

# Chapter 6 Ecology

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## 6 Ecology

### 6.1 Executive Summary

6.1.1 An assessment of terrestrial ecology effects arising from the construction and operation of the Proposed Development was undertaken and is presented in this chapter.

6.1.2 Following consultation with Shetland Islands Council (SIC), NatureScot, Scottish Environment Protection Agency (SEPA) and Shetland Amenity Trust, a range of ecological studies were undertaken to identify the terrestrial ecological interests of the Proposed Development and to establish the ecological baseline for the Ecological Impact Assessment (EclA). This included identification of existing wildlife records and the presence of nature conservation designations in the local area, as well as surveys of the habitats and faunal interests of the Site. The following field surveys were undertaken:

- National Vegetation Classification (NVC) survey; and
- otter survey.

6.1.3 The habitats (listed in order of size) identified on-site are currently:

- blanket bog;
- acid grassland;
- dry dwarf shrub heath;
- standing water;
- marsh\marshy grassland;
- acid flush;
- other habitat;
- wet dwarf shrub heath; and
- coastal grassland.

6.1.4 A few small areas of disturbed ground, an artificial pond and exposed rock cuttings were also recorded.

6.1.5 Otter spraints and foraging evidence were recorded in the survey, but there was no evidence of holts or other resting places, and no evidence from within the site itself.

6.1.6 Through a standardised evaluation method, Important Ecological Features (IEFs) were identified and brought forward for assessment. IEFs taken forward to assessment include:

- blanket mire; and
- dry dwarf shrub heath.

6.1.7 Potential impacts of the construction and operation phases are presented, prior to the assessment of effects. In line with standard guidelines, the impact assessment process assumes the application of standard mitigation measures.

6.1.8 In the absence of any additional mitigation or enhancement measures, predicted construction phase effects were assessed as being minor adverse and not significant for both blanket mire and dry heath. Predicted operation phase effects were also assessed as being minor adverse and not significant for blanket mire, with no impact predicted for dry heath.

6.1.9 Given these conclusions, specific mitigation measures are not necessary to avoid significant adverse effects. However, in line with the current policy requirement to demonstrate that the proposal will

conserve, restore and enhance biodiversity, habitat management measures are proposed during the construction phase as part of a Peat Management Plan (PMP) as well as during the operational phase as part of an Outline Biodiversity Enhancement Plan (OBEP). The OBEP sets out proposals for restoring, enhancing and managing areas of blanket bog habitats that show signs of degradation and erosion, as well as converting areas of acid grassland to blanket bog, and installing wildlife friendly features to support locally important species.

- 6.1.10 Taking account of the enhancement measures to be delivered through implementation of the OBEP, residual effects for the operation phase are considered to be minor to moderate beneficial.
- 6.1.11 Likely cumulative effects of nearby developments, include the Operational Turbine on-site, as well as Mossy Hill, Hoo Field, Burradale and Viking wind farms. No significant cumulative effects are predicted.

