/2024).</p>	<p>Recommends the following guidelines (Advice to Boards/Trusts on engaging with the planning process for terrestrial wind farms (2017)) are fully considered throughout the planning, construction and monitoring phases of the proposed Development.</p>	<p>Guidelines will be followed during construction and pre-, during and post-construction monitoring of fish and macroinvertebrates will take place as per relevant guidance (expected to be a condition of consent).</p>
<p>Kyle of Sutherland Fisheries (Scoping opinion 30/05/2024).</p>	<p>The River Evelix SAC should be scoped in given that the An Uidh catchment is part of the wider Evelix catchment.</p> <p>The potential impacts of the proposal should be considered on both the qualifying features of the SAC: freshwater pearl mussels and other fauna such as salmonid fish, throughout the catchment.</p>	<p>Consideration of European designated sites is presented in the Existing environment and Predicted effects sections of this chapter.</p>
<p>RSPB Scotland (Scoping opinion 11/06/2024).</p>	<p>As much detail as possible should be provided in the BEMP prior to consent in order that the benefits be fully considered alongside the application. In addition to the production of a BEMP, appropriate SPPs and a Deer Management Plan should be drafted.</p>	<p>Noted; see Species Protection Plan (Technical Appendix 8.5) and OBEMP (Technical Appendix 8.6).</p> <p>Given the scale of the proposed Development, it is not expected a Deer Management Plan would be necessary. Deer are discussed further in paragraphs 8.7.20 - 8.7.23 below.</p>

8.4 Approach to assessment

Scope of Assessment

8.4.1 This chapter considers the potential temporary and permanent effects of construction, operation and decommissioning (including cumulatively) of the proposed Development upon those ecological features identified during the EIA Scoping process, review of desk-based information and field surveys:

- designated nature conservation sites – impacts 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 – impacts 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 – impacts are limited to the ecological impacts of changes in water conditions through potential pollution effects (hydrological effects are considered in **Chapter 9**; and
- protected species and other notable species – impacts considered include direct (i.e., loss of life; loss of key habitat; displacement from key habitat; barrier effects preventing movement to/from key habitats; and general disturbance) and indirect (i.e., loss/changes of/to food resources; population fragmentation; degradation of key habitat e.g., as a result of pollution).

8.4.2 This chapter also assesses the potential for cumulative effects as arising from the addition of the proposed Development to other relevant projects which are consented or the subject of a valid planning application. Operational and under construction developments are considered as part of the baseline.

8.4.3 The assessment is based on the proposed Development as described in **Chapter 2: The Proposed Development**.

Elements Scoped Out of Assessment

8.4.4 On the basis of professional judgement of the EIA team, experience from other relevant projects and policy guidance or standards, 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 (i.e., European Union Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora);
- Biodiversity Action Plan (UKBAP) (JNCC, 1994) or Scottish Biodiversity List (SBL) Priority Habitats (NatureScot, 2020); 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.

8.4.5 Further ecological features and potential 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 for a significant effect at a

relevant species population or habitat extent scale, or in the case of European sites, no likely significant effects. Details of ecological features and effects scoped out after data searches and field surveys are provided in Predicted effects.

Study Area/Survey Area

- 8.4.6 The area within which the desk-based research and field surveys were undertaken varies depending on the ecological features and their search/survey requirements. Details of the extents are described in the relevant sections within the 'Baseline Survey Methodology' and 'Existing Environment' sections of this chapter, associated **Technical Appendices 8.1 8.4** and their respective figures. Hereafter in this chapter, the areas covered by field surveys are termed the 'survey area', and areas which are considered as part of the assessment process are referred to as the 'study area' (N.B. the study area generally equates to the application boundary, except for designated sites where the study area is a 5 km distance band around the Site (**Figure 8.1**)).

Baseline Survey Methodology

Desk Study

- 8.4.7 A desk study was undertaken to collate available ecological information in relation to the proposed Development and surrounding environment. The following data sources were considered as part of the determination of scope of baseline surveys and assessment:
- National Biodiversity Network (NBN) Atlas Scotland (2024) for protected or notable species records within a 5 km buffer (10 km for wildcat (*Felis sylvestris*) and bat species) from the application boundary from the last 15 years (i.e., 2010 and onwards);
 - NatureScot Sitelink (2024a) website for designated site information within 5 km of the application boundary;
 - Scotland's Environment map for the Carbon and Peatland Map 2016 and Ancient Woodland Inventory (AWI) (SNH, 2000) sites within 5 km of the application boundary;
 - Saving Scotland's Red Squirrels (Scottish Squirrels, 2024) website for local species records and Priority Areas for Red Squirrel Conservation;
 - Scottish Wildcat Priority Areas (NatureScot, 2022);
 - SEPA (2024) Water Environment Hub for watercourse classifications;
 - Deer Distribution Survey results by the British Deer Society (2023);
 - Baseline information collected as part of the proposed Garvary Wind Farm application which lies to the north west of the proposed Development and includes part of the application boundary;
 - Baseline information published in the course of previous, or other nearby, relevant wind development applications; and
 - Relevant scientific literature on protected species' distribution, habitats distribution and conservation status etc.

Field Surveys

- 8.4.8 The following field surveys were undertaken to further establish the baseline ecological conditions within the Site to inform the assessment, and were undertaken in line with standard methodologies and best practice guidance (respective surveys areas are shown in **Figures 8.3 - 8.10**):

- NVC habitat surveys, incorporating Phase 1 habitat characterisation (May and June 2023);
- protected species surveys (March 2023) focusing on badger (*Meles meles*), red squirrel (*Sciurus vulgaris*), water vole (*Arvicola amphibius*), otter (*Lutra lutra*) and pine marten (*Martes martes*);
- preliminary bat roost assessments (March 2023);
- bat automated activity surveys (May to September 2023);
- electrofishing surveys (September 2023); and
- incidental records of other protected species (e.g., reptiles, wildcat, hares) or signs or features of particular importance (i.e., potential hibernacula for reptiles), notable species, or invasive non-native species (INNS), were also recorded during all field surveys.

8.4.9 The full details of survey methods, species-specific legislation and results are provided within **Technical Appendices 8.1 – 8.4**.

8.4.10 Surveys for beaver (*Castor fiber*) and great crested newt (*Triturus cristatus*) were scoped out due to the proposed Development being outwith the known species range or distribution and/or having a lack of suitable habitat.

Methodology for the Assessment of Effects

8.4.11 The significance of the potential effects has been assessed for the proposed Development by considering the spatial and temporal magnitude of the potential impacts and the sensitivity of important ecological features (IEFs).

8.4.12 The assessment method follows the process set out in CIEEM (2024) guidance, which is in line with the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017, and guidance on the implementation of the EU Birds and Habitats Directive (SERAD, 2001).

8.4.13 The assessment for wider countryside interests (i.e., unrelated to any Natura 2000 sites) involves the following process:

- identification of the potential impacts of the proposed Development on ecological features, including both positive and negative;
- considering the likelihood of occurrence of potential impacts;
- determining the sensitivity of the IEF by defining its nature conservation importance and conservation status;
- establishing the magnitude of change associated with the potential impact (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, reduce, mitigate or compensate for the effect are presented where required;
- considering opportunities for enhancement where appropriate; and
- confirming residual effects after mitigation, compensation and/or enhancement are considered.

Sensitivity of Ecological Features

8.4.14 The sensitivity of ecological features is assessed in line with best practice guidance, legislation, statutory designations and/or professional judgement.

- 8.4.15 Determination of the level of sensitivity of an ecological feature is based on a combination of the feature's nature conservation importance and conservation status.
- 8.4.16 Nature conservation importance is defined on the basis of the geographic context (**Table 8.2**), which follows the guidance as detailed within CIEEM (2024). 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, and quality/extent of the feature onsite. Published evaluation criteria (e.g., the SBL, JNCC guidance on selection of biological Sites of Special Scientific Interest (SSSIs)) are used where relevant.
- 8.4.17 Attributing a level of importance 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, a SAC designated under the Habitats Directive is implicitly of European (International) importance. In the case of species, assigning importance is less straightforward as contextual information about distribution and abundance is fundamental, including trends which are based on historical records. This means that even though a species may be protected through legislation at a national or international level, the relative importance of the population onsite 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 importance rather than national or international).

Table 8.2: Approach to determining nature conservation importance of ecological features (adapted from Hill *et al.*, 2005)

Importance of Feature in Geographical Context	Description
International/ European	An internationally designated site (e.g., SAC).
	Site meeting criteria for international designations or qualifying species of a SAC where there is connectivity.
	Species present in internationally important numbers (>1% of biogeographic populations).
National (UK)	A nationally designated site (SSSI, or a National Nature Reserve (NNR)), or sites meeting the criteria for national designation or qualifying species where there is connectivity.
	Species present in nationally important numbers (>1% of UK population).
Regional (Natural Heritage Zone or Local Authority Area)	Species present in regionally important numbers (>1% of Natural Heritage Zone population).
	Areas of habitat falling below criteria for selection as a SSSI (e.g., areas of semi-natural ancient woodland larger than 0.25 hectares (ha)).
Local	Local Nature Reserves (LNR).
	Areas of semi-natural ancient woodland smaller than 0.25 ha.

Importance of Feature in Geographical Context	Description
	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 normally considered in detail in the assessment process.

- 8.4.18 As per CIEEM (2024) guidance, it is not necessary to carry out detailed assessment on ecological features that are sufficiently widespread, unthreatened, and resilient to effects of the proposed Development. Ecological features affected by the proposed Development and deemed to be of at least Local importance are termed IEFs and are taken forward for assessment.
- 8.4.19 Where appropriate, information regarding the particular ecological feature's conservation status is also considered to fully define its sensitivity. This enables an appreciation of current population or habitat trends to be incorporated into the assessment.

Magnitude of Change

- 8.4.20 Magnitude of change refers to the level of change in the extent and integrity of an ecological feature due to a particular impact.
- 8.4.21 The magnitude of potential change will be identified through consideration of the potential spatial extent of change to baseline conditions predicted as a result of the impact, how the ecological features are likely to respond to the impact, and the duration and reversibility of an effect and the application of professional judgement, best practice guidance and legislation. This change can occur during construction, operation and/or decommissioning of the proposed Development, and impacts can be beneficial, neutral or adverse.
- 8.4.22 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., a SAC), it is applied to wider countryside habitats and species for the purposes of this assessment.
- 8.4.23 The magnitude of change is measured in space and time. There are five levels of spatial impacts and five levels of temporal impacts as described in **Table 8.3** and **Table 8.4**.

Table 8.3: Definition of spatial magnitude of change upon the IEFs

Magnitude of Change	Definition
Very High	Would cause the loss, gain or improvement of the majority of a feature (>80%) or would be sufficient to damage/enhance a feature sufficient to immediately affect its viability.

Magnitude of Change	Definition
High	Would have a major effect on the feature or its viability. For example, more than 20% habitat loss/damage or gain/improvement.
Moderate	Would have a moderate effect on the feature or its viability. For example, between 10 – 20% habitat loss/damage or gain/improvement.
Low	Would have a minor effect upon the feature or its viability. For example, less than 10% habitat loss/damage or gain/improvement.
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 magnitude of change upon the IEFs

Magnitude of Change	Definition
Permanent	Impacts 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	From 15 years up to (and including) 30 years.
Medium term	From 5 years up to (but not including) 15 years.
Short term	Up to (but not including) 5 years.
Negligible	No effect.

Significance of Effect

- 8.4.24 The predicted significance of potential effects is determined through a standard method of assessment based on professional judgement and available evidence, considering the sensitivity (nature conservation importance and conservation status) of the IEF and the nature and magnitude of change, in a reasoned way.
- 8.4.25 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, 2024).
- 8.4.26 **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 Change	Definition
Major	The effect is likely to result in a long term adverse or beneficial effect on the structure and function of defined sites, habitats or ecosystems or on the conservation status of habitat and species.

Magnitude of Change	Definition
Moderate	The effect is likely to result in a medium term or partial adverse or beneficial 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 adversely or beneficially affect the feature in the short-term 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. The level of effect would be Minor and Not Significant.
Negligible	No material effect. The effect is assessed to be Not Significant.

- 8.4.27 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 above and beyond that which would be expected should baseline conditions remain (i.e., the 'do nothing' scenario).
- 8.4.28 Major or Moderate effects are considered to be 'Significant' in the context of the EIA Regulations.
- 8.4.29 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.
- 8.4.30 Residual effects, taking into account mitigation, are then characterised as either adverse, neutral or beneficial and either 'Significant' or 'Not Significant'.

