Environmental Impact Assessment Report

Swarclett Wind Farm

Chapter 6: Ecology

Swarclett Wind Energy Limited

June 2024

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Glossary of Terms

Term	Definition
The Applicant	Swarclett Wind Energy Limited
Environmental and Planning Consultant	Atmos Consulting Limited
Environmental Impact Assessment	Environmental Impact Assessment (EIA) is a means of carrying out, in a systematic way, an assessment of the likely significant environmental effects from a development.
Environmental Impact Assessment Regulations	The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017 (EIA Regulations)
Environmental Impact Assessment Report	A document reporting the findings of the EIA and produced in accordance with the EIA Regulations
Proposed Development	The Swarclett Wind Farm
Proposed Development Footprint	The area within which the Proposed Development will be located.
Proposed Development Site	The full application boundary, ie the red line boundary (Figure 1-1 Site Location).
Study Area	Site boundary plus 500m buffer

List of Abbreviations

Abbreviation	Description
BAP	Biodiversity Action Plan
CaSPLAN	Caithness and Sutherland Local Development Plan
CEMP	Construction Environment Management Plan
CMS	Construction Method Statement
EnvCoW/ECoW	Ecological/Environmental Clerk of Works
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
FCS	Forestry Commission Scotland
GWDTE	Ground Water Dependent Terrestrial Ecosystem
HMP	Habitat Management Plan
HwLDP	Highland wide Local Development Plan
NTS	Non-Technical Summary
NVC	National Vegetation Classification
SBL	Scottish Biodiversity List
SEPA	Scottish Environment Protection Agency
THC	The Highland Council

6 Ecology

6.1 Introduction

This chapter describes and evaluates the current nature conservation interest of the site and study areas. The chapter evaluates both habitats and non-avian animal species and assesses the potential impacts of the Proposed Development on habitats and species above a certain value. Potential impacts on birds are considered separately in Chapter 7: Ornithology.

This chapter has been prepared by Atmos Consulting Ltd., led by a full member of the Chartered Institute of Ecology and Environmental Management (CIEEM).

Pre-application consultation was undertaken in November 2021, followed by a scoping exercise undertaken in March 2022 (see Chapter 2: EIA Approach and Methodology), and was informed by extended Phase 1 habitat and National Vegetation Classification (NVC) surveys carried out in September 2020 and July 2023. Scoping identified the need for, and scope of, the subsequent ecological surveys carried out on the site during 2020 and 2023.

The results of the baseline surveys were used to inform the turbine and associated wind farm infrastructure and design, and also form the basis of the detailed assessment presented in this chapter. The results of the detailed ecological surveys undertaken are summarised in this chapter, with further details provided in a number of technical appendices, as shown in Table 6-1.

Table 6-1: Ecological Studies Undertaken for the Assessment

Study	Date Undertaken	Location in EIA Report
Extended Phase 1 Habitat and NVC Surveys	September 2020 and July 2023	Technical Appendix 6-1
Bat Survey	April / May – September 2023	Technical Appendix 6-2
Protected Mammal Survey	September 2020 and July 2023	Technical Appendix 6-3
Outline Habitat Management Plan		Technical Appendix 6-4

6.2 Legislation and Policy Context

The baseline surveys and ecological assessment have been carried out with reference to the legislation and guidance outlined below.

6.2.1 Legislation

The non-avian ecology assessment has been undertaken with reference to the following legislation:

- the EC Habitats Directive (Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora);
- the Wildlife and Countryside Act 1981 (as amended);
- the Wildlife and Natural Environment (Scotland) Act 2011;

- the Nature Conservation (Scotland) Act 2004;
- the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended); and
- the Protection of Badgers Act 1992.

6.2.2 Planning Policy

Relevant planning policy is summarised in Chapter 4: Planning and Energy Policy; this section focuses solely on policy which is potentially relevant to non-avian ecology.

The fourth National Planning Framework (NPF4) (Scottish Government, 2023) was approved by Scottish Parliament in February 2023 and replaces Scottish Planning Policy (SPP) and National Planning Framework 3 (NPF3).

NPF4 sets out how the Scottish Government's approach to planning and development will help to achieve a net zero, sustainable Scotland by 2045. Specifically, in relation to the Proposed Development, *Policy 3: Biodiversity* and *Policy 4: Natural Places* refer to development proposals contributing to the enhancement of biodiversity and minimising potential adverse impacts on biodiversity, nature networks and the natural environment. *Policy 32: Natural Places* refers to effects from development on designated sites and protected species.

The Highland Wide Local Development Plan

The Highland-wide Local Development Plan (HwLDP) was adopted by The Highland Council (THC) in April 2012 and continues to be in force. The following policies within the HwLDP are considered relevant to this chapter:

- Policy 57 – Natural, Built and Cultural Heritage;
- Policy 58 – Protected Species;
- Policy 59 – Other Important Species;
- Policy 60 – Other Important Habitats; and
- Policy 63 – Water Environment.

The Caithness and Sutherland Local Development Plan

The Caithness and Sutherland Local Development Plan, also known as CaSPLAN was adopted by THC on 31 August 2018. The CaSPLAN primarily focuses on regional settlement strategies, however, it recognises the importance of the natural environment in achieving the outcome of high quality places in the region.

6.2.3 Other Guidance

Other documents and guidance reviewed and applied in this assessment are outlined below.

The Scottish Biodiversity List (SBL) (Scottish Government, 2020) is a list of animals, plants and habitats that the Scottish ministers consider to be of principal importance for biodiversity conservation in Scotland. Both scientific and social criteria have been used to define the SBL. Scientific criteria include all Priority Species and Priority Habitats included in the now superseded UK Biodiversity Action Plan (BAP) (UK Biodiversity Partnership, 2007 *et seq*.), which occur in Scotland. Social criteria are based on the results of an omnibus survey of the Scottish public carried out in 2006, and includes

some common species and habitats. This chapter only considers those listed using scientific criteria.

Highland Nature: The Biodiversity Action Plan (Highland Environment Forum, 2015) (hereafter referred to as the Highland Local Biodiversity Action Plan (HLBAP)), sets out a number of objectives to help support the over-arching themes of the plan, including sustainable management of habitats, taking biodiversity into account in planning development and infrastructure, and identifying local opportunities to improve biodiversity. The plan identifies a wide range of local priority habitats and species.

The Caithness Biodiversity Action Plan, issued in 2003 (Caithness Biodiversity Group, 2003) sets out the key biodiversity objectives for the region, including ensuring that all habitats are managed in a way that takes account of wildlife interests and conservation of threatened species. The plan identifies a wide range of local priority habitats and species.

Further key guidance documents relating to the assessment of effects of wind farms on non-avian ecological receptors that have been referenced in this assessment include the following:

- Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal (CIEEM, 2016);
- Bats and onshore wind turbines: survey, assessment and mitigation (Scottish Natural Heritage (SNH), Natural England, Natural Resources Wales, Renewable UK, Scottish Power Renewables, Ecotricity Ltd., the University of Exeter, and the Bat Conservation Trust (BCT), 2019);
- Land Use Planning System Scottish Environment Protection Agency (SEPA) Guidance Note 31 (SEPA, 2017); and
- Good Practice During Windfarm Construction (Scottish Renewables, SNH, SEPA and Forestry Commission Scotland (FCS), 2010).

6.3 Scope and Consultation

6.3.1 Consultation and Scoping Responses

Pre-application consultation was undertaken in November 2021, followed by a formal scoping exercise in March 2022 as described in Chapter 2: EIA Approach and Methodology. In relation to non-avian ecology and nature conservation, scoping responses were sought from THC, NatureScot, and SEPA.

Table 6-2 provides a summary of the key issues relating to non-avian ecology raised during Pre-Application consultation (November 2021) and during the formal Scoping exercise (March 2022). Any additional communications with key stakeholders which took place outside of the formal Scoping process are also detailed.

Table 6-2: Consultee Responses Relating to Non-Avian Ecology

Consultee	Responses Relevant to Non-avian Ecology	Comment
The Highland Council (THC) Pre-Application 3 November	**Designated Sites** Highland-wide Local Development Plan (HwLDP) Policy 57 considers impacts on natural, built and cultural heritage designations and features. All development will be assessed taking into account the level of importance and type of heritage features, the form and scale of development and	Noted.

Consultee	Responses Relevant to Non-avian Ecology	Comment
2021	any impact on the feature and its setting. Of particular relevance are those landscape and other natural, built and cultural heritage features in proximity to the proposal identified in the constraints maps provided.	
	World Heritage Site (tentative) and The Peatlands of Caithness and Sutherland – Management Strategy The Flow Country is on the tentative list for World Heritage Site status and as part of the process for the bid for it to become a World Heritage Site. In 2019 the Peatlands Partnership submitted a Technical Evaluation of The Flow Country to the UK Government's Department for Digital, Culture, Media and Sport (DCMS). DCMS has now issued a decision to nominate The Flow Country as the UK's next candidate for World Heritage Site status. The next and final stage of the process will be to submit a full nomination to UNESCO, who would determine whether or not The Flow Country meets the criteria for World Heritage Site status. It is worth noting that SPP (2014) indicates WHS as part of Group 2 in the spatial framework.	Noted
	Protected Species, Habitats and Ornithology – NatureScot While supportive of the principle of renewable energy, NatureScot advise this proposal has the potential to impact nearby protected areas, in particular the Caithness Lochs Special Protection Area (SPA). The Applicant will need to demonstrate that a wind farm can be built in this location without adverse effects on these protected areas, both as an individual proposal and cumulatively with other developments.	Impacts on SPAs are addressed in Chapter 7: Ornithology.
	Loch of Durran Site of Special Scientific Interest (SSSI) The proposal lies upstream of this SSSI, protected for its fen habitat and vascular plants (the nationally rare Scottish small-reed and narrow small-reed). Changes in water quality and water level could negatively affect these SSSI features. NatureScot advises the potential impacts to this SSSI should also be considered in any future planning application. The SSSI is also known to be an important feeding area for whooper swans associated with the Caithness Lochs SPA.	Impacts on this SSSI are addressed in Sections 6.7.2 – 6.7.4 of this chapter.
	Topic Natural Heritage – Protected Species The proposal site has the potential to support a range of European and nationally protected species including (but not limited to): otter, bats and breeding birds. The potential for impacts to protected species will need to be fully assessed as part of any future planning application. Any mitigation for protected species should be outlined in appropriate protection plans as part of the future planning application.	Technical Appendices 6-2 and 6-3 details the results of the bat and protected species surveys. Impacts on these species are addressed in Sections 6.7.2 – 6.7.4 of this chapter.
	Topic Natural Heritage – Deer If deer are present or will use the development site, an assessment of the potential impacts should be considered. This should include consideration of deer welfare, habitats, neighbours and other interests (e.g. access and recreation, road safety etc.). Where significant impacts may be caused,	No evidence of wild deer has been recorded on the Proposed Development Site. Therefore impacts