## 6.2 Introduction

- 6.2.1 This chapter sets out the methods used to describe and evaluate the non-avian ecological interests within the Study Area (See **Section 6.5**) of the Proposed Development. It documents the baseline conditions and includes an assessment of the likely effects of the Proposed Development on ecological features above a certain value and defines mitigation and compensation measures where significant effects are predicted. Ornithological features are described and assessed in **Chapter 7**. The effects on geology, peat, hydrology and hydrogeology are addressed in **Chapter 11**.
- 6.2.2 This chapter has been authored by ITP Energised and is supported by baseline data provided within the following technical appendices:
- **Appendix 6.1** – Gremista, Extended Phase 1 Habitat Survey and Protected Species Surveys Report (AMEC, 2011);
  - **Appendix 6.2** – Luggie’s Knowe NVC Survey Report (Firth Ecology, 2021);
  - **Appendix 6.3** – Luggie’s Knowe Otter Survey Report (ITP Energised, 2021); and
  - **Appendix 6.4** – Outline Biodiversity Enhancement Plan (ITP Energised, 2023).
- 6.2.3 A previous proposal was originally granted planning permission in 2011 on the Site (2011 Permitted Development), hence the age of the original extended Phase 1 survey from 2011. However, since then the layout has changed due to reasons stated in **Chapter 3**, therefore an updated National Vegetation Classification (NVC) survey was undertaken in 2021 that included a 250 m radius buffer beyond the potentially developable area of turbines (See section 6.5.3 for a definition of Study Area).
- 6.2.4 The specific objectives of this chapter are as follows:
- Describe the Ecological Impact Assessment (EIA) methodology and criteria used to make the assessment.
  - Describe the ecological baseline conditions.
  - Describe the proposed standard mitigation measures which will be embedded in the Proposed Development and of which the impact assessment takes cognisance.
  - Describe the likely effects of the Proposed Development, including direct, indirect and cumulative effects.
  - Describe any additional mitigation, compensation and enhancement measures proposed to address any significant effects and provide biodiversity enhancement.
  - Assess any residual effects.
  - Describe and assess potential cumulative effects.

- 6.2.5 The assessment has been carried out in accordance with the Code of Professional Conduct of the Chartered Institute of Ecology and Environmental Management (CIEEM) by Donna Black (BA (Hons), MSc, ACIEEM), a senior ecologist with over 15 years' relevant experience.
- 6.2.6 A list of abbreviations used throughout this chapter is provided at the end for reference.

## 6.3 Legislation, Policy and Guidelines

### **Legislation**

- 6.3.1 Relevant legislation and guidance documents have been reviewed and will be taken into account as part of this ecological assessment. Of particular relevance are:
- Council Directive 92/43/EEC on the Conservation of Natural Habitats and Wild Flora and Fauna (the "Habitats Directive");
  - The Wildlife and Countryside Act 1981 (as amended) (WCA);
  - The Conservation (Natural Habitats &c.) Regulations 1994 (as amended in Scotland) (the "Habitats Regulations");
  - The Conservation of Habitats and Species Regulations 2010 (as amended);
  - The Wildlife and Natural Environment (Scotland) Act 2011 (as amended) (the "WANE Act"); and
  - The Nature Conservation (Scotland) Act 2004 (as amended) (the "NCA").

### **Planning Policy**

- 6.3.2 **Chapter 2** provides an overview of all the relevant planning policy. Of particular relevance to this Chapter are:
- National Planning Framework 4 (Scottish Government, 2023), specifically Policy 3; and
  - Shetland Local Development Plan 2014 (SIC, 2014).
- 6.3.3 Planning Advice Note (PAN) 60: Planning for Natural Heritage provides guidance relevant to this assessment and the Proposed Development.

### **Guidance**

- 6.3.4 Further key guidance documents relating to the assessment of effects of wind farms on terrestrial (non-avian) ecological receptors that have been referenced in this assessment include the following:
- The Scottish Biodiversity List (Scottish Government, 2013) (SBL);
  - Biodiversity Duty Report for Shetland Islands Council 2015 to 2017 (SIC, 2017);
  - Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine, version 1.2 (CIEEM, 2018);
  - Advising on Peatland, Carbon-Rich Soils and Priority Peatland Habitats in Development Management (NatureScot, 2023);
  - Good Practice during Wind Farm Construction 4th Edition (Scottish Natural Heritage (SNH), 2019);
  - Planning for development: What to consider and include in Habitat Management Plans (SNH, 2016);

- Guidance on Assessing the Impacts of Development Proposals on Groundwater Abstractions and Groundwater Dependent Terrestrial Ecosystems (Scottish Environment Protection Agency (SEPA), 2017); and
- Monitoring the Otter *Lutra Lutra* (Chanin, 2003a).

6.3.5 Where appropriate, more detail relating to specific legislation, guidance or policy is provided in the appendices supporting this chapter (**Appendices 6.1 to 6.4**).