Cumulative Assessment

- 8.4.31 NatureScot (2021) cumulative assessment guidance is used to inform the cumulative assessment in this chapter. This requires the assessment of impacts of the proposed Development combined with other projects or activities. In the interests of focusing on the potential for significant effects on identified IEFs, this assessment considers the potential for cumulative effects with other onshore wind farm and grid connection developments. The geographical scale in which these effects are considered is heavily dependent on the ecology of the feature 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/Natural Heritage Zone (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

- 8.4.32 Limitations exist regarding the knowledge base on how some species, and the populations to which they belong, 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.

- 8.4.33 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 for 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. The assessment has therefore been undertaken on the basis of the existing Site conditions and species found to be present at the time of survey.
- 8.4.34 No notable limitations were experienced with regards to habitats, protected species, or fisheries field surveys.
- 8.4.35 During bat field surveys one Anabat static detector failed at one location during one survey (recording seven nights worth of data instead of the ten required - see **Technical Appendix 8.3** for details), however all bat detectors are susceptible to limitations and the amount of static bat data collected greatly exceeded NatureScot *et al.* (2021) guidance requirements (see **paragraph 8.5.36**). Therefore, the data are considered sufficient for assessment.
- 8.4.36 Whilst some general limitations have been identified, overall, it is considered that there is sufficient information to enable a robust assessment to be taken in relation to the identification and assessment of potential effects arising as a result of the proposed Development on ecological features.

8.5 Existing environment

- 8.5.1 This Section details the results of the desk study and field surveys, providing the ecological baseline for the Site.

Designated Sites

- 8.5.2 There are no statutory designated sites within the application boundary. There are five designated sites within 5 km of the application boundary with ecological qualifying features (NatureScot, 2024a), see **Table 8.6 (Figure 8.1)**.

Table 8.6: Ecological designated sites within 5 km of the application boundary

Site Name	Distance to Application Boundary (km)	Qualifying Ecological Features	Last Assessed Condition & Date
River Oykel SAC	0.13	Atlantic salmon (<i>Salmo salar</i>)	Favourable Recovered 7 July 2011
		Freshwater pearl mussel (<i>Margaritifera margaritifera</i>)	Unfavourable No change 8 April 2015
Dornoch Firth and Morrich More SAC	2.25	Atlantic salt meadows	Favourable Maintained 23 July 2014
		Coastal dune heathland	Unfavourable No change 10 August 2001
		Dune grassland	Unfavourable No change 10 August 2001

Site Name	Distance to Application Boundary (km)	Qualifying Ecological Features	Last Assessed Condition & Date
		Dunes with juniper thickets	Unfavourable Recovering 23 May 2014
		Estuaries	Condition not assessed
		Glasswort and other annuals colonising mud and sand	Favourable Maintained 8 August 2010
		Harbour seal (<i>Phoca vitulina</i>)	Unfavourable Declining 1 August 2019
		Humid dune slacks	Favourable Maintained 10 August 2001
		Intertidal mudflats and sandflats	Favourable Maintained 9 September 1996
		Lime-deficient dune heathland with crowberry	Unfavourable No change 28 August 2015
		Otter (<i>Lutra lutra</i>)	Favourable Maintained 23 August 2011
		Reefs	Unfavourable Declining 1 June 2016
		Shifting dunes	Favourable Maintained 8 August 2010
		Shifting dunes with marram	Favourable Maintained 8 August 2010
		Subtidal sandbanks	Favourable Maintained 9 September 1996
River Evelix SAC	4.18	Freshwater pearl mussel	Unfavourable Declining 15 July 2014
Kyle of Sutherland Marshes SSSI	0.12	Flood-plain fen	Unfavourable No change 9 July 2015
		Vascular plant assemblage	Favourable Maintained 21 Jun 2015
		Wet woodland	Unfavourable Declining 18 July 2013
Migdale Rock SSSI	3.57	Native Pinewood	Unfavourable Declining (Management measures in place for improvement) 29 May 2008
		Vascular plant assemblage	Favourable Maintained 11 June 2013

Ancient Woodland

- 8.5.3 There are numerous areas of ancient woodland listed on the AWI (SNH, 2000) within 5 km of the Site, including some which extend within the application boundary on the southern edge (**Figure 8.1**). These areas of ancient woodland vary in origin, with some

included from the Roy Map, some of long-established plantation origin and some ancient and of semi-natural origin. No infrastructure is planned in any identified area of ancient woodland.

Carbon and Peatland

- 8.5.4 The Carbon and Peatland Map (Scottish Soils, 2016) was consulted to determine likely peatland classes present. The map is a tool that provides an indication of the likely presence of peat at a high level. 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 which potentially contain nationally important carbon-rich soils, deep peat and priority peatland habitat¹ as Class 1 and Class 2 peatlands. Class 1 peatlands are considered “*likely to be of high conservation value*” and Class 2 “*of potentially high conservation value and restoration potential*”.
- 8.5.5 According to the predictive tool and map, much of the Site is covered by Class 2 peatland, with two areas of Class 1 peatland in the south east. Smaller areas of Class 3² and Class 5³ soils are present throughout the Site. Class 1 peatland has been fully avoided by all planned infrastructure (see **Figure 8.2**).
- 8.5.6 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 presented in **Technical Appendix 8.1**, and the results of the peat depth surveys and associated assessment of effects are presented and discussed in **Chapter 9** and associated Appendices.

Terrestrial Habitats

- 8.5.7 **Technical Appendix 8.1** presents information on the habitat surveys and the detailed descriptions of all habitat types and vegetation recorded.
- 8.5.8 The habitats survey results are shown on **Figures 8.3** which display all data collected during surveys for the proposed Development⁴. Part of the application boundary and the proposed access route to the Site overlaps with Garvary Wind Farm, habitats data

¹ Priority peatland habitat is land covered by peat-forming vegetation or vegetation associated with peat formation.

² Class 3 – dominant vegetation cover is not priority peatland habitat but is associated with wet and acidic type. Occasional peatland habitats can be found. Most soils are carbon-rich soils, with some areas of deep peat. Indicative soil = Predominantly peaty soil with some peat soil. Indicative vegetation = Peatland with some heath.

³ Class 5: Soil information takes precedence over vegetation data. No peatland habitat recorded. May also include areas of bare soil. Soils are carbon-rich and deep peat.

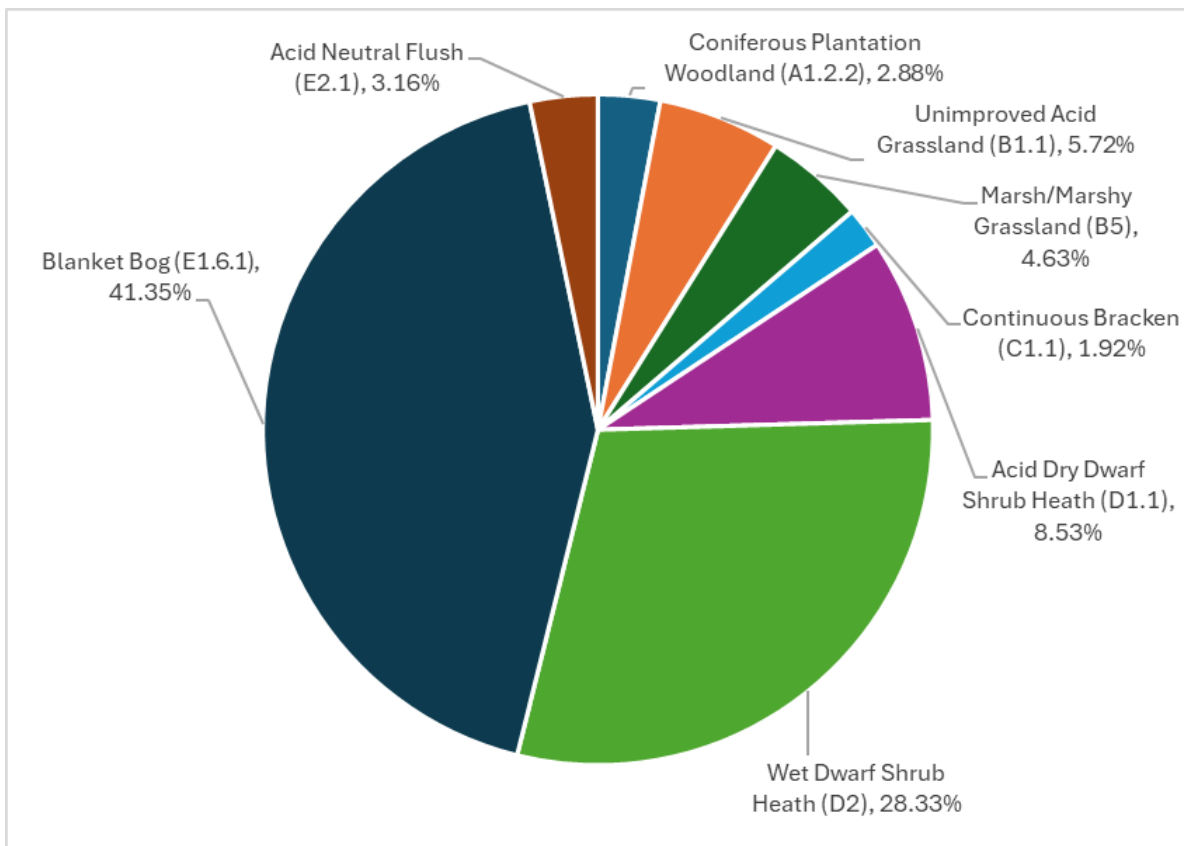
⁴ The Phase 1 symbology shading in **Figure 8.3** has been used to broadly characterise stands of vegetation based on the dominant NVC community within a particular area. The Phase 1 characterisation has been utilised to allow a broader visual representation of the habitats within the survey and study 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.

collected in 2017 for Garvary Wind Farm⁵ pertaining to this section of the proposed Development's application boundary are also shown on **Figure 8.3**.

- 8.5.9 The NVC data collected were also 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 was then calculated using the Site-specific correlation of NVC communities to their respective Phase 1 types (see **Technical Appendix 8.1** for full details), and their extents mapped within ArcGIS software, including within mosaic areas.
- 8.5.10 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.
- 8.5.11 The NVC communities and non-NVC types recorded are provided in **Annex A** (located at the end of this chapter) and include proportions of particular habitat types that are found within the application boundary, including those within mosaic habitats. Full descriptions of the habitats, NVC communities and associated flora are provided in **Technical Appendix 8.1**.
- 8.5.12 **Chart 8.1** summarises the Phase 1 habitats which contribute over 1% of the study area and shows that the majority of the study area, 41.35%, is comprised of blanket bog. The other more extensive habitat types are wet dwarf shrub heath (28.33%) and acid dry dwarf shrub heath (8.53%). Coniferous plantation woodland, unimproved acid grassland, marsh/marshy grassland, bracken and acid/neutral flush are present at coverage levels of between 1% and 6% of the study area.

⁵ Habitats within the application boundary and north and west of the NVC survey area, for the access track, borrow pit search area and construction compound within the area previously surveyed for Garvary Wind Farm by Botanæco, was sourced from Coriolis (see Technical Appendix 6.2 - EIA Volume 4 of the Garvary Wind Farm application).

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



8.5.13 The only habitat types that have been scoped into the assessment of effects due to their extent, nature conservation importance, sensitivity, and the nature and extent of predicted impacts are blanket bog/wet modified bog and wet dwarf shrub heath. Detailed descriptions of these habitat types are included in **Technical Appendix 8.1**.

8.5.14 The blanket bog within the survey area is considered to be a modified and degraded resource. The area has a long history of grazing, with much of the land used as common grazing land. However, the single largest deleterious and widespread impact on blanket bog (as well as wet modified bog and wet heath) within the study area is the extensive and widespread high-density invasion and encroachment of these peatland habitats from self-seeded non-native conifer trees from surrounding areas of commercial conifer plantation. The nature of this high-density encroachment is highlighted in the photographs provided in **Technical Appendix 8.1**.

Groundwater Dependent Terrestrial Ecosystems (GWDTE)

8.5.15 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 **Technical Appendix 8.1** and shown on **Figure 8.4**.