Consultee	Responses Relevant to Non-avian Ecology	Comment
	a draft Deer Management Statement will be required to address impacts.	on wild deer has been scoped out of the assessment.
	Ground Water Dependent Terrestrial Ecosystems (GWDTE) GWDTE are protected under the Water Framework Directive and therefore the layout and design of the development must avoid impact on such areas. Please refer to *Guidance on Assessing the Impacts of Development Proposals on Groundwater Abstractions and Groundwater Dependent Terrestrial Ecosystems* for further generic advice and the minimum information SEPA requires to be submitted. The application should include proposals for habitat improvement or creation to mitigate any loss of GWDTE. Excavations and other construction works can disrupt groundwater flow and impact on existing groundwater abstractions.	Noted. Technical Appendix 6-1 details the results of the habitat surveys. Impacts on habitats are addressed in Sections 6.7.2 – 6.7.4 of this chapter.
THC Scoping 28 March 2022	**Ecology, Habitats and Ornithology** An EIAR chapter covering ecology, habitats and ornithology will be required. This must provide a baseline survey of the bird and animals (mammals, reptiles, amphibians, etc) interest on site. It needs to be categorically established which species are present on the site, and where, before a future application is submitted. Further the EIAR 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.	Technical Appendices 6-1, 6-2 and 6-3 details the results of the habitat, bat and protected species surveys. Section 6.6.3 of this chapter establishes the habitat baseline, with assessment of construction, operation and decommissioning phase impacts addressed in Sections 6.7.2 – 6.7.4 of this chapter.
	Protected Species The presence of protected species such as Schedule 1 Birds or European Protected Species must be included and considered as part of the planning application process, not as an issue which can be considered at a later stage. Any consent given without due consideration to these species may breach European Directives with the possibility of consequential delays or the project being halted by the EC. Please refer to the comments of NatureScot and RSPB in this respect.	Technical Appendices 6-2 and 6-3 details the results of the bat and protected species surveys respectively.
	Designated Sites The EIAR should address the likely impacts on the nature conservation interests of all the designated sites in the vicinity of the proposed development. It should provide proposals for any mitigation that is required to avoid these impacts or to reduce them to a level where they are not significant. NatureScot can also provide specific advice in respect of the designated site boundaries for SACs and SPAs and on protected species and habitats within those sites. The	Impacts on designated sites are addressed in Sections 6.7.2 – 6.7.4 of this chapter.

Consultee	Responses Relevant to Non-avian Ecology	Comment
	potential impact of the development proposals on other designated areas such as SSSI's should be carefully and thoroughly considered and, where possible, appropriate mitigation measures outlined in the EIAR. NatureScot provide advice on the impact on designated sites.	
	Loch Watten SAC and Loch of Durran SSSI The proposal lies upstream of Loch Watten SAC, protected for its freshwater habitat, and Loch of Durran SSSI, protected for its wetland habitat and vascular plants. NatureScot advise that, in their preliminary view, it should be possible to avoid impacts on the SAC and SSSI with appropriate mitigation and site design considerations. NatureScot also advise that Loch of Durran SSSI is known to be an important feeding area for whooper swans associated with the Caithness Lochs SPA.	Noted. Impacts on designated sites are addressed in Sections 6.7.2 – 6.7.4 of this chapter.
	Aquatic Interests The EIAR needs to address the aquatic interests within local watercourses, including down stream interests that may be affected by the development, for example increases in silt and sediment loads resulting from construction works; pollution risk / incidents during construction; obstruction to upstream and downstream migration both during and after construction; disturbance of spawning beds / timing of works; and other drainage issues.	Noted.
	Wild Deer If wild deer are present or will use the site an assessment of the potential impact on deer will be required. This should address deer welfare, habitats and other interests.	No evidence of wild deer has been recorded on the Proposed Development Site. Therefore, impacts on wild deer has been scoped out of the assessment.
	Groundwater Dependent Terrestrial Ecosystems (GWDTEs) The EIAR should include an assessment of the effects on Ground Water Dependent Terrestrial Ecosystems (GWDTE). Please contact SEPA for detailed advice.	Technical Appendix 6-1 details the results of the habitat surveys. Impacts on habitats are addressed in Sections 6.7.2 – 6.7.4 of this chapter.
	SEPA SEPA also provides site specific scoping advice below: • The habitat survey information shows that there are a variety of potentially groundwater dependent habitats on the site. However, with the exception of Cleanie Moss, the area is mostly semi-improved and improved agriculture, and SEPA consider it unlikely that there will be wetland habitats of interest that may affect layout. SEPA suggest that the survey information is supported by a simple assessment of likely groundwater dependence plus habitat quality and frequency information.	Technical Appendix 6-1 details the results of the habitat surveys. Impacts on habitats are addressed in Sections 6.7.2 – 6.7.4 of this chapter.

Consultee	Responses Relevant to Non-avian Ecology	Comment
NatureScot 17 March 2022	**Impacts on protected areas** The proposal site also has a hydrological connection to Loch Watten Special Area of Conservation (SAC) and Loch of Durran Site of Special Scientific Interest (SSSI). Impacts on water quality could have a negative effect on these sites and further consideration within the EIA will be required. *Loch Watten SAC and Loch of Durran SSSI* The proposal lies upstream of Loch Watten SAC, protected for its freshwater habitat, and Loch of Durran SSSI, protected for its wetland habitat and vascular plants. We advise that, in our preliminary view, it should be possible to avoid impacts on the SAC and SSSI with appropriate mitigation and site design considerations. We also advise that Loch of Durran SSSI is known to be an important feeding area for whooper swans associated with the Caithness Lochs SPA.	Noted. Impacts on designated sites are addressed in Sections 6.7.2 – 6.7.4 of this chapter.
	Impacts on natural heritage There are other impacts on the natural heritage that the Applicant will need to consider during the EIA process including, but not limited to, landscape and visual impacts, protected species (including breeding birds) and wild deer.	Noted. No evidence of wild deer has been recorded on the Proposed Development Site. Therefore impacts on wild deer has been scoped out of the assessment.
SEPA 22 March 2022	**GWDTEs** The habitat survey information shows that there are a variety of potentially groundwater dependant habitats on the site. However, with the exception of Cleanie Moss, the area is mostly semi-improved and improved agriculture, and we consider it unlikely that there will be wetland habitats of interest that may affect layout. We suggest that the survey information is supported by a simple assessment of likely groundwater dependence plus habitat quality and frequency information.	Technical Appendix 6-1 details the results of the habitat surveys. Impacts on habitats are addressed in Sections 6.7.2 – 6.7.4 of this chapter.
	Disruption to Groundwater Dependent Terrestrial Ecosystems (GWDTE) 4.1. GWDTE are protected under the Water Framework Directive and therefore the layout and design of the development must avoid impact on such areas. The following information must be included in the submission: a) A map demonstrating that all GWDTE are outwith a 100m radius of all excavations shallower than 1m and outwith 250m of all excavations deeper than 1m and proposed groundwater abstractions. If micro-siting is to be considered as a mitigation measure the distance of survey needs to be extended by the proposed maximum extent of micro-siting. The survey needs to extend beyond the site boundary where the distances require it. b) If the minimum buffers above cannot be achieved, a detailed site specific qualitative and/or quantitative risk assessment will be required. We are likely to seek conditions securing appropriate mitigation for all GWDTE affected. 4.2. Please refer to Guidance on Assessing the Impacts of	Technical Appendix 6-1 details the results of the habitat surveys. Impacts on habitats are addressed in Sections 6.7.2 – 6.7.4 of this chapter.

Consultee	Responses Relevant to Non-avian Ecology	Comment
	Development Proposals on Groundwater Abstractions and Groundwater Dependent Terrestrial Ecosystems for further advice and the minimum information we require to be submitted.	

6.4 Assessment Methodology and Significance Criteria

The CIEEM Guidelines for Ecological Impact Assessment in the UK and Ireland (CIEEM, 2016) (henceforth referred to as the CIEEM guidelines) form the basis of the impact assessment presented in this chapter. These guidelines set out a process of identifying the value of each ecological receptor and then characterising the impacts that are predicted, before discussing the effects on the integrity or conservation status of the receptor, proposed mitigation and significance of effects of any residual impacts predicted.

The following definitions of the terms 'impact' and 'effect' are used in this chapter:

- impact – actions resulting in changes to an ecological feature. For example, the construction activities of a development removing a hedgerow.
- effect – outcome to an ecological feature from an impact. For example, the effects on a dormouse population from loss of a hedgerow.

The initial action for any Ecological Impact Assessment (EcIA) is to determine which features should be subject to detailed assessment. The ecological receptors to be the subject of more detailed assessment should be of sufficient value that impacts upon them may result in effects which are significant in terms of either legislation or policy. The receptors should also be vulnerable to significant impacts arising from the development.

All designated nature conservation sites, plant and animal species, habitats and integrated plant and animal communities that occur within the 'zone of influence' of the Proposed Development are defined as potential ecological features (as described below). The zone of influence for a project is defined here as the area over which ecological features may be affected by biophysical changes as a result of the Proposed Development and associated activities. The zone of influence is likely to extend beyond the site, for example where there are ecological or hydrological links beyond the site boundary. The zone of influence will also vary for different ecological features, depending on their sensitivity to environmental change.

6.4.1 Determining Value

The CIEEM guidelines recommend that the value of ecological features is determined based on a geographic frame of reference. For this project the following geographic frame of reference is used:

- international (nature conservation designation, habitat or populations of species of international importance, e.g. a Special Area of Conservation (SAC) or significant numbers of a designated population outside the designated site);
- national (nature conservation designation, habitat or populations of species of Scottish importance, e.g. a Site of Special Scientific Interest (SSSI) or a National Nature Reserve (NNR), a nationally important population / assemblage of a European Protected Species (EPS) and / or a species listed on Schedule 5 of the Wildlife and Countryside Act 1981);

- regional (nature conservation designation, habitat or populations of species of Highland Council Area importance, e.g. a site / population that meets SSSI designation criteria but has not been designated due to better examples being present in the regional area or a regionally important population / area of a Scottish Biodiversity List (SBL) priority species / habitat);
- local (i.e. within 5km) (a nature conservation site, habitat or species of importance in the local or district area, e.g. a breeding population / viable area of an SBL or Local Biodiversity Action Plan (LBAP) species / habitat); and
- less than local (unremarkable habitat / common species of little or no intrinsic nature conservation value).