## 6.4 Consultation

6.4.1

6.4.2 **Table 6.1** provides details of consultations undertaken with relevant regulatory bodies, together with action undertaken by the Applicant in response to consultation feedback.

**Table 6.1 – Consultation Responses**

Consultee	Consultation Response	Applicant Action
Shetland Islands Council, Natural Heritage Officer (3 <sup>th</sup> March 2021)	The applicant should ensure that the surveys include an assessment of peatland habitat quality and condition and that, should important / valuable habitat be identified, the EIA Report should clearly show how impacts have been avoided or mitigated as far as possible.	This is acknowledged. Important/valuable habitats are identified in Section 6.6; assessment, mitigation, compensation and enhancement are described in Sections 6.7 – 6.9 and <b>Appendix 6.4</b> .
	Ideally the applicants should look to provide new benefits for wildlife within their development proposals in order to help reverse the decline in wildlife.  The developer should consider how to ensure the development results in no net loss of biodiversity and, if possible, provide options for biodiversity net gain. This could include on-site or off site peatland restoration. Any adverse effects should be avoided, minimised and/or compensated, and every opportunity should be taken to create improvements for biodiversity.	This is acknowledged. Proposed mitigation / enhancement measures are described in Sections 6.6- 6.12 and in the OBEP ( <b>Appendix 6.4</b> ), with management measures relevant specifically to peat soils being set out in the Peat Management Plan (PMP) ( <b>Appendix 11.3</b> ). It is proposed that a detailed BEP based on these outline measures is produced post-determination, in consultation with SIC and NatureScot.
	No survey for common frog, which was introduced to the Lerwick area around 100 years ago, is required.	Noted.
NatureScot (11 <sup>th</sup> February 2021)	An assessment of peatland habitat quality should also be carried out, given the greater emphasis on peatland in National Planning Framework 3 to protecting areas of	This is acknowledged. Peatland habitats have been considered within Sections 6.6 – 6.12 and <b>Chapter 11</b> .

Consultee	Consultation Response	Applicant Action
	high quality peatland. [Note that this consultation response pre-dates the adoption of NPF4.] Information on peatland assessment can be found in the Peatland Survey Guidance.	
Shetland Amenity Trust (No date)	There are areas of blanket bog within the Site boundary and it seems likely that some of these are active, hence constituting an European Priority Habitat. A thorough assessment of the blanket bog should be made assessing its quality and importance in a Shetland context.	This is acknowledged. As reported in <b>Appendix 6.2</b> an NVC survey was conducted in 2021 that confirmed the presence of blanket bog. The assessment is included in Sections 6.6 – 6.12.

## 6.5 Assessment Methods and Significance Criteria

### **Study Area**

6.5.1 The Proposed Development boundary covers an area of around 66 hectares (ha) and is located on land approximately 1.2 km north of Gremista, Lerwick, Shetland on the Hill of Gremista (see **Figure 6.1**). The 'Study Area' varied between each specific survey type in line with relevant best practice guidance as follows:

- desk study: statutory nature conservation designations within 10 km of the Site, protected or otherwise notable species records within 5 km of the Site, and non-statutory designations within 2 km of the Site;
- extended Phase 1 habitat survey and protected species survey: the 2011 Permitted Development planning boundary plus a 500 m buffer (where access allowed);
- NVC survey: land within the potentially developable area of the Site plus a 250 m survey buffer; and
- otter survey: land within the Site boundary plus accessible areas up to 500 m.

### **Ecological Desk Study**

6.5.2 An Ecological Desk Study was undertaken by ITP Energised in 2021 and is documented within this Chapter. This study compiled information on any statutory nature conservation designations within 10 km of the Site, and on any non-statutory nature conservation designations as well as records of legally protected or otherwise notable species within 2 km of the Site. Only sites designated for non-avian ecological features are considered within this Chapter. ITP Energised also approached Shetland Amenity Trust in November 2021 for records of legally protected or otherwise notable species within 5 km of the Site. Only records from within the past 10 years were considered relevant to the study.