8.5.16 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 importance. 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 importance, GWDTE status has not been used as criteria to determine a habitat's nature conservation importance 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**.

Annex I Habitats

- 8.5.17 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.
- 8.5.18 NVC survey data and field observations have been compared to JNCC Annex I habitat listings and descriptions (JNCC,). Those habitats within the survey area which could be considered Annex I habitats are discussed within **Technical Appendix 8.1**.

Scottish Biodiversity List Habitats

- 8.5.19 The SBL (NatureScot, 2022) 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. Relevant SBL priority habitat types and corresponding associated NVC types recorded within the survey area are summarised within **Technical Appendix 8.1**.
- 8.5.20 These SBL priority habitats correspond with UK Biodiversity Action Plan (BAP) Priority Habitats (JNCC, 2019a).

Protected Species

- 8.5.21 This section outlines the results from the protected species desk study and 2023 field surveys. Detailed methodologies, survey timings, and results of field surveys, and the legal status of each species, are included within **Technical Appendices 8.2 - 8.4** and their associated annexes. Results of field surveys are presented in **Figures 8.5 - 8.8**.

Badger

- 8.5.22 Sparse signs of badger were recorded within the Site. Dung, hairs, footprints and feeding signs were concentrated along the southern border of the application boundary. No protected features for badger (i.e., setts) were recorded. The Site provides limited suitability for sett building, but the woodlands bordering the application boundary are likely to contain suitable habitat for setts.
- 8.5.23 No further badger information was gathered during the desk study.

Otter

- 8.5.24 Five otter spraints were recorded in the course of the field surveys; four were on Allt Loch Leisgein and one on an unnamed watercourse. No protected features for otter (i.e., holts or couches) were recorded. The watercourses within the Site may provide limited suitable foraging and commuting habitat for otter, but there is limited cover so little opportunity for couches or holts.
- 8.5.25 Surveys for the proposed Garvary Wind Farm in 2017 recorded otter spraints on the shores of Loch Craicail Mòr, Loch Craicail Beag and Loch Laro, in addition to along Allt Loch Laro, Allt Garbh-airigh and Clais na Faire.

Pine Marten

- 8.5.26 Five potential pine marten scats were identified within a wooded area in the south west of the application boundary. No protected features for pine marten (i.e., dens) were recorded. The open moorland of the application boundary may offer hunting opportunities for pine marten, but suitable denning habitat is limited. The application boundary has extensive areas of woodland along the south west and north west borders which may provide more suitable denning opportunities.
- 8.5.27 The desk study returned pine marten records within 5 km from the Highland Biological Recording Group (2024) and NatureScot (2024a).

Red Squirrel

- 8.5.28 The desk study returned red squirrel records within 5 km from the Highland Biological Recording Group (2024) and Scottish Wildlife Trust (2024). Sightings of red squirrels have been recorded on Saving Scotland's Red Squirrels (Scottish Squirrels, 2024) within 5 km of the application boundary every year since 2015. No records of grey squirrels were returned within 5 km of the application boundary in any year since 2010 (earliest available records for this dataset) on the Saving Scottish Red Squirrels website (Scottish Squirrels, 2024).
- 8.5.29 Stripped cones indicative of squirrel feeding were identified at four locations during field surveys. Whilst no red squirrels were sighted and as such the feeding signs cannot be definitively attributed to red squirrel, given the location of the proposed Development, the desk study records above, and absence of records of grey squirrel within 5 km of the Site, it is considered highly likely that these signs are of red squirrel. Suitable habitat for red squirrel is limited to the small area of woodland within the south west of the application boundary, with further likely suitable habitat within the extensive woodland bordering much of the south west of the application boundary.

Water Vole

- 8.5.30 No signs of water vole were recorded during the protected species surveys; watercourses surveyed were characterised as having low to moderate suitability for water vole.
- 8.5.31 Signs of water vole occupancy (burrows and latrines) were recorded along an unnamed burn flowing into the west of Loch Laro, and along the Allt Ramascaig Beag, during baseline surveys for Garvary Wind Farm in 2017 (Coriolis, 2021).

Reptiles

- 8.5.32 No reptiles were recorded during the course of surveys. Drystone features were recorded across the southern section of the application boundary; these are likely to provide suitable hibernacula for reptiles, if present. The open moorland habitat surrounding these features is likely to provide suitable habitat for reptiles, although no sightings were noted.
- 8.5.33 The desk study returned a record of a common lizard (*Zootoca vivipara*) within 5 km of the Site (Amphibian and Reptile Conservation and Biological Records Centre, 2024).

Bats

Preliminary Bat Roost Assessment

- 8.5.34 Following Collins (2016) guidance, eight potential roost features were recorded in March 2023 within the survey area (see **Technical Appendix 8.3** and **Figure 8.6**), including one tree and one structure which were assessed as having features offering moderate suitability for roosting bats; the rest classified as being of low suitability. No features with moderate suitability for roosting bats were recorded within 200 m plus rotor radius of a proposed turbine location and as such no further roost surveys were required (in line with NatureScot *et al.* 2021).
- 8.5.35 Limited features with potential to support roosting bats were identified during the surveys for the Garvary Wind Farm application; the trees within the respective survey area were not deemed to provide suitable roosting features, and a single small building with some roosting potential was identified, however this building is over 2 km from the proposed Development.

Automated Activity Surveys

- 8.5.36 Static bat activity surveys involved the deployment of detectors at nine locations within the Site from May to September 2023 over a total period of 42 days, covering spring, summer and autumn up to a maximum of 14 consecutive nights per season. This resulted in 365 complete recording nights of data, exceeding the 270 required as per the NatureScot *et al.* (2021) guidance for a development of this size; see **Technical Appendix 8.3**. Detector locations are shown on **Figure 8.6**.
- 8.5.37 A total of five bat species were recorded during the activity surveys, with a total of 1,408 registrations: soprano pipistrelle (*Pipistrellus pygmaeus*), common pipistrelle (*Pipistrellus pipistrellus*), Nathusius' pipistrelle (*Pipistrellus nathusii*), Daubenton's bat (*Myotis daubentonii*) and brown long-eared bat (*Plecotus auritus*). The total number of passes recorded for each species across all detectors and locations is shown in **Table 8.7**.
- 8.5.38 Common pipistrelle accounted for 79.6% (n = 1,121) of all registrations across all surveyed locations (**Table 8.7**).

Table 8.7: Total number of bat passes for each species across all locations

Species	Number of Registrations	Percentage of Total (%)
Soprano pipistrelle	134	9.5
Common pipistrelle	1,121	79.6
Nathusius' pipistrelle	1	0.1
Daubenton's	20	1.4
Brown long-eared	132	9.4

- 8.5.39 The Garvary Wind Farm bat activity surveys in 2018 recorded a similar assemblage, comprising four species and two genera of bat, with a total of 6,553 bat passes: common pipistrelle (5,505), soprano pipistrelle (427), Pipistrelle sp. (19), Daubenton's bat (582), *Myotis* sp. (11) and brown long-eared bat (9) (Coriolis, 2021).
- 8.5.40 NatureScot *et al.* (2021) recommends the use of Ecobat tool (Mammal Society, 2017) measure for quantifying bat activity levels. The Ecobat tool was offline and unavailable at the time of preparing this report. On the advice of NatureScot, alternative quantitative methods were used to assess bat activity levels. As such, the data obtained from the 2023 static bat surveys was considered in accordance with NatureScot *et al.* (2021) guidance as far as practicable to determine the overall Site risk level for each species of bat.
- 8.5.41 To generate a bat activity index value and allow a comparison of bat activity between locations, species and seasons, the number of bat passes per hour (bpph) was calculated. This method refers to the number of bat passes as opposed to the number of individual bats recorded, as it is not possible to definitively identify individual bats and the total number of individual bats present. The bpph is used to provide a quantitative measure of bat activity across the Site. Data on the activity levels for all species recorded across the Site and through the three deployments visits is provided in **Technical Appendix 8.3**. However, the activity of high collision risk species as per **paragraph 8.5.43** is summarised further below.
- 8.5.42 As detailed in **Technical 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 in line with NatureScot *et al.* (2021) guidance.
- 8.5.43 As per NatureScot *et al.* (2021) guidance, common pipistrelle, soprano pipistrelle and Nathusius' pipistrelle were the only bat species recorded which are deemed to have a high collision risk⁶. All other bat species recorded are categorised as low collision risk and of low population vulnerability in line with the same guidance.
- 8.5.44 As per NatureScot *et al.* (2021) guidance, common and soprano pipistrelle are considered of common abundance and of medium population vulnerability.

⁶ A single Nathusius' pipistrelle pass was recorded during surveys (**Table 8.7**) and therefore the risk to this species is considered negligible, and it is not discussed further.

- 8.5.45 The remaining species recorded (i.e., Daubenton's and brown long-eared bat) are all considered to have a low collision risk and low population vulnerability. These low-risk species have a low risk of collision with a turbine blade, so the impact of the proposed Development on the local bat population would likely be negligible (particularly when considering the low bpph for these species – see **Technical Appendix 8.3**).
- 8.5.46 Overall, the bpph values are low/very low for the high collision risk species (see full details and presentation of bpph in **Technical Appendix 8.3**). **Figures 8.7** and **8.8** further illustrate the results of the seasonal risk assessment 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 though the year and by species. As seen in these figures several locations recorded no activity by high collision risk bat species. However, in locations and months where bat activity was recorded, the Site risk level for common pipistrelle and soprano pipistrelle per month at each location was 'Low', with only one instance of 'Low/Moderate'.
- 8.5.47 As shown in **Figure 8.7**, analysis of the risk assessment scores for common pipistrelle, when considering the bpph, indicate quite consistent levels of activity across the majority of survey locations throughout the year, with all locations having less than 1.5 bpph in each survey Visit (Low overall risk), except for Location 3 in autumn with a bpph of 2.3 (Low/Moderate overall risk).
- 8.5.48 As shown in **Figure 8.8**, analysis of the risk assessment scores for soprano pipistrelle, when considering the bpph, indicate an activity pattern very similar to that of common pipistrelle with quite consistent levels of activity across the majority of survey locations throughout the year. There are no peaks in activity throughout the year with all locations having less than 0.2 bpph (Low overall risk).

Other Protected Species

- 8.5.49 No other protected or notable species (e.g. wildcat or hares) were recorded within the application boundary during the course of surveys.

Fish and Aquatic Habitats

- 8.5.50 The watercourses within the Site are generally all minor watercourses, however the north east edge of the application boundary generally follows a larger watercourse, An Uidh. The An Uidh catchment drains the northern and eastern section of the Site. The An Uidh continues downstream, via Loch an Lagain, to connect with the River Evelix. The River Evelix, including An Uidh, (ID: 20079) has been classified by SEPA (2024) as part of their Water Framework Directive (WFD) classification and was assessed in 2020 as having Good overall condition and High water quality, with Good physical condition, High access for fish migration, and High for freedom from invasive species.
- 8.5.51 Watercourses in the west of the Site remain minor watercourse and are unclassified by SEPA and drain towards the Kyle of Sutherland. Whereas watercourses in the south west drain, via the Migdale Burn and then Loch Migdale, eventually to the Dornoch Firth. The Migdale Burn (ID: 20082) has been classified by SEPA (2024) as part of their Water Framework Directive (WFD) classification and was assessed in 2020 as having Good overall condition and High water quality, with Good physical condition, High access for fish migration, and High for freedom from invasive species.