6.4.2 Valuing Habitats

The value of habitats, according to the CIEEM guidelines, is measured against published selection criteria where available. Reference may therefore be made to SBL and Habitat Action Plans (HAPs) contained within the Highland LBAP. As the guidelines note, the presence of a HAP reflects the fact that the habitat concerned is in a sub-optimal state and hence the action plan is required and a HAP does not, therefore, necessarily imply any specific level of importance for the habitat. It must be noted, in accordance with the guidance, that features may be assigned greater value if there is reasonable chance that they can be restored to a higher value in the future.

6.4.3 Valuing Species

In assigning a level of value to a species, it is necessary to consider its distribution and status, including a consideration of trends based on available historical records. Rarity is an important consideration because of its relationship with threat and vulnerability although, because some species are inherently rare, it is necessary to look at rarity in the context of status. A species that is rare and declining should be assigned a higher level of importance than one that is rare with a stable population. Reference may also be made to SBL and Species Action Plans (SAPs) contained within the Highland LBAP and other indicators of conservation status, as appropriate, although, as above with HAPs, the existence of an SAP does not necessarily imply any specific level of importance.

6.4.4 Predicting and Characterising Impacts and Effects

The CIEEM guidelines suggest that the process of predicting ecological impacts and effects should take account of relevant ecosystem structure and function such as:

- available resources – e.g. territory, food and water;
- environmental process – e.g. flooding, erosion, eutrophication, deposition and climate change;
- ecological processes and relationships – e.g. population dynamics, vegetation dynamics and predator / prey relationships;
- human influences – e.g. animal husbandry, burning, pollution, disturbance from public access; and
- historical context – e.g. natural range of variation, historical human influences and geomorphological evolution.

In accordance with the CIEEM guidelines, when describing impacts and effects, reference is made to the following, where appropriate:

- confidence in predictions – the level of certainty that an impact will occur as predicted, based on professional judgement and where possible evidence from other schemes – this is based on a four point scale: certain / near certain; probable; unlikely; and extremely unlikely;
- magnitude – the size of an impact in quantitative terms where possible;
- extent – the area over which an impact occurs;
- duration – the time for which an impact is expected to last;
- reversibility – a permanent impact is one that is irreversible within a reasonable timescale or for which there is no reasonable chance of action being taken to reverse it. A temporary impact is one from which a spontaneous recovery is possible; and
- timing and frequency – i.e. whether impacts occur during critical life stages or seasons.

Both direct and indirect impacts are considered: direct ecological impacts are changes that are directly attributable to a defined action, e.g. the physical loss of habitat occupied by a species during the construction process. Indirect ecological impacts are attributable to an action, but which affect ecological resources through effects on an intermediary ecosystem, process or receptor, e.g. external sourcing of stone for road surfaces may cause growth of plant species not generally found in that area of the application site.

The potential for cumulative effects was also considered. Cumulative effects can arise from individually insignificant but collectively significant actions taking place over a period of time or concentrated in a location. Ecological features may already be exposed to pressure and further impact could cause irreversible decline (CIEEM, 2018). Developments within 10km of the Proposed Development were identified as this is considered to be the maximum zone of influence for ecological receptors. In line with CIEEM guidance, the following development types were included:

- Proposals for which consent has been applied for which are awaiting determination in any regulatory process;
- Projects which have been granted consent but which have not yet been started or which are under construction;
- Proposals which have been refused permission but which are subject to appeal and the appeal is undetermined; and
- To the extent that their details are in the public domain, proposed projects that will be implemented by a public body but for which no consent is needed from a competent authority.

6.4.5 Significant Effects

For the purposes of EcIA, the CIEEM guidelines define a significant effect as "an effect that either supports or undermines biodiversity conservation objectives for important ecological features or for biodiversity in general". Significant effects can be either positive or negative and are qualified with reference to an appropriate geographic scale, from international to local, however, it should be noted that the scale of significance of an effect may not be the same as the geographic context in which the

feature is considered important. For example, an effect on a species which appears on a national list of species of principal importance for biodiversity may not have an effect on its national population.

Significance relates to the weight which should be attached to effects when decisions are made. Any significant effects remaining after mitigation (residual effects), together with an assessment of the likelihood of success of the mitigation, are the factors to be considered against legislation, policy and development control in determining the application.

6.4.6 Mitigation, Compensation and Enhancement

It is important as part of any Environmental Impact Assessment (EIA) to clearly differentiate between mitigation, compensation and enhancement and these terms are defined here as follows:

- Mitigation is used to refer to measures to avoid, reduce or remedy a specific negative impact in situ. Mitigation is only required for negative impacts assessed as being significant or where required to ensure compliance with legislation.
- Compensation is used to refer to measures proposed in relation to specific negative impacts but where it is not possible to fully mitigate for negative impacts in situ. Compensation is only required for negative impacts assessed as being significant or where required to ensure compliance with legislation.
- Enhancement is used to refer to measures that will result in positive ecological impacts but which do not relate to either specific significant negative impacts or where measures are required to ensure legal compliance.

6.4.7 Assessment Areas

The assessment area for vegetation has been defined here as an area which extends 250m from borrow pits or structures requiring foundations and 100m out from all infrastructure, i.e. areas which are considered to be potentially impacted upon by the development footprint. These distances are based on guidance by SEPA (2017), with respect to the suggested buffers in which Groundwater Dependent Terrestrial Ecosystems (GWDTE) should be identified. The vegetation assessment area will hereafter be referred to as the Infrastructure Buffers and is shown on Figures 6-2 and 6-3.

The faunal surveys cover a wider area, so impacts have been assessed within the zone of impact appropriate for each receptor.

6.5 Approach and Methodology

6.5.1 Desk Study

An ecological desk study was undertaken to identify nature conservation designations and records of protected or otherwise notable species in the local area. Only those features that relate to non-avian ecology are considered in this chapter, with bird data being presented in Chapter 7: Ornithology.

The desk study identified designated nature conservation sites such as SACs, SSSIs and NNRs within 5km of the Proposed Development, extending to 10km for nature conservation sites that are designated (in whole or in part) for aquatic migratory species and which are hydrologically connected with the Proposed Development Site.

The desk study also collated records of protected or otherwise notable species from within the past 15 years and within 5km of the Proposed Development Site, although, in the case of bats, this was extended to 10km.

6.5.2 Extended Phase 1 Habitat Survey

As detailed in Technical Appendix 6-1, in September 2020 and July 2023, an extended Phase 1 habitat survey was undertaken that covered the site plus a 250m buffer, although it should be noted that the subsequent impact assessment considered only the Infrastructure Buffers (see Section 6.4.7). The survey was carried out in accordance with standard Joint Nature Conservation Committee (JNCC) methodology (JNCC, 2010) and involved mapping all habitats, describing plant communities and notable features and assessing the potential for the application site to support protected or otherwise notable species.

The survey was undertaken at what is considered to be the optimal time of year. Vegetation boundaries were clearly and readily identifiable, together with the dominating floral species of each habitat type. No significant survey limitations were identified.

6.5.3 National Vegetation Classification Survey

As detailed in Technical Appendix 6-1, the NVC survey was carried out during September 2020 and July 2023, and covered the same survey area as the extended Phase 1 habitat survey. The work was carried out in accordance with the standard classification of UK vegetation (Rodwell, 1991 *et seq*.).

Following the NVC survey, potential GWDTE among the recorded NVC communities were classified in terms of their likely high, moderate or low groundwater dependence, based on SEPA guidance (SEPA, 2017).

The field survey work was undertaken at what is considered to be the optimal time of year. Boundaries between vegetation community types were clearly identifiable and no significant limitations in terms of survey timing or weather conditions were identified.

6.5.4 Bat Survey

As detailed in Technical Appendix 6-2, bat surveys were carried out between April / May and September 2023 in accordance with current survey guidelines (SNH *et al*., 2019). Survey effort commensurate with a low risk site was considered to be appropriate based on a review of habitat features present.

The surveys comprised the following (see Technical Appendix 6-2 for further details):

- habitat assessment – a walkover assessment of the survey area, guided by a review of aerial imagery was undertaken on two separate dates in September 2020 and July 2023; and
- three seasonal (spring, summer and autumn), ground level automated surveys were carried out. A total of 2 static detectors were deployed at positions chosen to represent likely wind turbine positions.

A number of survey limitations were experienced including early failure of some static detectors, and shifting of turbine positions during the design process. Although limitations exist, it is considered that the data obtained provides a clear picture of bat

activity across the site and wider environs, and as a result it is not anticipated the limitations affect the results to a significant degree.

6.5.5 Protected Species Survey

As detailed in Technical Appendix 6-3, surveys for protected species were undertaken in September 2020 and July 2023. Target species were considered to be otter *Lutra lutra*, water vole *Arvicola amphibius*, badger *Meles meles*, wildcat *Felis silvestris*, red squirrel *Sciurus vulgaris*, and pine marten *Martes martes*, and the study area was defined as the site plus a 250m buffer.

The otter survey followed standard methodologies (Purseglove, 1995; Chanin, 2003; Bang and Dahlstrøm, 2006; Muir and Morris, 2013). The water vole survey was conducted with reference to Strachan and Moorhouse (2012). The badger survey was carried out in accordance with the methodology described in SNH (2003). The red squirrel and pine marten surveys followed the methods described in Cresswell *et al*. (2012). However, any evidence of other species of conservation interest was also noted.

Surveys were undertaken at an appropriate time of year and under suitable weather conditions. No significant limitations were identified.

6.6 Baseline Conditions

6.6.1 Consideration of Other Development Projects

The results of ecological surveys are presented within Technical Appendices 6-1 – 6-3. This section identifies relevant ecological receptors found on and within the immediate vicinity of the Proposed Development Site, and assesses their value in the context of the Proposed Development.

CIEEM EcIA guidelines (CIEEM, 2018) require that consideration is given to other development projects when predicting the baseline. The reason for this is that other development projects, which are consented, recently constructed or which are considered to have an ongoing operational effect, may influence the baseline and this should be taken into account.