- 8.5.52 The Kyle of Sutherland Fisheries Trust's Fisheries Management Plan (Kyle of Sutherland Fisheries Trust, 2018) notes presence of Atlantic salmon (*Salmo salar*), brown trout (*Salmo trutta*), European eel (*Anguilla anguilla*), Arctic charr (*Salvelinus alpinus*) and three-spined sticklebacks (*Gasterosteus aculeatus*) within the Kyle of Sutherland catchment. No lamprey species (*Lampetra* spp., or *Petromyzon marinus*) have been recorded as part of routine electrofishing surveys by the Trust within the Kyle of Sutherland catchment, but there are anecdotal reports of adult lamprey species being sighted within the catchment.
- 8.5.53 Electrofishing and macro-invertebrate surveys were completed for Garvary Wind Farm in 2018 by Eco-Fish Global Ltd (managed by The Fisheries Consultancy Ltd.) and reassessed in 2019 (Coriolis, 2021). Eight sample locations were surveyed for fish in 2018 and re-assessed in 2019. Trout (parr⁷ and fry⁸), salmon (parr) and European eel (sub adults) were recorded.
- 8.5.54 No fish were recorded at two locations in the Garvary Wind Farm surveys. Indicating a lack of habitat for fish, and/or a potential lack of access, spawning, nursery, survival within previous and/or current years. High organic loads/peat deposits were noted within these minor watercourses. No salmon fry were recorded indicating a potential lack of access, spawning, nursery and/or survival within the survey year.
- 8.5.55 Trout parr were recorded at five sample locations and trout fry were also recorded at five sample locations in the Garvary Wind Farm surveys. Salmon parr were recorded at three sample locations. European eel were recorded at two sample locations.
- 8.5.56 Electrofishing surveys for the proposed Development were undertaken by the Clyde River Foundation (CRF) in September 2023, with full results detailed in **Technical Appendix 8.4**. Seven locations were electrofished: four within the catchment of the Kyle of Sutherland and three draining to the River Evelix (**Figures 8.9** and **8.10**). The locations of these seven sites were selected based on several contributing factors. These included the location in relation to the proposed design, where there may be potential effects or connectivity with freshwater SACs, where watercourses are likely suitable for fish, where access was permissible, to be representative and proportionate to the size of the proposed Development, whilst considering MD-SEDD guidance (Scottish Government, 2021).
- 8.5.57 No fish were caught at two of the electrofishing survey locations; one was on Allt Port na Lice and the other at one of the survey locations on Henman's Burn. The second survey location on Henman's Burn also contained no salmonids. An impassible waterfall is present towards the bottom of the Allt Port na Lice, which is likely to account for the lack of fish.
- 8.5.58 Brown trout were present at all three of the locations draining to the River Evelix, and at Allt Reidh nam Meann. In each case, a mixture of year classes was recorded.
- 8.5.59 Atlantic salmon were caught at two locations in the River Evelix catchment. The sampling location at An Uidh returned a mixture of year classes, with that at Allt Loch Leisgen returning only 1++ fish.

⁷ 1++ - juveniles that have spent at least one winter in freshwater but have not yet been to sea.

⁸ 0+ - young of the year.

- 8.5.60 European eels were caught at three locations: one survey location on Henman's Burn, Allt Loch Leisgein, and An Uidh.

Deer

- 8.5.61 Deer and signs of deer were recorded within and around the Site during surveys.
- 8.5.62 The NBN Atlas Scotland search returned records of roe deer (*Capreolus capreolus*) and sika deer (*Cervus nippon*) within 5 km of the application boundary in the last 15 years (i.e., since 2010) (BTO, 2024).
- 8.5.63 The results of the Deer Distribution Survey (British Deer Society, 2023) suggest the presence of red (*Cervus elaphus*), roe and sika deer within the general area of the Site.
- 8.5.64 The proposed Development lies outwith the area covered by the nearest upland deer management groups (Association of Deer Management Groups, 2024).

Invasive Non-native Species (INNS)

- 8.5.65 The NBN Atlas Scotland search returned records of the following INNS within 5 km of the application boundary in the last 15 years (i.e., since 2010):
- American mink (*Neovison vison*);
 - Japanese knotweed (*Fallopia japonica*) (BSBI, 2024); and
 - rhododendron (*Rhododendron ponticum*) (BSBI, 2024).
- 8.5.66 The Kyle of Sutherland Fisheries Trust list Japanese knotweed, giant hogweed (*Heracleum mantegazzianum*) and Himalayan balsam (*Impatiens glandulifera*) as plant species of concern within their catchment, with Himalayan balsam control listed as a conservation action within both the Lower Oykel and the River Evelix (Kyle of Sutherland Fisheries Trust, 2018). There are also records of American mink within the catchment, with the Kyle of Sutherland Fisheries Trust working with the Scottish Mink Initiative to mitigate this.
- 8.5.67 Common minnow (*Phoxinus phoxinus*), considered an invasive species as per the catchment's Fisheries Management Plan (Kyle of Sutherland Fisheries Trust, 2018), were caught at two locations that drain into the River Evelix during electrofishing surveys for the proposed Development; full results are detailed in **Technical Appendix 8.4**.

The Do-Nothing Scenario

- 8.5.68 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, structure, quality and extents within the Site may be adversely affected by the further continued encroachment and invasion of non-native self-seeded conifer trees from adjoining forestry areas, and the continuing maturity of the existing self-seeded specimens. Vegetation and habitat composition may also fluctuate marginally in the long-term in line with increasing or decreasing grazing and fluctuations in deer browsing.

8.6 Embedded mitigation

Iterative Design Process

8.6.1 As part of the iterative design process for the proposed Development, ecological constraints identified through baseline survey results were considered to avoid or reduce adverse effects on ecological features where possible (see **Chapter 3: Approach to EIA (including consultation)**). This includes:

- applying 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;
- the track length and alignment has been designed to minimise the extent of new track and number of watercourse crossings required, where feasible considering the topography of the Site and other environmental Site constraints;
- accessing the proposed Development via Garvary Wind Farm rather than creating a new Site access;
- avoidance of deeper peatland (>0.5 m) and potential high GWDTEs for the location of turbines and other infrastructure as far as practicable; and
- establishing a minimum 50 m buffer from turbine blade tips to important edge habitats for bats across the Site to reduce collision risk.

Pre-construction & Construction

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

8.6.3 A suitably qualified Ecological Clerk of Works (ECoW) will be appointed prior to the commencement of construction to advise the Applicant and the Principal Contractor on all ecological matters. The ECoW will be required to be present onsite 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 Principal Contractor and sub-contractors.

8.6.4 A Species Protection Plan (SPP) following the principles contained in the draft SPP provided in **Technical Appendix 8.5** will be finalised and then 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 their features in the vicinity of the construction works. The results of the pre-construction surveys will be used to update the draft 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.

8.6.5 Any micro-siting 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 micro-siting will also take consideration of any buffer distances on protected features identified, as detailed within the SPP (**Technical Appendix 8.5**).

- 8.6.6 There would be a contractual management requirement for the successful Contractor to develop and implement a comprehensive and Site-specific robust Construction Environmental Management Plan (CEMP) (see outline in **Technical Appendix 2.1**) in consultation with the SEPA and the planning authority. 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 measures (particularly in relation to watercourses).

Operation

- 8.6.7 In line with best practice guidance on bats (NatureScot *et al.* 2021), the proposed Development will utilise the method of reduced rotation speed whilst idling by feathering for 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 onsite (see **Technical Appendix 8.3**), this measure will be put in place from the start of the operational period of the proposed Development. This mitigation measure does not result in any loss of turbine output.
- 8.6.8 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.

8.7 Predicted effects

- 8.7.1 This section provides an assessment of the likely effects of the proposed Development on the IEFs identified through the baseline studies. The assessment of effects is based on the project description outlined in **Chapter 2**, and is structured as follows:
- construction effects;
 - operational effects; and
 - decommissioning effects.

Assumptions of the Assessment

- 8.7.2 The following assumptions are included in the assessment of otherwise unmitigated effects on IEFs:
- work on the proposed Development, including vegetation clearance and construction of new access tracks, turbine hardstandings and other ancillary infrastructure, erection of the turbines and Site restoration is predicted to last for approximately 24 months);
 - all electrical cabling between 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 laydown areas will be temporary infrastructure. Any disturbance or earthworks 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 the Embedded Mitigation section above will be fully applied, e.g., the presence of an ECoW, adherence to the agreed SPP and CEMP post-consent; and
- 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.

Ecological Features Scoped-out of the Assessment

- 8.7.3 In addition to those low conservation importance ecological features already scoped-out as detailed within **paragraph 8.4.4**, with consideration of the additional desk study and baseline data collected, and following the iterative design and embedded mitigation measures described in **paragraphs 8.6.1 to 8.6.8** and project assumptions noted in **paragraph 8.7.2**, several other ecological features 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. The following paragraphs detail the ecological features and effects that have been scoped-out following further desk studies and field surveys.

European Designated Sites

- 8.7.4 The River Oykel SAC, designated for Atlantic salmon and freshwater pearl mussel (**Table 8.6**), is located 133 m from the application boundary (**Figure 8.1**). There is hydrological connectivity between part of the Site and this SAC via a small number of minor watercourses in the west and north of the application boundary, namely the source and headwaters of Henman's Burn and Allt an Reidhe Dhorcha, respectively. Due to hydrological connectivity, there is potential for a likely significant effect under the terms of the Habitats Regulations. The SAC is 2.4 km from the nearest proposed Development infrastructure (an access track) and 3.4 km from the nearest proposed turbine (Turbine 7). However, with respect to the watercourses with hydrological connectivity to the SAC, Henman's Burn is approximately 350 m from the nearest proposed infrastructure (i.e., the access track west of Turbine 7), and a first order tributary of the Allt an Reidhe Dhorcha would be crossed by the access track to be shared with Garvary Wind Farm. All construction works would comply with standard mitigation and working practices, including effective silt and pollution prevention measures, which would be detailed in a CEMP implemented by the Principal Contractor and monitored onsite by a suitably experienced ECoW. It is considered that these measures, coupled with the distance of the proposed infrastructure from the SAC, mean that likely significant effects from the proposed Development can be ruled out. The River Oykel SAC has therefore been scoped out from this EclA. It has been concluded that there is no likely significant effect and therefore no requirement for an appropriate assessment under the 2017 Habitats Regulations.
- 8.7.5 The Dornoch Firth and Morrich More SAC is situated 2.2 km from the application boundary and is designated for several qualifying features, as per **Table 8.6**. This SAC is located immediately downstream of, and contiguous with, the River Oykel SAC (**Figure 8.1**). The south west of the application boundary is also hydrologically connected

to the Dornoch Firth and Morrich More SAC, via the Migdale Burn, which discharges into Loch Migdale, which subsequently connects to Dornoch Firth and Morrich More SAC via the Spinningdale Burn. However, no proposed Development infrastructure is located within this respective Migdale Burn catchment, and so there is no hydrological connectivity between the proposed Development and the SAC. Of the respective qualifying features of the SAC, the majority are not dependent on or linked to hydrology and are therefore scoped-out of the EclA based on a review of feature versus distance. Of the qualifying features where there may be hydrological connectivity between the proposed Development, and via the River Oykel SAC, to the Dornoch Firth and Morrich More SAC then the same conclusions are reached as for the River Oykel SAC in the paragraph above and likely significant effects from the proposed Development can be ruled out. The Dornoch Firth and Morrich More SAC has therefore been scoped out from this EclA. It has been concluded that there is no likely significant effect and therefore no requirement for an appropriate assessment under the 2017 Habitats Regulations.

- 8.7.6 The River Evelix SAC, designated for freshwater pearl mussel (**Table 8.6**), is located 4.2 km from the application boundary (**Figure 8.1**). There is hydrological connectivity between part of the Site and this SAC via the An Uidh catchment which drains the eastern part of the Site, and the majority of the area where proposed Development infrastructure is located; therefore, there is potential for a likely significant effect under the terms of the Habitats Regulations. An Uidh flows south east from the application boundary for several kilometres before discharging into Loch an Lagain. The River Evelix SAC begins at the outflow of Loch an Lagain. As per above, all construction works would comply with standard mitigation and working practices, including effective silt and pollution prevention measures, which would be detailed in a CEMP implemented by the Principal Contractor and monitored onsite by a suitably experienced ECoW. It is considered that these measures, coupled with the distance of the proposed infrastructure from the SAC, and the dilution or buffering effects of Loch an Lagain, that likely significant effects from the proposed Development can be ruled out. The River Evelix SAC has therefore been scoped out from this EclA. It has been concluded that there is no likely significant effect and therefore no requirement for an appropriate assessment under the 2017 Habitats Regulations.

SSSIs

- 8.7.7 The Kyle of Sutherland Marshes SSSI lies 118 m from the application boundary and underpins part of the River Oykel SAC described above (**Figure 8.1**). However, given the distance of proposed infrastructure from the SSSI (see **paragraph 8.7.4**), the nature of construction works and with good practice embedded mitigation employed, there would be no predicted impacts on the qualifying features of the SSSI (flood-plain fen, vascular plant assemblage and wet woodland), and therefore it is scoped out of the assessment.
- 8.7.8 Migdale Rock SSSI lies 3.6 km from the application boundary, with both the closest infrastructure and closest turbine proposed located over 5 km away. Given the distance between the application boundary and the SSSI, the position of the SSSI in relation to the proposed Development, and the respective qualifying features of the SSSI (**Table 8.6**), it is considered that there is no connectivity between the proposed Development and this designated site and as such it is scoped-out of the assessment.

Ancient Woodland

- 8.7.9 There is very little overlap between the application boundary and areas of ancient woodland, this only being the case in the very south/south west of the application boundary, and distant to proposed infrastructure (**Figure 8.1**). No ancient woodland would be lost due to the proposed Development, and therefore effects are scoped-out.

Terrestrial Habitats

- 8.7.10 Habitats that are considered to be of lower conservation value and are very common habitat types locally and regionally are scoped-out of the assessment, as per **paragraph 8.4.4**. Within the study area these are:

- coniferous plantation woodland;
- dense/continuous scrub;
- unimproved and semi-improved acid grassland;
- improved grassland;
- continuous bracken; and
- bare ground.

- 8.7.11 Marshy grassland is scoped out of the assessment. As per **Annex A, Table 8.11** and **Table 8.12**, marshy grassland covers 35.66 ha (4.6% of the study area) and is characterised by several common and widespread communities, overwhelmingly dominated by purple moor-grass (*Molinia caerulea*) or rushes (*Juncus* spp.). The bulk of the marshy grassland vegetation within the study area is made up of NVC types M23b and M25a. These marshy grassland communities recorded in the study area are species-poor and grazed, often consisting of little more than a dense sward of rushes or purple moor-grass with some common associate species; full descriptions of these communities are provided in **Technical Appendix 8.1**. The range of marshy grassland communities present in the study area are common habitat types locally, regionally and nationally and the small direct and indirect losses predicted as a result of the proposed Development, as per **Annex A, Table 8.11** and **Table 8.12**, are of minor significance. These marshy grassland communities are considered potential GWDTEs in line with guidance (SEPA (2017a, 2017b)). However, designation as a GWDTE does not infer an intrinsic biodiversity value, but the information has been used to inform the assessment in **Chapter 9**.

- 8.7.12 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. 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, Table 8.11** and **Table 8.12**) (particularly due to embedded mitigation assumptions described above) all effects on them are scoped-out of the assessment. These habitats are:

- broadleaved semi-natural woodland;
- coniferous semi-natural woodland;
- scattered broadleaved tree;
- dry heath;
- acid/neutral flush;
- basic flush; and

- standing and running water.

Fish, Freshwater Pearl Mussel and Aquatic Habitats

- 8.7.13 Effects on fish, freshwater pearl mussel and aquatic habitats are scoped-out of the assessment. Several of the onsite watercourses contain low numbers of fish, with migratory salmonids present in the An Uidh catchment. Freshwater pearl mussel are known to be present further downstream of the Site due to the qualifying features of the River Oykel SAC and River Evelix SAC. To avoid direct or indirect impacts on water quality and hydrogeomorphology a minimum 50 m buffer distance between infrastructure and watercourses has been maintained where possible (see **Chapter 2**), except where a watercourse crossing cannot be avoided (see **Chapter 9**). The design of permanent and temporary access track watercourse crossings would comply with SEPA good practice guidance to minimise impacts on fish and their habitat. As detailed in **paragraphs 8.6.1 to 8.6.8**, the embedded mitigation includes that construction work would comply with a CEMP developed by the Contractor, 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 guidelines. It is expected that as a condition of consent there would also be a monitoring programme for fish and macroinvertebrates pre-, during and post- construction following standard guidance. With this embedded mitigation and monitoring in place, water pollution impacts and associated likely significant effects associated with the proposed Development on watercourses, aquatic ecology, fish and freshwater pearl mussel are considered unlikely and therefore these pollution impacts are scoped-out of further assessment. Further assessments of watercourses are provided in **Chapter 9**.

Protected Species

- 8.7.14 Effects on all protected species are scoped out of the assessment due to the absence of protected features, lack of suitable habitat, limited desk-based and field survey evidence of occupation within the application boundary and/or lack of potential impacts from the proposed Development, when taking into consideration embedded mitigation, in particular the SPP as described in **paragraph 8.6.4** (draft in **Technical Appendix 8.5**) which will ensure that the provisions of the relevant wildlife legislation are complied with in relation to all protected species, should any evidence of presence be found during pre-construction surveys or during the construction period.
- 8.7.15 Roosting bats are scoped out of the assessment; whilst some PRFs offering low to moderate suitability for roosting bats were identified within the respective survey area (see **Figure 8.6**), none were deemed of a size or character that could support maternity or significant hibernation roosts. Furthermore, the closest feature offering moderate potential suitability for roosting bats is over 1.3 km from the closest wind turbine (Turbine 7). With respect to the section of the study area shared with the proposed Garvary Wind Farm, no potential roosts were recorded along the respective section of access track, around the borrow pit area or construction compound⁹.
- 8.7.16 Effects on foraging/commuting bats are scoped-out of the assessment. Construction would mainly take place during daylight hours during the season when bats are active (April to October, inclusive), therefore any disturbance to foraging and commuting bats of

⁹ For full details see Technical Appendix 6.1 – Garvary EIAR Volume 4.

any species is unlikely to occur or would likely be negligible in magnitude and is therefore scoped-out.

- 8.7.17 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.*, 2021). These effects on brown long-eared and Daubenton's bat are therefore scoped-out of the assessment.
- 8.7.18 Operational and cumulative effects arising from potential collision mortality for high collision risk bat species are also scoped-out of the assessment; these species comprise the various pipistrelle species (**Table 8.7**). In line with NatureScot *et al.* (2021) guidance the medium project size combined with a low habitat risk level and the absence of roost potential results in an overall Site risk assessment of 'Low/Lowest'. Following subsequent analysis of the temporal data, bpph values were generally low (**Technical Appendix 8.3** for full analysis) and no high risk locations were identified for any of these species (**Figures 8.7** and **8.8**). A single low/moderate risk location was identified for common pipistrelle at Location 3 in autumn (**Figure 8.7**). All other locations, for all high risk species, across all seasons had low risk, or no activity (see **Technical Appendix 8.3**). Given the low levels of bat activity and the above discussion, and consideration of the baseline survey results and prevailing habitats, as well as the good practice measures detailed in **paragraph 8.6.7**, it is considered any collision risks for bats would be Minor/Negligible and they are scoped-out of the detailed assessment.
- 8.7.19 Adverse impacts on all IEFs during operation of the proposed Development have been scoped out. 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.

Deer

- 8.7.20 Impacts on deer are scoped out of the assessment. Red, roe and sika deer are likely to be present in the local area. There is only one small area of commercial forestry within the application boundary which may offer shelter for deer, with this lying in the south west corner of the study area and distant from any planned infrastructure as part of the proposed Development (**Figure 8.3**). Larger areas of commercial plantation surround the application boundary to the south west and the north west.
- 8.7.21 The size of the proposed Development is not considered to pose a significant barrier to any local movements or migrations of deer. Construction disturbance is expected to be minimal due to the timing of works (primarily during the day when deer are least active) and the short-term construction period (approximately 24 months). If individuals are displaced during construction, there is abundant similar and more suitable habitat locally and there are suitable routes around the proposed Development which will not force deer into areas of risk, including public roads or towards built up areas.
- 8.7.22 Operational impacts are not anticipated as there is no deer fencing around the proposed Development and therefore deer may use and pass through uninhibited. Due to the open nature of much of the Site, the loss of shelter habitat is not expected. Grazing habitat loss has been minimised through design and the small footprint of the proposed Development, and with the extensive amount of similar suitable grazing habitat in the surrounding land

and its availability and accessibility, any loss of this habitat is expected to be negligible to the wide-ranging species.

- 8.7.23 Overall, 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 and better habitat and commuting corridors locally within the Site and beyond, no negative effects on deer are predicted. Furthermore, due to minimal displacement outwith the Site during construction and operation, no additional adverse impacts, through increased browsing/trampling of surrounding habitats, including the blanket bog and heathland habitats identified within the wider application boundary, are predicted.

Important Ecological Features

- 8.7.24 A summary of the Nature Conservation Importance of the remaining IEFs identified within the application boundary and surrounding area (as confirmed through survey results and consultation outlined above) which have been scoped-in to the assessment is provided in **Table 8.8**, together with the justification for inclusion. These comprise blanket bog/wet modified bog (combined receptor) and wet dwarf shrub heath.

Table 8.8: Nature conservation importance of scoped-in IEFs

IEF	Nature Conservation Importance	Relevant Legislation/Guidance & Justification
Blanket Bog and Wet Modified Bog	Local	<p>The proposed Development would result in direct and potentially indirect habitat loss for blanket bog and wet modified bog habitats.</p> <p>Blanket bog covers 318.66 ha (41.3%) of the study area, whilst wet modified bog covers a further 6.32 ha (0.8%) (Annex A, Table 8.11 and Table 8.12). These habitat types are also extensive locally outwith the Site.</p> <p>The blanket bog communities present include M17 and M19 with some very infrequent M3 bog pools. Communities representing wet modified bog habitat within the study area comprise M20 with some areas of M25a¹⁰, these communities have a lower relative quality compared to the blanket bog communities.</p> <p>These habitats are associated with SBL blanket bog and Annex I type 7130 blanket bog habitat, however these mire habitats within the study area are generally considered modified/degraded due to effects such as grazing and extensive self-seeded conifer invasion (see Technical Appendix 8.1 for further details).</p> <p>The Site also contain areas of Class 1 and Class 2 peatland from the Carbon and Peatland Map, Class 1 peatland has been completely avoided by the proposed Development infrastructure (Figure 8.2). It is recognised that this definition is not solely for nature conservation</p>

¹⁰ In this chapter, where M25 is suffixed with a caret '^', e.g., M25a^, this implies the habitat is more likely to be considered a modified bog habitat with peat depth likely equal to or greater than 0.5 m in depth and characteristics or associate species aligning with a bog habitat, as opposed to a marshy grassland habitat on peat or peaty soils less than 0.5 m in depth (i.e., denoted without a caret, e.g., M25a).

IEF	Nature Conservation Importance	Relevant Legislation/Guidance & Justification
		<p>and so not directly applicable to evaluating the value of a peatland.</p> <p>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, condition and distribution. Therefore, assigning a Nature Conservation Importance higher than Local is not deemed appropriate.</p> <p>In addition, mire habitat of this quality (and greater) is relatively widespread across the local area as well as within THC and beyond, which further reduces the relative value of this habitat within the study area.</p>
Wet dwarf shrub heath	Local	<p>The proposed Development would result in direct and potentially indirect habitat loss for wet dwarf shrub heath.</p> <p>Wet dwarf shrub heath is listed as an Annex I habitat and is part of the SBL upland heathland priority habitat.</p> <p>Wet dwarf shrub heath is common and extensive covering 218.31 ha (28.3%) of the study area. It is entirely made up of the M15 wet heath NVC community, with three sub-communities being recorded (M15a, M15b and M15c). Much of the wet heath within the study area is also subject to invasion and encroachment from non-native self-seeded conifers, reducing its quality and condition. M15 is a very common wet heath type within the region and across the uplands of Scotland.</p> <p>Wet heath within the study area is considered no greater than Local value due to its extent and quality. This type of habitat is widespread throughout the local area.</p>

Construction Effects

- 8.7.25 This section provides an assessment of the likely effects of the construction of the proposed Development upon the scoped-in IEFs, namely blanket bog, wet modified bog and wet dwarf shrub heath.

Predicted Construction Effects

- 8.7.26 The most tangible impact during construction of the proposed Development would be direct habitat loss due to the construction of infrastructure such as new access tracks, turbines, hardstandings, laydown areas, compounds, borrow pits and substation. Much of this infrastructure would be permanent, however the temporary construction compound, temporary crane pad sections and borrow pits would be restored at the end of construction.
- 8.7.27 There may also be some indirect habitat losses to wetland habitats due to drainage effects. For the purposes of this assessment, it is assumed that impacts on wetland habitats due to indirect drainage effects may extend out to 10 m from infrastructure (i.e., in keeping with precautionary indirect drainage assumptions within the carbon calculator

guidance (SEPA, 2018)). It is expected that any indirect drainage effects would only impact wetland habitat such as blanket bog, wet modified bog, wet heath, flushes etc. No indirect drainage effects are expected to impact or alter the quality or composition of non-wetland habitats, such as dry heath, bracken, acid grassland etc., as such only direct habitat loss applies to these habitats.