Two operational wind farm developments – Lochend and Halsary – have been identified within 10km of the Proposed Development Site. (Other development projects are at various stages of the planning system and are discussed in Section 6.8.)

The nearest Lochend turbine lies approximately 8.53km to the northeast from the location of Turbine 1 of the Proposed Development. Given the separation distance between the Proposed Development and Lochend, it is not considered likely that the operational turbines at Lochend are significantly influencing the Proposed Development baseline.

While the site boundary of Halsary lies approximately 9.93km to the south of the Proposed Development, the nearest turbine lies approximately 11.54km to the south-southwest of the nearest turbine of the Proposed Development (Turbine 2). Given the separation distance between the Proposed Development and Halsary, it is not considered likely that the operational turbines at Halsary are significantly influencing the Proposed Development baseline.

6.6.2 Nature Conservation Sites

There are five sites designated for non-avian nature conservation interests within 5km of the Proposed Development, and a further four sites within 10km of the Proposed Development (Figure 6-1):

- Loch Watten SAC / SSSI;
- River Thurso SAC;
- Caithness and Sutherland Peatlands SAC;
- Loch of Durran SSSI;
- Loch Scarmclate SSSI;
- Dunnet Links SSSI;
- Loch Heilen SSSI; and
- Stroupster Peatlands SSSI.

Loch Watten SAC is located approximately 4.12km to the south of the Proposed Development (at its closest point). The qualifying interests include naturally nutrient-rich lakes or lochs which are often dominated by pondweed. **Loch Watten SSSI** shares the same boundary as the SAC. The SSSI is designated for its base-rich waters, open water transition fen, and non-breeding population of greylag goose.

River Thurso SAC is located approximately 5.98km to the west of the Proposed Development (at its closest point). The qualifying interests include Atlantic salmon *Salmo salar*.

Caithness and Sutherland Peatlands SAC is located approximately 8.00km to the east of the Proposed Development (at its closest point). The qualifying interests include blanket bog, depressions on peat substrates, otter, acid peat-stained lakes and ponds, wet heathland with cross-leaved heath *Erica tetralix*, clear-water lakes or lochs with aquatic vegetation and poor to moderate nutrient levels, and transition mires and quaking bogs.

Loch of Durran SSSI is located approximately 1.04km to the north of the Proposed Development (at its closest point). The site is designated for its transition grassland and vascular plant assemblage.

Loch Scarmclate SSSI is located approximately 2.5km to the southwest of the Proposed Development. The site is designated for its base-rich loch and non-breeding population of greylag goose *Anser anser*.

Dunnet Links SSSI is located approximately 4.48km to the north-northeast of the Proposed Development. The site is designated for its coastal geomorphology and sand dunes.

Loch Heilen SSSI is located approximately 6.00km to the northeast of the Proposed Development. The site is designated for its mesotrophic waters, and non-breeding populations of Greenland white-fronted goose *Anser albifrons flavirostris*, greylag goose, and whooper swan *Cygnus cygnus*.

Stroupster Peatlands SSSI is located approximately 8.00km to the east of the Proposed Development. The site is designated for its blanket bog and oligotrophic waters.

Evaluation of Designated Sites

Designated sites considered relevant to non-avian ecology are evaluated in Table 6-3.

Table 6-3: Evaluation of Designated Sites

Designated Site	Reason for Evaluation	Evaluation
Loch Watten SAC / SSSI	The designation of this site as both an SAC and SSSI recognises it is of international value	International
River Thurso SAC	The designation of this site as an SAC recognises it is of international value	International
Caithness and Sutherland Peatlands SAC	The designation of this site as an SAC recognises it is of international value	International
Loch of Durran SSSI	The designation of this site as a SSSI recognises it is of national value	National
Loch Scarmclate SSSI	The designation of this site as a SSSI recognises it is of national value	National
Dunnet Links SSSI	The designation of this site as a SSSI recognises it is of national value	National
Loch Heilen SSSI	The designation of this site as a SSSI recognises it is of national value	National
Stroupster Peatlands SSSI	The designation of this site as a SSSI recognises it is of national value	National

6.6.3 Habitats

Phase 1 habitats are presented on Figure 6-2 and NVC communities are presented on Figure 6-3. The Proposed Development Site boundary, proposed infrastructure layout, and associated infrastructure buffers have been superimposed onto both figures. Phase 1 habitats and NVC communities recorded as present within the Infrastructure Buffers are listed, together with their extent, in Table 6-4 and Table 6-5 respectively.

Table 6-4: Phase 1 Habitats Recorded Within Infrastructure Buffers

Phase 1 Habitat	Extent (ha) within Infrastructure Buffers (% of total)
Buildings	0.04 (0.05)
Cultivated / disturbed land - arable	15.73 (19.21)
Dry modified bog	5.91 (7.22)
Improved grassland	19.87 (24.27)
Marsh / marshy grassland	6.77 (8.27)
Semi-Natural Mixed Woodland	0.72 (0.88)
Semi-Improved Neutral Grassland	26.37 (32.21)
Road	0.27 (0.33)
Dense / Continuous Scrub	1.10 (1.34)
Standing Water	0.04 (0.04)
Track	0.39 (0.48)
Wet Dwarf Shrub Heath	2.27 (2.77)
Mosaics	
Marshy Grassland / Wet Dwarf Shrub Heath	2.40 (2.93)
Total	**81.86 (100)**

Table 6-5: NVC Vegetation Communities Recorded Within Infrastructure Buffers

NVC Vegetation Community	Extent (ha) within Infrastructure Buffers (% of total)
M15 *Trichophorum germanicum – Erica tetralix* wet heath, sub-community d	2.23 (2.72)
M17 *Trichophorum germanicum – Eriophorum vaginatum* blanket mire	7.41 (9.05)
M23 *Juncus effusus / acutiflorus – Galium palustre* rush-pasture	2.31 (2.82)
M23 *Juncus effusus / acutiflorus – Galium palustre* rush-pasture, mosaic of sub-communities a and b	5.37 (6.56)
MG6 *Lolium perenne – Cynosurus cristatus* grassland, sub-community a	7.37 (9.00)
MG7 *Lolium perenne* leys and related grasslands, sub-community a	23.48 (28.67)
MG9 *Holcus lanatus – Deschampsia cespitosa* grassland	12.82 (15.65)
MG9 *Holcus lanatus – Deschampsia cespitosa* grassland, sub-community a	1.43 (1.74)
W23 *Ulex europaeus – Rubus fruticosus* scrub	1.04 (1.27)
Unclassified Habitat	
Semi-Natural Mixed Woodland	1.02 (1.24)
Barley	16.85 (20.57)
Road	0.57 (0.69)
Total	**81.86 (100)**

The NVC vegetation communities are briefly described below, with full details provided in Technical Appendix 6-1.

Wet Heath

M15 is restricted to a small pocket (approximately 2.23ha) in the southeast of the survey area and occurs in the margins of M17, occurring in the form M15d *Vaccinium myrtillus* sub-community which tends to be distributed in drier regions of the country.

Blanket Mire

M17 is present alongside M15 in the northeast of the survey area, accounting for approximately 7.41ha.

M23 occurs as a discrete community in the north of the Proposed Development Site (2.31ha), and as a mosasic of sub-communities a and b in the south of the Proposed Development Site (5.37ha).

Grassland

This is dominant habitat type present at the Proposed Development Site, with MG6a (7.37ha), MG7a (23.48ha), MG9 (12.82ha) and MG9a (1.43ha) all recorded.

Scrub

W23 scrub (1.04ha) was recorded immediately adjacent to the Proposed Development Site boundary to the north.

Unclassified Habitats

A small patch (1.02ha) of semi-natural mixed woodland was recorded immediately adjacent to the southeast corner of the Proposed Development Site.

Bordering the Proposed Development Site to the west is the unclassified road (0.57ha) linking the B874 in the south with the B876 in the north.

Fields of barley *Hordeum vulgare* were recorded in the northeast and southwest corners of the Proposed Development Site (16.85ha).

Evaluation of Habitats and Plant Communities

Table 6-6 shows the potential groundwater dependence (from SEPA, 2017) and nature conservation status for the NVC vegetation communities identified (or Phase 1 habitat where NVC categorisation is absent) within the Infrastructure Buffers.

Table 6-6: Potential Groundwater Dependence and Nature Conservation Designations of NVC communities within the Infrastructure Buffers

NVC Community	Potential Groundwater Dependence	Nature Conservation Status
M15 *Trichophorum germanicum – Erica tetralix* wet heath	Moderate (depending on the hydrogeological setting)	Northern Atlantic wet heaths with *Erica tetralix* (Annex 1) Alpine and Boreal heaths (Annex 1) Blanket bogs (Annex 1) Blanket bog (SBL) Upland heathland (SBL) Upland flushes, fens and swamps (SBL)
M17 *Trichophorum germanicum – Eriophorum vaginatum* blanket mire	None	Blanket bogs (Annex 1) Depressions on peat substrates of the *Rhynchosporion* (Annex 1) Blanket bog (SBL) Upland heathland (SBL)
M23 *Juncus effusus / acutiflorus – Galium palustre* rush-pasture	High	Lowland meadows (SBL) Purple moor-grass and rush-pastures (SBL)
MG6 *Lolium perenne – Cynosurus cristatus* grassland	None	Lowland meadows (SBL)
MG7 *Lolium perenne* leys and related grasslands	None	Lowland meadows (SBL)
MG9 *Holcus lanatus – Deschampsia cespitosa* grassland	Moderate (depending on the hydrogeological setting)	Lowland meadows (SBL)
W23 *Ulex europaeus – Rubus fruticosus* scrub	None	None
Semi-Natural Mixed Woodland (A1.3.1)	None	None

NVC Community	Potential Groundwater Dependence	Nature Conservation Status
Barley	None	None

Definitions:

Annex 1 - Annex 1 of the European Union Habitats Directive (92/43/EEC)

SBL - Scottish Biodiversity List

Table 6-7 shows the value given for each vegetation community identified within the Infrastructure Buffers. The NVC categories have been used as a basis of the evaluation because they more directly relate to the SEPA (2017) GWDTE classification as well as Annex 1 and SBL habitat categories.