- 8.7.28 Temporary habitat losses due to the creation of temporary infrastructure, one borrow pit and earthworks cut and fill areas have been calculated separately to permanent infrastructure. 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 effectively permanent losses for habitat types such as blanket bog/wet modified bog due to the impacts 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.
- 8.7.29 **Table 8.9** details the estimated relative losses expected to occur to scoped in habitats for all new permanent and temporary infrastructure (with habitat loss estimated for all habitat types presented in **Annex A, Table 8.11** and **Table 8.12**). Note, the predicted habitat losses have been split into two, to reflect different sections of the proposed Development. This is because the intention is to access the proposed Development via the proposed Garvary Wind Farm and its associated access track, in addition to using the proposed Garvary borrow pit and Garvary construction compound (for further details see **Chapter 2**). Hereafter, for the purposes of the habitat loss calculations and discussion below, the term 'Garvary' is used to refer to the area of proposed infrastructure common to both Garvary and the proposed Development, i.e., the access track off the A836, the proposed Garvary borrow pit and Garvary construction compound, whereas the term 'Balblair' is used to refer to all other planned infrastructure after the Garvary borrow pit and which specifically relates to the proposed Development only. The separation of these areas for the purposes of the habitat loss calculations has been undertaken to allow two scenarios to be considered, i.e., whereby at the time of construction of the proposed Development whether the proposed Garvary Wind Farm is in existence or not, and therefore whether the habitat losses associated with the Garvary section have already occurred and will not be an impact related to the proposed Development, or not. The worst-case scenario assumes that Garvary does not exist at the point of proposed Development construction and therefore any habitat losses or effects in the Garvary section are also attributed to the proposed Development.

Table 8.9: Estimated Loss of IEF Habitats in study area for Permanent and Temporary Infrastructure

Phase 1 Habitat Type	Phase 1 Extent in study area (ha)	NVC Community Code or Habitat Type ¹¹	Direct Habitat Loss (ha)	Direct Habitat Loss as a % of Habitat Type	Indirect Habitat Loss (ha) in study area	Indirect Habitat Loss as a % of Habitat Type in study area
<i>Permanent (Balblair)</i>						
Blanket Bog	318.66	M17, M19	3.57	1.12	4.76	1.49
Wet Modified Bog	6.32	M20, M25a^	0.03	0.43	0.02	0.37
Wet dwarf shrub heath	218.31	M15	2.04	0.94	2.36	1.08
<i>Temporary (Balblair)</i>						
Blanket Bog	318.66	M17, M19	4.91	1.54	N/A	N/A
Wet Modified Bog	6.32	M20, M25a^	0.06	0.92	N/A	N/A
Wet dwarf shrub heath	218.31	M15	3.04	1.39	N/A	N/A
<i>Permanent (Garvary)</i>						
Blanket Bog	318.66	M17	0.04	<0.01	0.15	0.05
Wet dwarf shrub heath	218.31	M15	0.65	0.30	2.32	1.06
<i>Temporary (Garvary)</i>						
Blanket Bog	318.66	M17	0.07	0.02	N/A	N/A
Wet Modified Bog	6.32	M20	0.01	0.13	N/A	N/A
Wet dwarf shrub heath	218.31	M15	1.80	0.83	N/A	N/A

8.7.30 The following Sections assess the effect of these losses for each habitat IEF scoped-in.

Blanket Bog and Wet Modified Bog

8.7.31 **Impact:** Impacts upon blanket bog and wet modified habitats will be direct (through permanent and temporary habitat loss) and indirect (through potential drying effects upon neighbouring bog habitats) occurring from the construction phase into the operational phase. Direct loss would occur in areas where permanent infrastructure such as tracks, wind turbine foundations, and hardstands are sited on these habitat types. The excavation of these habitat types for temporary infrastructure would also likely 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 (precautionarily around 10 m from infrastructure is assumed) and disruption to hydrological flows.

¹¹ Only specific IEF habitats, communities or features subject to habitat losses are presented within this table. Any IEF communities not listed here are not subject to any predicted direct or indirect habitat losses. Full details of habitat losses for all habitat types are presented in **Annex A, Table 8.11** and **Table 8.12**.

- 8.7.32 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.
- 8.7.33 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 and in the wider local area. The large scale of these wetland habitat mosaics reduces the likelihood that small, fragmented habitat patches would be created. No small-scale habitat fragments will be created by the location of tracks and other infrastructure, and where some wetland habitats are subject to infrastructure there are good practice construction methods that will 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.
- 8.7.34 **Sensitivity:** Local Nature Conservation Importance (as detailed in **Table 8.8**). 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, 2019b).
- 8.7.35 **Magnitude of Impact:** The UK has an estimated 2,182,200 ha of blanket bog (JNCC, 2019b) of which around 1,759,000 to 1,800,000 ha is in Scotland (JNCC, 2019c) (approximately 23% of the land area).
- 8.7.36 Blanket bog covers 318.66 ha (41.35%) of the study area, with a split between the M17 and M19 NVC communities which comprise the bulk of the blanket bog vegetation (see **Annex A, Table 8.11** and **Table 8.12**). As per **Table 8.9**, for the Balblair section, the direct habitat loss for blanket bog is predicted to be 3.57 ha due to permanent infrastructure with up to an additional 4.91 ha due to temporary works areas. This results in a potential total direct loss of 8.48 ha. As per **Table 8.9**, for the Garvary section, the direct habitat loss for blanket bog is predicted to be 0.04 ha due to permanent infrastructure with up to an additional 0.07 ha due to temporary works areas, borrow pit and construction compound; this results in a potential total direct loss of 0.11 ha. For the entire proposed Development in the worst-case scenario (as described in **paragraph 8.7.29**), the direct habitat loss for blanket bog is predicted to be 3.61 ha due to permanent infrastructure with up to an additional 4.98 ha due to temporary works areas, borrow pit and construction compound. This results in a potential total direct loss of 8.59 ha, equivalent to 2.70% of the blanket bog within the study area.
- 8.7.37 Wet modified bog covers 6.32 ha (0.82%) of the study area and is comprised of lower quality M20 and M25a[^]. As per **Table 8.9**, for the Balblair section, the direct habitat loss for wet modified bog is predicted to be 0.03 ha due to permanent infrastructure with up to an additional 0.06 ha due to the temporary works areas. This results in a potential total direct loss of 0.09 ha. As per **Table 8.9**, for the Garvary section, the direct habitat loss for wet modified bog is predicted to be 0.01 ha due to temporary works areas, borrow pit and

construction compound (no permanent direct loss predicted). For the entire proposed Development in the worst-case scenario (as described in **paragraph 8.7.29**), the direct habitat loss for wet modified bog from permanent and temporary infrastructure is predicted to be 0.10 ha, equivalent to 1.58% of the wet modified bog within the study area.

- 8.7.38 For this blanket mire resource as a whole, i.e., combining blanket bog and wet modified bog, for the Balblair section direct losses amount to 3.59 ha for permanent infrastructure and 4.97 ha for temporary works areas; a total of 8.56 ha. For the Garvary section, combining blanket bog and wet modified bog, direct losses amount to 0.04 ha for permanent infrastructure and 0.08 ha for temporary works areas, borrow pit and construction compound; a total of 0.12 ha. For the entire proposed Development in the worst-case scenario (as described in **paragraph 8.7.29**), the direct habitat loss for the combined resource from permanent and temporary infrastructure is predicted to be 8.68 ha, equivalent to 2.67% of the combined resource within the study area.
- 8.7.39 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 feature; 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 affect the extent of drainage. In general, less decomposed more fibric peatlands (which tend to be found commonly 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 commonly are associated with more highly decomposed peats (Nayak *et al.* 2008). For this assessment, indirect effects are precautionarily assumed to extend out to 10 m from infrastructure (as per SEPA, 2018).
- 8.7.40 As per **Table 8.9**, if indirect drainage effects are fully realised out to 10 m around permanent infrastructure within the Balblair section in all blanket bog and wet modified bog areas, then the total predicted potential habitat modification or losses increase for blanket bog by 4.76 ha and 0.02 ha for wet modified bog. Within the Garvary section indirect losses amount to an additional 0.15 ha of blanket bog.
- 8.7.41 In a worst-case scenario for the proposed Development of fully realised direct and indirect habitat loss for permanent and temporary works areas results in an overall loss total of 13.49 ha or 4.23% of the study areas blanket bog and 0.12 ha or 1.90% of the study areas 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 overall amount to 13.61 ha, or 4.19% of the combined resource within the study area.
- 8.7.42 However, it is considered highly unlikely that indirect drainage effects of this scale (i.e., out to 10 m either side of all permanent 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 wholesale 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. Anecdotal observations from wind farms around Scotland also suggest that bog habitats readily persist around infrastructure and within this 10 m zone of possible influence.

- 8.7.43 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.
- 8.7.44 Overall, evidence suggests that if some drainage effects materialise locally around infrastructure due to 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 are observed long term, then wet modified bog/blanket bog may transition to wet heath (e.g., NVC type M15), dry modified bog, or dry heath. Wet and dry heaths are still habitats of conservation interest, being Annex I, UKBAP and SBL Priority Habitats also.
- 8.7.45 When considering the scale of the above worst-case habitat losses for the proposed Development (i.e., direct and precautionary indirect effects on up to 4.19% of the combined blanket bog and wet modified bog within the study area) and accounting for the relative abundance, distribution and quality of the blanket bog and wet modified bog within the study area and connected immediately adjacent to the Site, an impact magnitude of **low spatial** (c.f. **Table 8.3**) and **long-term temporal** is appropriate.
- 8.7.46 **Significance of Effect:** Given the above consideration of sensitivity and magnitude of impact, the effect significance is considered to be **Minor adverse** and **Not Significant**.

Wet Dwarf Shrub Heath

- 8.7.47 **Impact:** Impacts are the same as those discussed for blanket bog/wet modified bog habitats in **paragraph 8.7.31**; i.e., direct and indirect loss of habitat resulting in a reduction in the extent and distribution of this habitat.
- 8.7.48 Due to their connectivity, habitat fragmentation impacts are considered above for both blanket bog/wet modified bog and wet heath. The same conclusion applies here that it is unlikely the potential impact of fragmentation would lead to further loss of wet heath in addition to that predicted to occur as a result of direct loss and precautionary indirect loss.
- 8.7.49 **Sensitivity:** Local Nature Conservation Importance (as detailed in **Table 8.8**). Conservation Status of this habitat as assessed in the 2019 JNCC report by the UK on Northern Atlantic wet heaths with *Erica tetralix* is 'Unfavourable – Bad' and 'Deteriorating' at the UK level (JNCC, 201db).

- 8.7.50 **Magnitude of Impact:** The UK has an estimated 508,817 ha of this wet heath type (JNCC, 2019d). The majority, around 340,000 to 400,000 ha (approximately 66% to 78% of the UK extent), is in Scotland (JNCC, 2019e).
- 8.7.51 Wet heath covers 218.31 ha (28.33%) of the study area; the majority of which is M15b (detailed in **Annex A, Table 8.11** and **Table 8.12**). The direct habitat loss for wet heath within the Balblair section is predicted to be 5.09 ha due to permanent (2.04 ha) and temporary (3.04 ha) infrastructure (**Table 8.9**). The predicted direct habitat loss for wet heath within the Garvary section is predicted to be a total of 2.45 ha due to permanent (0.65 ha) and temporary (1.80 ha) infrastructure (**Table 8.9**). For the proposed Development in the worst-case scenario (as per **paragraph 8.7.29**) this equates to a total predicted loss of 7.54 ha (2.69 ha of which is permanent and 4.85 ha of which is temporary), which is the equivalent of 3.45% of the wet heath within the study area.
- 8.7.52 As described in **paragraph 8.7.39**, there may be some indirect losses because of the zone of drainage around permanent infrastructure. If in the unlikely scenario indirect drainage impacts are fully realised out to a distance of 10 m in all wet heath areas, then predicted losses amount to an additional 2.36 ha within the Balblair section and 2.32 ha in the Garvary section, a total of 4.68 ha.
- 8.7.53 The worst-case scenario of direct and indirect wet heath habitat loss for permanent infrastructure and direct habitat loss for temporary works areas is an overall total of 12.22 ha, equivalent to 5.60% of the wet heath within the study area.
- 8.7.54 It is considered unlikely that indirect drainage impacts would have a significant effect on the wet heath present or result in large-scale vegetation shifts to a lower conservation value habitat type. If drainage impacts materialise then this could, depending on the degree of drying, result in some subtle shifts of community or vegetation type, and this would likely be shifts to other sub-communities within the M15 NVC community (e.g., from M15b to M15c) and may take many years to transition. In response to more severe drying effects then M15 wet heath would be expected over time to transition towards a dry heath community, such as H9, H10 and/or H12 dry heaths (which are already common within the study area). For the purposes of the EclA, dry heath is considered to be of the same conservation value, and therefore overall, it is unlikely there would be a decline in locally important habitat types due to any indirect drainage effects on wet heath.
- 8.7.55 When considering the above habitat loss, and accounting for the abundance, distribution and quality of the habitat within the study area as well as the wider area, an effect magnitude of **low spatial** (c.f. **Table 8.3**) and **long-term temporal** is appropriate.
- 8.7.56 **Significance of Effect:** Given the above consideration of sensitivity and magnitude of impact, the effect significance is considered to be **Minor adverse** and **Not Significant**.