Table 6-7: Evaluation of Habitats / NVC Communities within the Infrastructure Buffers

NVC Vegetation Community	Reason for Evaluation	Evaluation
M15 *Trichophorum germanicum – Erica tetralix* wet heath	Listed on the SBL, with floristic variations listed on Annex 1. Low level of cover within the Infrastructure Buffers (2.72% as vegetation sub-community M15d). Moderate potential for groundwater dependence.	Local
M17 *Trichophorum germanicum – Eriophorum vaginatum* blanket mire	Listed on the SBL, with floristic variations listed on Annex 1. Moderate level of cover within the Infrastructure Buffers (9.05%).	Local
M23 *Juncus effusus / acutiflorus – Galium palustre* rush-pasture	Listed on the SBL. Present within the Infrastructure Buffers as a discrete stand (2.82%) and as a mosaic of sub-communities a and b (6.57%). High potential for groundwater dependence.	Local
MG6 *Lolium perenne – Cynosurus cristatus* grassland	Listed on the SBL. Moderate level of cover within the Infrastructure Buffers (9.01% as vegetation sub-community MG6a).	Less than local
MG7 *Lolium perenne* leys and related grasslands	Listed on the SBL. Moderate level of cover within the Infrastructure Buffers (28.68% as vegetation sub-community MG7a).	Less than local
MG9 *Holcus lanatus – Deschampsia cespitosa* grassland	Listed on the SBL. Moderate level of cover within the Infrastructure Buffers (15.66% as MG9, and 1.74% as vegetation sub-community MG9a). Moderate potential for groundwater dependence.	Local
W23 *Ulex europaeus – Rubus fruticosus* scrub	Low level of cover within the Infrastructure Buffers (1.27%).	Less than local
Semi-Natural Mixed Woodland (A1.3.1)	Low level of cover within the Infrastructure Buffers (1.24%).	Less than local
Barley	Moderate level of cover within the Infrastructure Buffers (20.56%).	Less than local

6.6.4 Fauna

Existing Species Records

Table 6-8 shows a summary of records for legally protected or otherwise notable species within 5km (or 10km for bats) of the Proposed Development Site from the last 15 years.

Table 6-8: Summary of Desk Study Species Records up to 5km from the Site (10km for Bats)

Species	Data Source	Summary of Record
Pipistrelle *Pipistrellus* sp.	Highland Biological Recording Group (HBRG) Vertebrates (Not Badger) Dataset	1 record from 2015, recorded beyond the Proposed Development Site boundary to the south
Common Pipistrelle *Pipistrellus pipistrellus*	HBRG Vertebrates (Not Badger) Dataset	13 records all from 2012, recorded in and around the Proposed Development Site
European Otter *Lutra lutra*	HBRG Vertebrates (Not Badger) Dataset	2 records (1 record from 2019, 1 record from 2013), recorded beyond the Proposed Development Site boundary to the north
Pine Marten *Martes martes*	Non-Avian Taxa (BTO/JNCC/RSPB Partnership)	1 record from 2017, recorded beyond the Proposed Development Site boundary to the southwest, near Loch Scarmclate

A summary of the protected or otherwise notable fauna recorded within the study area during the various ecological surveys and / or the potential for protected / notable faunal species to be present is provided below.

Otter

Otters are largely solitary, semi-aquatic mammals which feed mainly on fish but also on amphibians (especially in winter and spring), small mammals or birds. Otters are listed as a priority species in the UK Biodiversity Action Plan (BAP) (JNCC, 1994) and are also listed on the Scottish Biodiversity List as a species of importance for the purpose of conservation of biodiversity in Scotland. Otters are also listed as a European Protected Species (EPS) under the Habitats Directive, affording otters and their resting places a high level of legal protection.

As detailed in Technical Appendix 6-3, no otter signs were recorded during the survey. The Proposed Development Site contains poor habitat for otter. Watercourses within the survey area consist of agricultural and forestry drainage ditches which were found to have little or no waterflow.

Wildcat

The Proposed Development Site offered optimal foraging habitat for wildcat being mainly agricultural grassland but no evidence of this species was found. With the nearest previous record over 5km distance, this species is considered unlikely to be present on the Proposed Development Site.

Bats

As detailed in Technical Appendix 6-2, bat surveys were undertaken in line with current guidance (NatureScot, 2021) during the bat activity season of 2023 across the Proposed Development and adjacent habitats.

At the time of survey, most of the Proposed Development is dominated by grassland pastures including improved, semi-improved neutral and marshy grasslands. The west of the Proposed Development is predominantly made up of improved grassland on which cattle and sheep grazing takes place. Fields of arable cultivated land divide up these pastures towards the western and northern site survey area boundaries.

Immediately adjacent to the south of the Site lies old clear fell and wind blown block of forestry that has been succeeded by semi-improved neutral grassland. Within the old forestry lies some patches of mixed woodland.

In the east and northeast of the Site there are small areas of wet dwarf shrub heath, transitioning into dry modified blanket bog immediately adjacent and beyond the Proposed Development boundary to the northeast.

The habitats in the field study area are considered to be of low – moderate potential for the support of bats as the open predominantly agricultural landscape is considered to be moderate quality foraging habitat, connected to the wider landscape by prominent linear features such as lines of scrub along existing fence lines and hedgerows (in the west of the survey area, bordering the public road).

The relatively exposed nature of the generally open habitats of moderate suitability result in local bat populations generally being at low density with low species diversity.

Activity levels across the Proposed Development were low with a total of 33 (32 attributed to common pipistrelle, and one attributed to *Pipistrellus* sp.) bat passes across all detectors over three deployment occasions.

Common pipistrelle is considered a species of medium risk from wind turbine mortality. However, based upon the results of the static bat detector deployments, it is concluded that the number of bat passes per hour is low and reflects the occasional use of the Proposed Development by a small number. It is concluded that the frequency of use of the Proposed Development and specifically the turbine envelope is low enough that the risk of killing and injury of bats from the wind turbines is very low. This risk is further reduced due to the open nature of the site and lack of features such as mature deciduous woodland.

Pine Marten

No signs of pine marten were recorded during the survey. While it may have been suitable in the past when the conifer plantation was intact, the Proposed Development Site at present contains poor habitat for pine marten. Only a few small patches of mixed woodland exist in the clear fell area and there is little opportunity for connectivity from nearby woodlands.

Water Vole

The Proposed Development Site contains suitable habitat for water vole. Some mammal holes, possibly relating to water vole, were found in clear fell drainage ditches; however no further signs were found.

Badger

Badgers are opportunistic omnivores, taking whichever food happens to be most profitable at the time (Woods, 2010). In Britain, the primary food source for badgers is considered to be earthworms, however, insects, mammals, birds and fruit are also key dietary components depending on availability.

The Proposed Development Site offered optimal foraging habitat for badger being mainly agricultural grassland but no evidence of this species was found. With no previous records for the immediate area, this species is considered unlikely to be present on the Proposed Development Site.

Herptiles

The Proposed Development Site contains dry and wet habitats, varied vegetation structure, open areas and ecotones, and is considered generally suitable for a variety of reptile and amphibian species.

Deer

No evidence of wild deer utilising the Proposed Development Site was recorded during surveys.

Evaluation of Faunal Receptors

An evaluation of non-avian faunal receptors which are subject to legal protection or which are otherwise notable (priority species on the SBL and / or LBAP) and which are present within the study area is provided in Table 6-9.

Table 6-9: Evaluation of Faunal Receptors

Species	Legal / Conservation Status	Reason for Evaluation	Evaluation
Otter	Fully protected as a European Protected Species under The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended) SBL priority species	No evidence of otter was recorded within the survey area.	Less than local
Wildcat	Fully protected as a European Protected Species under The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended) SBL priority species	No evidence of wildcat was recorded within the survey area.	Less than local
Bat species	Fully protected as a European Protected Species under The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended)	Static detector surveys highlighted low activity across the Proposed Development with a total of 33 (32 attributed to common pipistrelle, and one	Local

Species	Legal / Conservation Status	Reason for Evaluation	Evaluation
	SBL priority species	attributed to *Pipistrellus* sp.) bat passes across all detectors over three deployment occasions. Common pipistrelle is considered to be a common species (Wray *et al.*, 2010).	
Pine Marten	Fully protected under Schedule 5 of the Wildlife and Countryside Act 1981	No evidence of pine marten was recorded within the survey area.	Less than local
Water Vole	Afforded limited protection under Schedule 5 of the Wildlife and Countryside Act 1981	No evidence of water vole was recorded within the survey area.	Less than local
Badger	Fully protected under the Protection of Badgers Act 1992 (as amended by the Wildlife and Natural Environment Act 2011)	No evidence of badger was recorded within the survey area.	Less than local
Aquatic Fauna	Atlantic salmon *Salmo salar* in freshwater is listed on Schedule 3 of the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended), which makes it an offence to use certain methods to catch or take fish. It is also a priority species on the SBL. Brown trout *Salmo trutta* is a SBL priority species. It is partially protected through exploitation controls within fisheries legislation.	Watercourses within the survey area are limited to agricultural field drainage ditches. Therefore their potential to support fish is limited.	Less than local
Herptiles	Afforded limited protection under the Wildlife and Countryside Act 1981 (as amended). Adder *Vipera berus* and common lizard *Zootoca vivipara* are SBL priority species.	Habitats within the study area are generally suitable for a variety of common reptile and amphibian species.	Less than local
Deer	Afforded limited protection under the Deer (Scotland) Act	No evidence of wild deer was recorded within the survey area.	Less than local

Species	Legal / Conservation Status	Reason for Evaluation	Evaluation
	1996 (as amended).		

6.6.5 Future Baseline

If the current land management practices were to continue, the range and condition of habitats currently present is likely to be maintained.

6.6.6 Ecological Features Brought Forward for Assessment

The following applies to all non-avian ecological receptors brought forward to the detailed ecological impact assessment stage:

- Their value is assessed as being important at a local or higher level (and / or they are subject to some form of legal protection); or
- They are habitats classified as highly or moderately dependent GWDTEs; or
- They are potentially vulnerable to significant effects from the proposed development.

Ecological features meeting those criteria are considered Important Ecological Features (IEFs) and the ecological impact assessment concerns such features only. IEFs include the following:

- Habitats:
  - M15 *Trichophorum germanicum – Erica tetralix* wet heath;
  - M17 *Trichophorum germanicum – Eriophorum vaginatum* blanket mire;
  - M23 *Juncus effusus / acutiflorus – Galium palustre* rush-pasture; and
  - MG9 *Holcus lanatus – Deschampsia cespitosa* grassland.
- Species:
  - Common pipistrelle.
- Designated Sites:
  - Loch Watten SAC / SSSI;
  - River Thurso SAC;
  - Caithness and Sutherland Peatlands SAC;
  - Loch of Durran SSSI;
  - Loch Scarmclate SSSI;
  - Dunnet Links SSSI;
  - Loch Heilen SSSI; and
  - Stroupster Peatlands SSSI.

6.7 Identification and Evaluation of Key Impacts

6.7.1 Mitigation Measures

In line with current CIEEM guidelines, the impact assessment in this chapter is carried out in the presence of mitigation measures. The following mitigation measures and good practice measures will be applied to the proposed development during construction

and operation to ensure that any effects on the IEFs, and the Proposed Development Site ecology in general, are reduced.

Design Mitigation

Turbines have been sited at least 50m from watercourses.

The design sought to minimise the take of potential GWDTEs through taking account of NVC information, along with other site constraints, in layout iterations.

Construction Phase

Full details of construction mitigation measures will be provided in a Construction Environmental Management Plan (CEMP) to be agreed with THC, in consultation with relevant stakeholders, post-consent but prior to development commencing.

- General:
  - Construction works will require a Construction Method Statement (CMS) to be prepared post-determination and in advance of the commencement of works on Site; and
  - Works will be overseen by an Environmental / Ecological Clerk of Works (EnvCoW / ECoW) and their role and responsibilities will be detailed in the CEMP. In outline, this role will include ongoing monitoring of environmental / ecological constraints, review and audit of the appointed contractor's environmental performance, delivery of toolbox talks, and supervision of construction works.
- Protected Species:
  - A pre-construction survey focussing on otter and water vole will be undertaken, covering suitable habitat within 250m (50m for water vole) from construction areas. This survey will be undertaken by a suitable qualified ecologist. The results of the pre-construction surveys will inform whether the CEMP will include further mitigation with regard to protected species. NatureScot will be consulted throughout this process;
  - A site speed limit of 15mph will be in place at all times to reduce the risk of collision and protected species mortality associated with construction vehicles;
  - Excavations will be covered at the end of each working day to minimise the risk of faunal species becoming injured or trapped. Alternatively, a wooden plank or similar means of egress will be placed inside to allow a means of escape for animals should they enter the excavation. Any temporarily exposed open pipe system would be capped in such a way as to prevent wildlife gaining access;
  - Works will be conducted during daylight hours where possible, avoiding the sensitive periods of dawn and dusk when wildlife is most active;
  - To ensure compliance with the Wildlife and Countryside Act 1981, mitigation will be required to reduce the chances of inadvertently killing or injuring individual reptiles during construction works. Given the large spatial scale of the works, fencing and translocation are not considered appropriate. Proposed mitigation therefore involves habitat management and identification of potential refugia and hibernacula if present. Where appropriate and safe to do so, all construction working areas with potentially suitable open habitats for reptiles will initially be cut during the active season for reptiles (April to October). Taking into account ornithological sensitivities (detailed in Chapter 7: Ornithology), October is likely to be the optimal month for this task. Mitigation works will be carried out

to reduce the height of vegetation (e.g. use of a brush cutter or tractor mounted flail) and make it less attractive for reptile habitation. The works will be carried out under the supervision of the EnvCoW / ECoW. Working areas would then be kept unsuitable for reptiles through regular cutting until construction in that location commences; and

- In the event that a protected species is discovered on the Proposed Development Site, all work in that area would stop immediately and the EnvCoW / ECoW contacted. Increased buffer areas may be required in these locations. Details of the local police Wildlife Crime Officer, NatureScot Area Officer, and Scottish Society for the Prevention of Cruelty to Animals (SSPCA) relevant Officer would be held in the site emergency procedure documents.

- Habitats:
  - The loss of plant communities is an unavoidable consequence of the Proposed Development. However, incidental habitat loss will be avoided by minimising the footprint of construction activities. This will be achieved by operating machinery and storing materials within the footprint of permanent construction features wherever practicable. This will also be achieved through appropriate timing of the site staff and by ensuring that vehicles and their operators do not inadvertently stray onto adjacent habitat areas; and
  - Re-instatement of habitats – best practice techniques for vegetation and habitat re-instatement will be adopted and implemented on areas subject to disturbance, such as the temporary construction compound area, as soon as is practicable.
- Pollution Prevention:
  - To prevent pollution of watercourses within, and beyond, the Proposed Development Site boundary (with particulate matter or other pollutants such as fuel), best practice techniques will be employed as outlined in Chapter 8: Hydrology, Hydrogeology and Soils. Further details of pollution prevention control measures will be provided in the CEMP. Measures will include:
    - Emergency spill kits will be readily available on the Proposed Development Site to protect against accidental release, leakage or spillage of potentially contaminative substances and materials;
    - Construction plant to be checked regularly for leakages and will undergo maintenance on a regular basis;
    - Construction traffic to be limited to allocated areas of the Proposed Development;
    - Concrete and cement mixing and washing areas will be sited at appropriate distances from any surface watercourses to limit potential pollution of the water environment;
    - Proposed Development Site drainage measures, including drainage ditches and silt traps, will be provided to collect and treat increased surface run off; and
    - Assessment of Earthworks Specification, chemical analysis and assessment of imported fill materials.

Operational Phase

A Habitat Management Plan (HMP) will be established. This has been provided in outline (Technical Appendix 6-4) and will be agreed in full with THC and NatureScot before construction commences. It aims to improve the quantity of scarce meadow habitats via the planting of an appropriate seed mix enhanced through the application of sensitive management measures, and to monitor the effects of the Proposed Development.

During the operational phase the following mitigation will be in place:

- A site speed limit of 15mph will be in place at all times to reduce the risk of faunal collisions with construction vehicles; and
- A distance of at least 50m between turbine blade tip and the nearest element of existing woodland/scrub to be maintained as per current bat guidance (NatureScot *et al*., 2021).

Good practice measures designed to protect the hydrological environment, as outlined in Chapter 8: Hydrology, Hydrogeology and Soils will also benefit the ecology of the Proposed Development Site.

6.7.2 Assessment of Construction Phase Impacts

During construction it is anticipated that the following impacts may arise:

- Habitat loss or damage (permanent and temporary);
- Possible change to groundwater flows affecting GWDTEs;
- Inadvertent killing or injuring of fauna;
- Disturbance to fauna due to vehicular traffic, operating plant and the presence of construction workers; and
- Sedimentation or other pollution of watercourses from construction activities and vehicular traffic.

The potential impacts are addressed for each designated site, habitat or species brought forward to assessment in turn.

Habitats

Chapter 3: Description of Development includes the proposed dimensions of all permanent and temporary features of the Proposed Development. Permanent features of the Proposed Development consist of turbines, turbine foundations, crane hardstandings, access tracks, substation / control building and battery storage. Temporary features of the Proposed Development consist of the construction compound.

The impacts are categorised as follows:

- Direct habitat loss: this includes habitats present under the footprint of the proposed development, including access tracks, turbine bases, crane hardstandings, substation, construction compound and battery storage.
- Indirect habitat disturbance: this has only been calculated for habitats which lie within 30m of the permanent infrastructure. The allowance of 30m is to account for degradation due to drainage and cable laying, and is considered likely to produce a conservative estimate for habitat loss as drainage effects will depend on topology, so not all areas included are likely to be affected.

The total area of wet dwarf shrub heath (M15 *Trichophorum germanicum – Erica tetralix* wet heath), blanket bog (M17 *Trichophorum germanicum – Eriophorum vaginatum* blanket mire and M23 *Juncus effusus / acutiflorus – Galium palustre* rush-pasture), and grassland (MG9 *Holcus lanatus – Deschampsia cespitosa* grassland), habitats assessed as having local or greater value within the Infrastructure Buffers, amounts to 30.14ha (36.80%), and includes sub-communities M15d and M23a and b.

***M15 Trichophorum germanicum – Erica tetralix* wet heath**

A total of 2.23ha of M15 vegetation communities (including sub-community d) are present within the Infrastructure Buffers, representing 2.72% cover.

There will be no permanent loss of this vegetation community type as a result of the Proposed Development.

Ecological effects on M15 vegetation communities as a result of direct impacts associated with construction activities are considered to be **non-significant**. Confidence in this prediction is near certain.

A total of 0.23ha M15 vegetation communities are present within 30m of permanent infrastructure, representing 0.28% of the total within the Infrastructure Buffers. Therefore, there is potential for indirect impacts and temporary loss associated with the construction zones around infrastructure. With the mitigation measures detailed above, including the requirement for ECoW and the requirement for pollution control during construction (to be taken forward within the Proposed Development CEMP), effects on M15 vegetation communities as a result of indirect impacts will not result in loss of structure and function.

Ecological effects on M15 communities as a result of indirect impacts associated with construction activities are considered to be **non-significant**. Confidence in this prediction is near certain.

***M17 Trichophorum germanicum – Eriophorum vaginatum* blanket mire**

A total of 7.41ha of M17 vegetation communities are present within the Infrastructure Buffers, representing 9.05% cover.

A total of 0.13ha will be permanently lost to the Proposed Development. The loss of 0.16% M17 vegetation communities within the Infrastructure Buffers leaves 99.87% of this vegetation community still present in the Infrastructure Buffers following construction.

Ecological effects on M17 vegetation communities as a result of direct impacts associated with construction activities are considered to be **non-significant**. Confidence in this prediction is near certain.

A total of 0.51ha M17 vegetation communities are present within 30m of permanent infrastructure, representing 0.62% of the total within the Infrastructure Buffers. Therefore, there is potential for indirect impacts and temporary loss associated with the construction zones around infrastructure. With the mitigation measures detailed above, including the requirement for ECoW and the requirement for pollution control during construction (to be taken forward within the Proposed Development CEMP), effects on M17 vegetation communities as a result of indirect impacts will not result in loss of structure and function.

Ecological effects on M17 communities as a result of indirect impacts associated with construction activities are considered to be **non-significant**. Confidence in this prediction is near certain.

M23 *Juncus effusus / acutiflorus – Galium palustre* rush-pasture

A total of 7.69ha of M23 vegetation communities (including those sub-communities recorded on Site, namely M23a and M23b) are present within the Infrastructure Buffers, representing 9.39% cover.

A total of 0.26ha will be permanently lost to the Proposed Development. The loss of 0.32% M23 vegetation communities within the Infrastructure Buffers leaves 99.68% of this vegetation community still present in the Infrastructure Buffers following construction.

Ecological effects on M23 vegetation communities as a result of direct impacts associated with construction activities are considered to be **non-significant**. Confidence in this prediction is near certain.