Operational Effects

- 8.7.57 This section provides an assessment of the likely effects of the operation of the proposed Development upon the scoped-in IEFs.

Predicted Operational Effects

Blanket Bog and Wet Modified Bog

- 8.7.58 **Impact:** All likely direct and indirect adverse effects on habitats have been considered in the Construction Effects section above. 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 stage and is therefore considered above. Indirect effects on wetland habitats would largely occur during the operational phase as potential drying effects become established. However, for ease and clarity of assessing effects on habitats these are considered together in Construction Effects.
- 8.7.59 However, additional compensation and enhancement measures, such as blanket bog and wet heath restoration and enhancement, are proposed for the operational phase as part of the proposed Development's OBEMP, as detailed in **Technical Appendix 8.6** and outlined below.
- 8.7.60 Enhancement and restoration of habitats through the delivery of a BEMP during the operational phase would reduce effects on habitats further. Overall, the BEMP would aim to achieve significant biodiversity enhancement at the proposed Development, in line with objectives outlined in NPF4 Policy 3 (Scottish Government, 2023), the Onshore Wind Policy Statement (Scottish Government, 2022a), and the Scottish Biodiversity Strategy to 2045 (Scottish Government, 2022b). The BEMP would include provisions for the protection, maintenance, restoration and/or enhancement of moorland bog and wet heath habitats locally in OBEMP Unit A. Furthermore, the BEMP would deliver riparian corridor establishment/enhancement in OBEMP Unit B to benefit biodiversity in general. The OBEMP is provided in **Technical Appendix 8.6**¹², also see **Figure 8.11**.
- 8.7.61 **Sensitivity:** Local Nature Conservation Importance (as detailed in **Table 8.8**). 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, 2019b).
- 8.7.62 **Magnitude of Impact:** The OBEMP is based on two main land parcels or areas for each respective habitat management and biodiversity enhancement proposal. Specifically, with respect to blanket bog/wet modified bog (priority peatlands and deep peat habitats) and wet dwarf shrub heath, the OBEMP includes for a scheme of non-native self-seeded conifer removal from all upland moorland habitats within OBEMP Unit A, which covers 629.76 ha and the majority of the application boundary (see **Figure 8.11**). When considering the scale of the enhancement proposal in relation to the Site and application boundary, an effect magnitude of **high spatial** and **long-term temporal** is appropriate.
- 8.7.63 **Significance of Effect:** Given the above consideration of sensitivity and magnitude of impact, the effect significance is considered to be **Moderate beneficial** and **Significant**.

Wet Dwarf Shrub Heath

- 8.7.64 **Impact:** As per blanket bog and wet modified bog above (**paragraphs 8.7.58 - 8.7.60**).

¹² The detailed and final BEMP would be agreed with THC and NatureScot in advance of construction and would ensure the proposed Development secures significant biodiversity enhancements through restoring degraded habitats and strengthening nature networks.

- 8.7.65 Sensitivity: Local Nature Conservation Importance (as detailed in **Table 8.8**). Conservation Status of this habitat as assessed in the 2019 JNCC report by the UK on Northern Atlantic wet heaths with *Erica tetralix* is 'Unfavourable – Bad' and 'Deteriorating' at the UK level (JNCC, 2019d).
- 8.7.66 Magnitude of Impact: As per blanket bog and wet modified bog above an effect magnitude of high spatial and long-term temporal is appropriate (see **paragraph 8.7.62**).
- 8.7.67 Significance of Effect: Given the above consideration of sensitivity and magnitude of impact, the effect significance is considered to be Moderate beneficial and Significant.

Decommissioning Effects

- 8.7.68 Due to the distant time frame until their occurrence (>30 years), decommissioning effects are difficult to predict with confidence as the future baseline conditions of the Site and surrounding area, on which to base the assessment, is not yet known, and the proposals for decommissioning/repowering is not yet determined/known. In general, decommissioning effects on protected species 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. A Decommissioning Environmental Management Plan (DEMP) would be prepared and agreed with the relevant statutory consultees prior to decommissioning of the proposed Development, which would include the need for pre-works surveys and follow the SPP.
- 8.7.69 For habitats, decommissioning of the proposed Development would involve removal of all of the above-ground infrastructure and restoration of the associated ground. 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 incurred during construction and operation, rather, it is predicted that due to restoration of upland habitats in these areas, there would be a net positive effect. Therefore, on this basis, effects are not assessed.

8.8 Additional mitigation, compensation and enhancement

Construction Phase

- 8.8.1 General and embedded mitigation measures for habitats and species, such as complying with best practice, micro-siting provisions, presence of an ECoW and adherence to a detailed CEMP and SPP are included in **paragraphs 8.6.1 to 8.6.8**.
- 8.8.2 No significant construction effects were identified on IEFs which require additional or bespoke mitigation measures in the context of the EIA Regulations. However, a number of additional mitigation, compensation and enhancement measures, such as blanket bog and wet heath restoration and enhancement, are proposed as part of the proposed Development's OBEMP, see the Predicted Operational Effects section above.

Operational Phase

- 8.8.3 No significant adverse operational effects were identified on IEFs which require additional or bespoke mitigation measures in the context of the EIA Regulations. Beneficial

operational effects have been identified via the OBEMP, as detailed in the Predicted Operational Effects section above.

Decommissioning

8.8.4 None proposed.

Residual effects

8.8.5 No significant effects have been identified during construction. All scoped-in IEFs (i.e., blanket bog, wet modified bog and wet dwarf shrub heath) have been assessed as having Minor adverse effects, which are Not Significant (as per the assessment sections above), and prior to the implementation of additional enhancement presented in the OBEMP.

8.8.6 The implementation of the OBEMP as detailed above will likely result in operational Moderate beneficial effects for the respective scoped in IEFs (blanket bog, wet modified bog and wet dwarf shrub heath).

8.9 Cumulative effects

8.9.1 The primary concern regarding the assessment of cumulative effects is to identify situations where impacts on habitats or species populations that may be non-significant from individual developments are judged to be significant when combined with nearby consented or proposed projects that are subject to an EIA process. In the interests of focusing on the potential for similar impacts, this assessment considers the potential for cumulative effects with other wind farm and grid connection developments that are consented or at application stage (operational and under construction developments are considered as part of the existing baseline). 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.

8.9.2 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.

8.9.3 Three relevant proposed EIA wind farm developments were identified within 10 km of the application boundary, all located to the north of the proposed Development (see **Figures 6.31, 6.41** and **6.42**, as follows:

- Lairg II Wind Farm (10 turbines consented August 2023);
- Garvary Wind Farm (25 turbines, application submitted April 2021); and
- Acheilidh Wind Farm (12 turbines; application submitted May 2024).

8.9.4 In general, for most wind farm developments that are operational or consented, mitigation and/or additional management/restoration/enhancement/creation of habitats is usually proposed to compensate and offset any effects on IEFs. These management areas tend to be much larger than the area of predicted loss. The requirement for each new development project submitted into planning to provide significant biodiversity enhancement is also now imperative through NPF4 Policy 3 (Scottish Government,

2023a) and so all projects at application stage will also require mitigation and enhancement at a significantly larger scale than predicted losses. In addition, NatureScot (2023) guidance specifically relating to developments on peatland requires significant compensation and enhancement for impacts on priority peatland habitats.

8.9.5 Of the relevant cumulative sites noted above, and focussing on the IEFs scoped in for the proposed Development, the following summations are made:

- the outline HMP for Lairg II Wind Farm (Energiekontor UK Ltd, 2019) includes for bog restoration (area in hectares unstated);
- the draft Habitat Management Plan (HMP) for Garvary Wind Farm (Coriolis, 2022) includes a minimum of 25.65 ha of blanket bog restoration; and
- the outline HMP for Acheilidh Wind Farm (Energiekontor UK Ltd, 2024) includes for peatland restoration (area in hectares unstated).

8.9.6 It is considered unlikely that any significant cumulative effects at a local or regional level will arise as a consequence of the proposed Development adding to habitat loss associated with other projects. This is due to the small nature and not significant levels of habitat losses associated with the proposed Development and the Applicant's commitment to the delivery of a BEMP which would include provisions for the maintenance, restoration and enhancement of bog and upland heath habitats over the majority of the application boundary area (as per **Technical Appendix 8.6** and **Figure 8.11**). This ensures the proposed Development would not contribute to long-term adverse effects on the scoped in IEFs of blanket bog, wet modified bog and wet dwarf shrub locally or regionally.

8.9.7 Based on the commitment of the Applicant to implement the BEMP over the operational phase of the proposed Development, as well as similar requirements for other wind farm projects, the long-term cumulative effect significance is considered likely to be **Negligible-Minor beneficial** and **Not Significant** under the EIA Regulations.

8.10 Summary of effects

8.10.1 **Table 8.10** provides a summary of the conclusions of the impact assessment with respect to each IEF taking into consideration embedded and any additional mitigation measures.

8.10.2 The inclusion of the OBEMP with a significant area included for peatland and heathland restoration and enhancement aligns with several key actions, or actions for habitats, within the Highland Nature Biodiversity Action Plan 2021 – 2026 and as such may assist in contributing towards the delivery of Action 2: Landscape-scale nature conservation and restoration work, Action for Habitats: Upland and Moorland, and Action for Habitats: Peatland and Wetland.

Table 8.10: Summary of effects

Potential impact	Pre-mitigation		Mitigation/ Enhancement	Residual Effect
	Effect	Significance		
<i>Construction Phase</i>				
Blanket Bog and Wet Modified Bog	Direct and indirect habitat loss	Minor adverse – Not Significant	No mitigation above and beyond embedded mitigation required. Compensation and additional enhancement via the implementation of a BEMP which includes bog and upland heathland restoration/ enhancement.	Minor adverse and Not Significant in the short-term.
Wet dwarf shrub heath	Direct and indirect habitat loss	Minor adverse – Not Significant	No mitigation above and beyond embedded mitigation required. Compensation and additional enhancement via the implementation of a BEMP which includes bog and upland heathland restoration/ enhancement.	Minor adverse and Not Significant in the short-term.
<i>Operational Phase</i>				
Blanket Bog and Wet Modified Bog	Indirect habitat loss ¹³	Minor adverse – Not Significant ¹³	Implementation of a BEMP which includes bog and upland heathland restoration/ enhancement.	Moderate beneficial and Significant in the long-term.
Wet dwarf shrub heath	Indirect habitat loss ¹³	Minor adverse – Not Significant ¹³	Implementation of a BEMP which includes bog and upland heathland restoration/ enhancement.	Moderate beneficial and Significant in the long-term.
<i>Decommissioning Effects</i>				
None identified. Generally, as for Construction (or less). No further direct or indirect habitat losses; potential net positive effect on habitats after Site restoration.				

¹³ Considered and assessed as part of predicted construction effects.