A total of 2.70ha M23 vegetation communities are present within 30m of permanent infrastructure, representing 3.30% of the total within the Infrastructure Buffers. Therefore, there is potential for indirect impacts and temporary loss associated with the construction zones around infrastructure. With the mitigation measures detailed above, including the requirement for ECoW and the requirement for pollution control during construction (to be taken forward within the Proposed Development CEMP), effects on M23 vegetation communities as a result of indirect impacts will not result in loss of structure and function.

Ecological effects on M23 communities as a result of indirect impacts associated with construction activities are considered to be **non-significant**. Confidence in this prediction is near certain.

MG9 *Holcus lanatus – Deschampsia cespitosa* grassland

A total of 14.25ha of MG9 vegetation communities (including those sub-communities recorded on Site, namely MG9a) are present within the Infrastructure Buffers, representing 17.41% cover.

A total of 0.16ha will be permanently lost to the Proposed Development. The loss of 0.20% MG9 vegetation communities within the Infrastructure Buffers leaves 99.80% of this vegetation community still present in the Infrastructure Buffers following construction.

Ecological effects on MG9 vegetation communities as a result of direct impacts associated with construction activities are considered to be **non-significant**. Confidence in this prediction is near certain.

A total of 1.36ha MG9 vegetation communities are present within 30m of permanent infrastructure, representing 1.66% of the total within the Infrastructure Buffers. Therefore, there is potential for indirect impacts and temporary loss associated with the construction zones around infrastructure. With the mitigation measures detailed above, including the requirement for ECoW and the requirement for pollution control during construction (to be taken forward within the Proposed Development CEMP), effects on MG9 vegetation communities as a result of indirect impacts will not result in loss of structure and function.

Ecological effects on MG9 communities as a result of indirect impacts associated with construction activities are considered to be **non-significant**. Confidence in this prediction is near certain.

Fauna

Common Pipistrelle

The abundance of prey and therefore conditions for foraging bats differ across habitats, with open habitats being less suitable for foraging bats than edge habitats and watercourse corridors.

Results from the static bat detectors recorded a very low number of bat passes (33 in total; 32 attributed to common pipistrelle and one to *Pipistrellus* sp.). However, the surrounding habitat is predominantly open agricultural fields with scattered linear features such as lines of scrub or hedgerow, and is considered as being of low – moderate quality for foraging bats.

The habitat baseline will not be significantly changed in relation to bats (no woodland felling, no extensive works to watercourses or waterbodies), no structures with potential to support roosting bats will be altered, and construction works will primarily be taking place during daylight hours when bats are not active. As a result, it is predicted that there will be **no significant direct or indirect effects** on bat species, and common pipistrelle in particular. Confidence in this prediction is probable.

Designated Sites

Nine designated sites have been taken forward for assessment:

- Loch Watten SAC / SSSI;
- River Thurso SAC;
- Caithness and Sutherland Peatlands SAC;
- Loch of Durran SSSI;
- Loch Scarmclate SSSI;
- Dunnet Links SSSI;
- Loch Heilen SSSI; and
- Stroupster Peatlands SSSI.

Loch Watten SAC / SSSI

Loch Watten SAC is located approximately 4.12km to the south of the Proposed Development (at its closest point). The qualifying interests include naturally nutrient-rich lakes or lochs which are often dominated by pondweed. Loch Watten SSSI shares the same boundary as the SAC. The SSSI is designated for its base-rich waters, open water transition fen, and non-breeding population of greylag goose.

Given the separation distance between the Proposed Development and the SAC / SSSI, and the intervening topography, and assuming that appropriate pollution control measures will be in place during construction, **no significant direct or indirect effects** (such as a pollution event affecting downstream designations) are predicted on the qualifying features of the SAC / SSSI. Confidence in this prediction is near certain.

River Thurso SAC

River Thurso SAC is located approximately 5.98km to the west of the Proposed Development (at its closest point). The qualifying interests include Atlantic salmon *Salmo salar*. Given the separation distance between the proposed development and the SAC, and the intervening topography, and assuming that appropriate pollution control measures will be in place during construction, **no significant direct or indirect**

effects (such as a pollution event affecting downstream designations) are predicted on the qualifying features of the SAC. Confidence in this prediction is near certain.

Caithness and Sutherland Peatlands SAC

Caithness and Sutherland Peatlands SAC is located approximately 8.00km to the east of the Proposed Development (at its closest point). The qualifying interests include blanket bog, depressions on peat substrates, otter, acid peat-stained lakes and ponds, wet heathland with cross-leaved heath *Erica tetralix*, clear-water lakes or lochs with aquatic vegetation and poor to moderate nutrient levels, and transition mires and quaking bogs.

Given the separation distance between the Proposed Development and the SAC, and the intervening topography, and assuming that appropriate pollution control measures will be in place during construction, **no significant direct or indirect effects** (such as a pollution event affecting downstream designations) are predicted on the qualifying features of the SAC. Confidence in this prediction is near certain.

Loch of Durran SSSI

Loch of Durran SSSI is located approximately 1.04km to the north of the Proposed Development (at its closest point). The site is designated for its transition grassland and vascular plant assemblage. Given the separation distance between the Proposed Development and the SSSI, and the intervening topography, and assuming that appropriate pollution control measures will be in place during construction, **no significant direct or indirect effects** (such as a pollution event affecting downstream designations) are predicted on the qualifying features of the SSSI. Confidence in this prediction is near certain.

Loch Scarmclate SSSI

Loch Scarmclate SSSI is located approximately 2.5km to the southwest of the Proposed Development. The site is designated for its base-rich loch and non-breeding population of greylag goose *Anser anser*.

Impacts on the avian qualifying feature (non-breeding population of greylag goose) are detailed in Chapter 7: Ornithology. With regards impacts on the non-avian qualifying feature (base-rich loch), given the separation distance between the Proposed Development and the SSSI, and the intervening topography, and assuming that appropriate pollution control measures will be in place during construction, **no significant direct or indirect effects** (such as a pollution event affecting downstream designations) are predicted on this qualifying feature of the SSSI. Confidence in this prediction is near certain.

Dunnet Links SSSI

Dunnet Links SSSI is located approximately 4.48km to the north-northeast of the Proposed Development. The site is designated for its coastal geomorphology and sand dunes. Given the separation distance between the Proposed Development and the SSSI, and the intervening topography, and assuming that appropriate pollution control measures will be in place during construction, **no significant direct or indirect effects** (such as a pollution event affecting downstream designations) are predicted on the qualifying features of the SSSI. Confidence in this prediction is near certain.

Loch Heilen SSSI

Loch Heilen SSSI is located approximately 6.00km to the northeast of the Proposed Development. The site is designated for its mesotrophic waters, and non-breeding populations of Greenland white-fronted goose *Anser albifrons flavirostris*, greylag goose *Anser anser*, and whooper swan *Cygnus cygnus*.

Impacts on the avian qualifying features (non-breeding populations of Greenland white-fronted goose, greylag goose, and whooper swan) are detailed in Chapter 7: Ornithology. With regards impacts on the non-avian qualifying feature (mesotrophic waters), given the separation distance between the Proposed Development and the SSSI, and the intervening topography, and assuming that appropriate pollution control measures will be in place during construction, **no significant direct or indirect effects** (such as a pollution event affecting downstream designations) are predicted on this qualifying feature of the SSSI. Confidence in this prediction is near certain.

Stroupster Peatlands SSSI

Stroupster Peatlands SSSI is located approximately 8.00km to the east of the Proposed Development. The site is designated for its blanket bog and oligotrophic waters. Given the separation distance between the Proposed Development and the SSSI, and the intervening topography, and assuming that appropriate pollution control measures will be in place during construction, **no significant direct or indirect effects** (such as a pollution event affecting downstream designations) are predicted on the qualifying features of the SSSI. Confidence in this prediction is near certain.

6.7.3 Assessment of Operational Phase Impacts

Habitats

During the operational phase, only service vehicles will be present on the Site and will be confined to Site access tracks, with the potential for incidents and spillages affecting sensitive habitats being very low (see Chapter 8: Hydrology, Hydrogeology and Soils). Therefore, **no significant adverse effects** on wet dwarf shrub heath, blanket mire, and grassland are predicted. Confidence in this prediction is near certain.

Fauna

Guidance issued by Natural England (Mitchell-Jones and Carlin, 2014) provides information regarding the likely risk to individual bat species and populations from wind turbine strike / barotrauma. Common pipistrelle are considered to have a medium risk of collision at an individual level. As described in Section 6.6.4, a very low level of bat activity was recorded within the Proposed Development and, as such, the risk of impacts from collisions and barotrauma is considered to be low. Therefore, **no significant effects** upon bats are predicted. Confidence in this prediction is probable.

Designated Sites

Loch Watten SAC / SSSI

During the operation of the proposed development, only service vehicles will be present on the Site and will be confined to Site access tracks. The potential for incidents and spillages affecting qualifying features is very low (see Chapter 8: Hydrology, Hydrogeology and Soils), especially given the separation distance between

the Proposed Development and the SAC / SSSI. Therefore, **no significant effects** in relation to the qualifying features of the SAC / SSSI are predicted. Confidence in this prediction is near certain.

River Thurso SAC

During the operation of the proposed development, only service vehicles will be present on the Site and will be confined to Site access tracks. The potential for incidents and spillages affecting qualifying features is very low (see Chapter 8: Hydrology, Hydrogeology and Soils), especially given the separation distance between the Proposed Development and the SAC. Therefore, **no significant effects** in relation to the qualifying features of the SAC are predicted. Confidence in this prediction is near certain.

Caithness and Sutherland Peatlands SAC

During the operation of the proposed development, only service vehicles will be present on the Site and will be confined to Site access tracks. The potential for incidents and spillages affecting qualifying features is very low (see Chapter 8: Hydrology, Hydrogeology and Soils), especially given the separation distance between the Proposed Development and the SAC. Therefore, **no significant effects** in relation to the qualifying features of the SAC are predicted. Confidence in this prediction is near certain.

Loch of Durran SSSI

During the operation of the proposed development, only service vehicles will be present on the Site and will be confined to Site access tracks. The potential for incidents and spillages affecting qualifying features is very low (see Chapter 8: Hydrology, Hydrogeology and Soils), especially given the separation distance between the Proposed Development and the SSSI. Therefore, **no significant effects** in relation to the qualifying features of the SSSI are predicted. Confidence in this prediction is near certain.

Loch Scarmclate SSSI

Impacts on the avian qualifying feature (non-breeding population of greylag goose) of this designated site are detailed in Chapter 7: Ornithology. Only operational impacts on the non-avian qualifying feature (base-rich loch) are considered here.

During the operation of the proposed development, only service vehicles will be present on the Site and will be confined to Site access tracks. The potential for incidents and spillages affecting qualifying features is very low (see Chapter 8: Hydrology, Hydrogeology and Soils), especially given the separation distance between the Proposed Development and the SSSI. Therefore, **no significant effects** in relation to the qualifying features of the SSSI are predicted. Confidence in this prediction is near certain.

Dunnet Links SSSI

During the operation of the proposed development, only service vehicles will be present on the Site and will be confined to Site access tracks. The potential for incidents and spillages affecting qualifying features is very low (see Chapter 8: Hydrology, Hydrogeology and Soils), especially given the separation distance between the Proposed Development and the SSSI. Therefore, **no significant effects** in relation to

the qualifying features of the SSSI are predicted. Confidence in this prediction is near certain.

Loch Heilen SSSI

Impacts on the avian qualifying feature (non-breeding populations of Greenland white-fronted goose, greylag goose, and whooper swan) of this designated site are detailed in Chapter 7: Ornithology. Only operational impacts on the non-avian qualifying feature (mesotrophic waters) are considered here.

During the operation of the proposed development, only service vehicles will be present on the Site and will be confined to Site access tracks. The potential for incidents and spillages affecting qualifying features is very low (see Chapter 8: Hydrology, Hydrogeology and Soils), especially given the separation distance between the Proposed Development and the SSSI. Therefore, **no significant effects** in relation to the qualifying features of the SSSI are predicted. Confidence in this prediction is near certain.

Stroupster Peatlands SSSI

During the operation of the proposed development, only service vehicles will be present on the Site and will be confined to Site access tracks. The potential for incidents and spillages affecting qualifying features is very low (see Chapter 8: Hydrology, Hydrogeology and Soils), especially given the separation distance between the Proposed Development and the SSSI. Therefore, **no significant effects** in relation to the qualifying features of the SSSI are predicted. Confidence in this prediction is near certain.

6.7.4 Assessment of Decommission Phase Impacts

It is difficult to predict impacts which would arise from decommissioning and the confidence in all predictions is therefore considered to be uncertain due to the length of the operational period (30 years). It is assumed, however, that impacts are likely to be similar in nature to the construction phase but of lower magnitude, because infrastructure will be in place, allowing access to the Site.

Habitats

Vegetation clearance will be limited and the land associated with the following components of the proposed development will be reinstated: turbine bases, some access tracks, substation and battery storage.

Updated surveys will be required before the decommissioning phase begins, and appropriate mitigation measures will consequently be put in place to reduce likely effects to an acceptable level. In addition, appropriate screening and biosecurity measures will be established for materials used in habitat re-instatement if not sourced from the Site itself. Therefore, **no significant effects**, either beneficial or adverse, are predicted for any important habitats as a result of decommissioning.

Fauna

During the decommissioning phase, there is the potential for impacts to protected or otherwise notable faunal species through disturbance and potentially direct mortality and destruction of resting places. The presence and distribution of protected faunal species at the time of decommissioning, potentially including species not currently

present on Site or not currently subject to legal protection, cannot be accurately predicted at this stage. As a result, update surveys and appropriate mitigation will be identified prior to decommissioning.

On the basis of impact predictions made in relation to disturbance during the construction stage, any effects on protected or otherwise notable faunal species are likely to be **not significant** during the decommissioning phase.

Designated Sites

As described in Sections 6.7.4, and with the qualifications stated therein, no significant effects on habitats and non-avian fauna are predicted. As such, **no significant effects** on the Loch Watten SAC / SSSI, River Thurso SAC, Caithness and Sutherland Peatlands SAC, Loch of Durran SSSI, Loch Scarmclate SSSI, Dunnet Links SSSI, Loch Heilen SSSI and Stroupster Peatlands SSSI are predicted.

6.8 Cumulative Effects

The primary reason to undertake an assessment of cumulative impacts is to identify situations where impacts on important ecological features are judged to be unacceptable when combined with nearby existing or proposed development projects.

Fifteen wind farm developments (either currently in the planning system awaiting determination, refused and currently the subject of an appeal, consented or operational) are located within 10km of the Site (The Highland Council, July 2023), and each of these was reviewed (Table 6-10 refers) [1].

Table 6-10: Wind Farm Developments within 10km of the Site

Wind Farm Name	Status	Distance to Swarclett Wind Farm	Number of Turbines
Lochend	Operational	c. 7.71km to the northeast	4
Halsary	Operational	c. 9.93km to the south	15
Slickly	Approved	c. 9.11km to the east-northeast	11
Hollandmey Energy Development	In Planning	c. 7.77km to the northeast	10
Greenland Wind Energy Project SCRE	In Planning – Scoping / Screening	c. 5.23km to the northeast	3
Lochend Extension SCOP	In Planning – Scoping / Screening	c. 6.85km to the northeast	5
Loch Toftinghall Wind Farm SCOP	In Planning – Scoping / Screening	c. 8.24km to the south	6
Durran Mains	In Planning – Refused /	Immediately adjacent to the west	13

[1] The search criteria was for wind farm developments with three or more turbines, with tip heights greater than 50m. These parameters were selected because smaller developments are less likely to have quantitative data and / or may not even have an associated EIA Report.

Wind Farm Name	Status	Distance to Swarclett Wind Farm	Number of Turbines
	Expired / Withdrawn		
Seater Farm Bower	In Planning – Refused / Expired / Withdrawn	c. 3.08km to the southeast	3
Spittal Hill Wind Farm I	In Planning – Refused / Expired / Withdrawn	c. 4.88km to the south-southwest	27
Spittal Hill	In Planning – Refused / Expired / Withdrawn	c. 5.44km to the southeast	7
Lyth	In Planning – Refused / Expired / Withdrawn	c. 6.92km to the northeast	10
Cogle Moss	In Planning – Refused / Expired / Withdrawn	c. 7.70km to the southeast	12
Buckies Hill	In Planning – Refused / Expired / Withdrawn	c. 8.36km to the west	5
Cnoc Morail	In Planning – Refused / Expired / Withdrawn	c. 8.69km to the south-southeast	5

Cumulative impacts are only considered likely in relation to watercourses or fauna associated with watercourses. IEFs identified as part of this assessment which fit these criteria are bat species (in particular common pipistrelle) and Loch Watten SAC / SSSI, River Thurso SAC, Caithness and Sutherland Peatlands SAC, Loch Scarmclate SSSI, Loch Heilen SSSI, and Stroupster Peatlands SSSI.

Individual site specific information was obtained from The Highland Council's online planning portal.

Lochend Wind Farm is located approximately 7.71km to the northeast of the Proposed Development. Bat activity was low with only one bat pass recorded during walked transects, and only 14 bat passes recorded from static detectors. All bat passes were later attributed to common pipistrelle.

Halsary Wind Farm is located approximately 9.93km to the south of the Proposed Development. Only low numbers of common pipistrelle and very low numbers of soprano pipistrelle *Pipistrellus pygmaeus* were reported.

Slickly Wind Farm is located approximately 9.11km to the east-northeast of the Proposed Development. Surveys at Slickly recorded 100 bat passes in total with 90 attributed to common pipistrelle and 10 attributed to *Pipistrellus* sp.

Hollandmey Energy Development is located approximately 7.77km to the northeast of the Proposed Development. Of the 3,470 bat passes recorded, 25 were attributed to brown long-eared bat *Plecotus auritus*, 3,287 were attributed to common pipistrelle, 27 were attributed to *Myotis* sp., 7 were attributed to Noctule *Nyctalus noctule*, and 124 were attributed to soprano pipistrelle.

Lochend Extension is located approximately 6.85km to the northeast of the Proposed Development. Surveys recorded 678 passes, all of which were attributed to common pipistrelle.

Seater Farm Bower is located approximately 3.08km to the southeast of the Proposed Development. Only low numbers (11 bat passes in total; 5 in Spring, 4 in Summer and 2 in Autumn) of common pipistrelle were recorded.

Spittal Hill Wind Farm is located approximately 5.44km to the southeast of the Proposed Development. Static detectors recorded a total of 239 bat passes in total between May and September. Of these, 199 were attributed to common pipistrelle (4 in May, 87 in June and July, and 108 in August and September), 16 to soprano pipistrelle (all recorded in August), and 24 to *Pipistrellus* sp. (all recorded in August).

Lyth Wind Farm is located approximately 6.92km to the northeast of the Proposed Development. During static detector surveys, only very low numbers of bat passes were recorded and all were attributable to common pipistrelle.

Buckies Hill Wind Farm is located approximately 8.36km to the west of the Proposed Development. Only three bat passes were recorded during static detector surveys, all attributable to common pipistrelle.

Cnoc Morail Wind Farm is located approximately 8.69km to the south-southeast of the Proposed Development. Only common pipistrelle were recorded, with 76 passes in Spring, 51 passes in Summer and 18 passes in Autumn.

At the time of writing, no survey information was available for **Greenland Wind Energy Project**, **Loch Toftinghall**, **Durran Mains**, **Spittal Hill I**, and **Cogle Mains Wind Farms**.

As discussed in Sections 6.7.2, 6.7.3 and 6.7.4 *Fauna*, the Proposed Development will not introduce any significant effects on bat species (in particular common pipistrelle) during construction, operation or decommissioning. Therefore, no significant cumulative effects on bat species from the Proposed Development and the other development projects are predicted.

In relation to designated sites, no significant cumulative impacts in relation to water quality are predicted. While a theoretical hydrological pathway exists between the Proposed Development and the closest of the designated sites (Loch of Durran SSSI and Loch Scarmclate SSSI), the installation of pollution prevention control measures during construction of the Proposed Development, and the separation distance and intervening topography would significantly limit the effect of any pollution event occurring.

6.9 Residual Effects

Taking into account the successful implementation of the mitigation measures contained within the CEMP and HMP, there will be no significant residual effects on IEFs in terms of the EIA Regulations.

6.10 Summary

The ecological baseline conditions have been described and evaluated in order to identify IEFs associated with the Proposed Development. Proposed mitigation measures have been identified, including those embedded in design, and with reference to the Proposed Development CEMP and HMP where applicable.

Potential impacts upon IEFs as a result of the Proposed Development have been identified and the effect of these impacts on IEFs has been assessed in line with current guidance (CIEEM, 2018). No significant residual effects on IEFs were identified.

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