Potential impact	Pre-mitigation		Mitigation/ Enhancement	Residual Effect
	Effect	Significance		
<i>Cumulative Effects</i>				
Blanket Bog and Wet Modified Bog	Direct and indirect habitat loss	Minor adverse – Not Significant	Implementation of a BEMP which includes bog and upland heathland restoration/enhancement.	Negligible-Minor beneficial and Not Significant
Wet dwarf shrub heath	Direct and indirect habitat loss	Minor adverse – Not Significant	Implementation of a BEMP which includes bog and upland heathland restoration/enhancement.	Negligible-Minor beneficial and Not Significant

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Annex A

Table 8.11: Habitat Baseline Composition (Study Area) and Habitat Loss Calculations for Balblair Section

		Application Boundary and Study Area (Baseline)				Permanent Direct Loss	Permanent Infrastructure Indirect Loss (only applies to Wetland Habitats) ¹⁴	Temporary Direct Loss
Phase 1 Description (Code)	NVC	Phase 1 Area (ha)	Phase 1 % of Study Area	NVC Area (ha)	% of NVC Type within Study Area	NVC Area (ha)	NVC Area (ha)	NVC Area (ha)
Totals		770.70	100	770.70	100	6.40	7.58	9.01
Broadleaved Semi-Natural Woodland (A1.1.1)	W4c	3.47	0.5	0.03	<0.01	0.00	0.00	0.00
	W11			3.35	0.4	0.00	0.00	0.00
	W4b			0.09	<0.01	0.00	0.00	0.00
Coniferous Semi-Natural Woodland (A1.2.1)	W18	4.90	0.6	4.90	0.6	0.00	0.00	0.00
Coniferous Plantation Woodland (A1.2.2)	CP	22.23	2.9	22.23	2.9	0.00	0.00	0.00
Dense/Continuous Scrub (A2.1)	W23	2.99	0.4	2.99	0.4	0.00	0.00	0.00
Scattered Broadleaved Tree (A3.1)	SBT	0.01	<0.01	0.01	<0.01	0.00	0.00	0.00
Unimproved Acid Grassland (B1.1)	U4	44.07	5.7	39.26	5.1	0.10	0.00	0.28
	U4a			4.82	0.6	0.04	0.00	0.02
Semi-Improved Acid Grassland (B1.2)	U4b	3.38	0.4	3.38	0.4	0.00	0.00	0.00
Improved Grassland (B4)	MG6	3.82	0.5	3.82	0.5	0.00	0.00	0.00
Marsh/Marshy Grassland (B5)	M23b	35.66	4.6	17.40	2.3	0.00	0.00	0.00
	M25b			0.59	0.1	0.00	0.00	0.00
	M25a			11.36	1.5	0.02	0.05	0.01
	M25			2.82	0.4	0.00	0.00	0.00
	Je			1.48	0.2	<0.01	0.01	<0.01
	MG10a			1.79	0.2	0.00	0.00	0.00
	Epal			0.23	<0.01	0.00	0.00	0.00
Continuous Bracken (C1.1)	U20	14.78	1.9	14.78	1.9	0.00	0.00	0.00

¹⁴ Based upon the precautionary 10 m indirect drainage assumption (SEPA, 2018).

		Application Boundary and Study Area (Baseline)				Permanent Direct Loss	Permanent Infrastructure Indirect Loss (only applies to Wetland Habitats) ¹⁴	Temporary Direct Loss
Phase 1 Description (Code)	NVC	Phase 1 Area (ha)	Phase 1 % of Study Area	NVC Area (ha)	% of NVC Type within Study Area	NVC Area (ha)	NVC Area (ha)	NVC Area (ha)
Totals		770.70	100	770.70	100	6.40	7.58	9.01
Acid Dry Dwarf Shrub Heath (D1.1)	H9	65.71	8.5	46.36	6.0	0.01	0.00	0.00
	H10			0.25	<0.01	0.00	0.00	0.00
	H12			1.18	0.2	0.00	0.00	0.00
	H9c			1.64	0.2	0.09	0.15	0.15
	H9d			0.13	<0.01	0.00	0.00	0.00
	H12a			0.41	0.1	0.00	0.00	0.00
	H10c			15.74	2.0	0.20	0.00	0.03
Wet Dwarf Shrub Heath (D2)	M15b	218.31	28.3	109.94	14.3	0.11	0.36	0.01
	M15c			53.04	6.9	0.54	0.30	0.98
	M15a			55.33	7.2	1.40	1.70	2.06
Blanket Bog (E1.6.1)	M19	318.66	41.3	44.51	5.8	0.00	0.00	0.00
	M17			61.90	8.0	0.00	0.00	0.00
	M19a			40.01	5.2	1.02	1.33	1.47
	M17b			94.55	12.3	1.68	2.24	2.56
	M17a			77.52	10.1	0.86	1.18	0.87
	M3			0.16	<0.01	0.00	0.00	0.00
Wet Modified Bog (E1.7)	M25a^	6.32	0.8	1.42	0.2	<0.01	<0.01	<0.01
	M20a			4.51	0.6	0.03	0.02	0.06
	M20b			0.32	<0.01	0.00	0.00	0.00
	M20			0.08	<0.01	0.00	0.00	0.00
Acid/Neutral Flush (E2.1)	M6c	24.38	3.2	15.79	2.0	0.22	0.26	0.35
	M6d			0.37	<0.01	0.00	0.00	0.00
	M6			1.75	0.2	0.00	0.00	0.00
	M6a			4.81	0.6	0.09	0.12	0.16
	M4			0.75	0.1	0.00	0.00	0.00
	M6b			0.92	0.1	0.00	0.00	0.00
Basic Flush (E2.2)	M10	0.08	0.0	0.01	<0.01	0.00	0.00	0.00
	M9			0.07	<0.01	0.00	0.00	0.00
Swamp (F1)	S9	0.15	0.0	0.01	<0.01	0.00	0.00	0.00
	S9a			0.14	<0.01	0.00	0.00	0.00
Standing Water (G1)	SW	0.05	0.0	0.05	<0.01	0.00	0.00	0.00
Running Water (G2)	RW	0.26	0.0	0.26	<0.01	0.00	0.00	0.00
Building (J3.6)	BD	0.08	0.0	0.08	<0.01	0.00	0.00	0.00

		Application Boundary and Study Area (Baseline)				Permanent Direct Loss	Permanent Infrastructure Indirect Loss (only applies to Wetland Habitats) ¹⁴	Temporary Direct Loss
Phase 1 Description (Code)	NVC	Phase 1 Area (ha)	Phase 1 % of Study Area	NVC Area (ha)	% of NVC Type within Study Area	NVC Area (ha)	NVC Area (ha)	NVC Area (ha)
Totals		770.70	100	770.70	100	6.40	7.58	9.01
Bare Ground (J4)	BG	1.39	0.2	1.39	0.2	0.00	0.00	0.00

Table 8.12: Habitat Baseline Composition (Study Area) and Habitat Loss Calculations for Garvary Section

		Application Boundary and Study Area (Baseline)				Permanent Direct Loss	Permanent Infrastructure Indirect Loss (only applies to Wetland Habitats) ¹⁴	Temporary Direct Loss
Phase 1 Description (Code)	NVC	Phase 1 Area (ha)	Phase 1 % of Study Area	NVC Area (ha)	% of NVC Type within Study Area	NVC Area (ha)	NVC Area (ha)	NVC Area (ha)
Totals		770.70	100	770.70	100	2.00	2.74	6.69
Broadleaved Semi-Natural Woodland (A1.1.1)	W4c	3.47	0.5	0.03	<0.01	0.00	0.00	0.00
	W11			3.35	0.4	0.06	0.00	0.00
	W4b			0.09	<0.01	0.00	0.00	0.00
Coniferous Semi-Natural Woodland (A1.2.1)	W18	4.90	0.6	4.90	0.6	0.00	0.00	0.00
Coniferous Plantation Woodland (A1.2.2)	CP	22.23	2.9	22.23	2.9	0.00	0.00	0.00
Dense/Continuous Scrub (A2.1)	W23	2.99	0.4	2.99	0.4	0.00	0.00	0.00
Scattered Broadleaved Tree (A3.1)	SBT	0.01	<0.01	0.01	<0.01	0.00	0.00	0.00
Unimproved Acid Grassland (B1.1)	U4	44.07	5.7	39.26	5.1	0.00	0.00	0.00
	U4a			4.82	0.6	0.01	0.00	0.07
Semi-Improved Acid Grassland (B1.2)	U4b	3.38	0.4	3.38	0.4	0.00	0.00	0.00
Improved Grassland (B4)	MG6	3.82	0.5	3.82	0.5	0.00	0.00	0.00
	M23b	35.66	4.6	17.40	2.3	0.00	0.00	0.00
	M25b			0.59	0.1	0.00	0.00	0.00

		Application Boundary and Study Area (Baseline)				Permanent Direct Loss	Permanent Infrastructure Indirect Loss (only applies to Wetland Habitats) ¹⁴	Temporary Direct Loss
Phase 1 Description (Code)	NVC	Phase 1 Area (ha)	Phase 1 % of Study Area	NVC Area (ha)	% of NVC Type within Study Area	NVC Area (ha)	NVC Area (ha)	NVC Area (ha)
Totals		770.70	100	770.70	100	2.00	2.74	6.69
Marsh/Marshy Grassland (B5)	M25a			11.36	1.5	0.07	0.26	0.00
	M25			2.82	0.4	0.00	0.00	0.00
	Je			1.48	0.2	0.00	0.00	0.00
	MG10a			1.79	0.2	0.00	0.00	0.00
	Epal			0.23	<0.01	0.00	0.00	0.00
Continuous Bracken (C1.1)	U20	14.78	1.9	14.78	1.9	0.12	0.00	0.71
Acid Dry Dwarf Shrub Heath (D1.1)	H9	65.71	8.5	46.36	6.0	0.79	0.00	0.69
	H10			0.25	<0.01	0.00	0.00	0.00
	H12			1.18	0.2	0.00	0.00	0.00
	H9c			1.64	0.2	0.00	0.00	0.00
	H9d			0.13	<0.01	0.00	0.00	0.00
	H12a			0.41	0.1	0.00	0.00	0.00
	H10c			15.74	2.0	0.27	0.00	3.34
Wet Dwarf Shrub Heath (D2)	M15b	218.31	28.3	109.94	14.3	0.65	2.32	1.80
	M15c			53.04	6.9	0.00	0.00	0.00
	M15a			55.33	7.2	0.00	0.00	0.00
Blanket Bog (E1.6.1)	M19	318.66	41.3	44.51	5.8	0.00	0.00	0.00
	M17			61.90	8.0	0.00	0.00	0.00
	M19a			40.01	5.2	0.00	0.00	0.00
	M17b			94.55	12.3	0.03	0.14	<0.01
	M17a			77.52	10.1	<0.01	0.01	0.07
	M3			0.16	<0.01	0.00	0.00	0.00
Wet Modified Bog (E1.7)	M25a^	6.32	0.8	1.42	0.2	0.00	0.00	0.00
	M20a			4.51	0.6	0.00	0.00	0.00
	M20b			0.32	<0.01	0.00	0.00	0.00
	M20			0.08	<0.01	0.00	0.00	0.01
Acid/Neutral Flush (E2.1)	M6c	24.38	3.2	15.79	2.0	<0.01	0.01	0.00
	M6d			0.37	<0.01	0.00	0.00	0.00
	M6			1.75	0.2	0.00	0.00	0.00
	M6a			4.81	0.6	0.00	0.00	0.00
	M4			0.75	0.1	0.00	0.00	0.00
	M6b			0.92	0.1	0.00	0.00	0.00
	M10	0.08	0.0	0.01	<0.01	0.00	0.00	0.00

		Application Boundary and Study Area (Baseline)				Permanent Direct Loss	Permanent Infrastructure Indirect Loss (only applies to Wetland Habitats) ¹⁴	Temporary Direct Loss
Phase 1 Description (Code)	NVC	Phase 1 Area (ha)	Phase 1 % of Study Area	NVC Area (ha)	% of NVC Type within Study Area	NVC Area (ha)	NVC Area (ha)	NVC Area (ha)
Totals		770.70	100	770.70	100	2.00	2.74	6.69
Basic Flush (E2.2)	M9			0.07	<0.01	0.00	0.00	0.00
Swamp (F1)	S9	0.15	0.0	0.01	<0.01	0.00	0.00	0.00
	S9a			0.14	<0.01	0.00	0.00	0.00
Standing Water (G1)	SW	0.05	0.0	0.05	<0.01	0.00	0.00	0.00
Running Water (G2)	RW	0.26	0.0	0.26	<0.01	0.00	0.00	0.00
Building (J3.6)	BD	0.08	0.0	0.08	<0.01	0.00	0.00	0.00
Bare Ground (J4)	BG	1.39	0.2	1.39	0.2	<0.01	0.00	0.00