### **Field Surveys**

6.5.3 Ecological field studies have been undertaken to establish the Site baseline for habitats and a range of protected or otherwise notable species and include the following technical studies:

- An extended Phase 1 Habitat Survey and protected species survey conducted in July 2010, which included an otter survey and an assessment of the suitability of the Site for protected or otherwise notable species (**Appendix 6.1**).
- An NVC survey was conducted in August 2021 including the potentially developable area and a minimum 250 m survey buffer around potential locations requiring deep (>1 m) excavations, such as turbine foundations, but reduced to 100 m for shallow excavations, to clarify the potential presence of potential groundwater-dependent terrestrial ecosystems (SEPA, 2017) (**Appendix 6.2**). An NVC survey is a more detailed study than a Phase 1 habitat survey and the work is therefore considered to supersede the earlier Phase 1 habitat survey.
- An otter survey was conducted in August 2021 within the Site and a 500 m buffer for any evidence of use by otter (**Appendix 6.3**)

6.5.4 Full details of the methodologies applied are presented in **Appendices 6.1 to 6.3**.

### ***Assessment of Likely Effect Significance***

6.5.5 **Table 6.2** lists the criteria used to determine the value of ecological features in a geographical context.

**Table 6.2 – Geographical Evaluation Criteria**

<b>Scale of Ecological Value</b>	<b>Criteria</b>	<b>Examples</b>
International	<p>Nature conservation resource, i.e. designated nature conservation area, habitat or populations of species, of international importance.</p> <p>N.B. For designations, such as a Special Area of Conservation (SAC), this may also include off-site features on which the qualifying population(s) or habitat(s) are considered, from the best available evidence, to depend.</p>	<p>International nature conservation areas:</p> <ul style="list-style-type: none"> <li>• Any SAC;</li> <li>• Any candidate SAC (cSAC); and</li> <li>• Any Ramsar wetland.</li> </ul> <p>Significant numbers of a designated population outside the designated area.</p> <p>A site supporting more than 1 % of the EU population of a species.</p>
National (Scotland)	<p>Nature conservation resource, i.e. designated nature conservation area, habitat or populations of species, of national importance.</p> <p>N.B. For designations, such as a Site of Special Scientific Interest (SSSI) or a National Nature Reserve (NNR), this</p>	<p>National nature conservation areas:</p> <ul style="list-style-type: none"> <li>• Any SSSI or NNR designated for biological feature(s).</li> </ul> <p>A site supporting more than 1 % of the UK population of a species.</p> <p>A nationally important population/assemblage of a European Protected Species (EPS) or species listed on Schedule 5 of the WCA.</p>



Scale of Ecological Value	Criteria	Examples
	<p>may also include off-site features on which the qualifying population(s) or habitat(s) are considered, from the best available evidence, to depend.</p>	
<p>Council area (Shetland)</p>	<p>Nature conservation resource, i.e. nature conservation designation, habitat or species, of importance on a council area scale.</p>	<p>Statutory and non-statutory nature conservation designations:</p> <ul style="list-style-type: none"> <li>• Any Local Nature Reserve (LNR);</li> <li>• Any Local Nature Conservation-site (LNC);</li> <li>• Any Scottish Wildlife Trust (SWT) reserve; and</li> <li>• Any Local Biodiversity Site (LBS).</li> </ul> <p>A council area-scale important population / area of a species or habitat listed on the Scottish Biodiversity List (SBL) (Scottish Government, 2013) as requiring conservation action.</p> <p>A council area-scale important population/area of a species or habitat listed on the local Biodiversity Action Plan (local BAP).</p> <p>A council area-scale important population / assemblage of an EPS or species listed on Schedule 5 of the WCA.</p>
<p>Local (i.e., within 2 km of the site)</p>	<p>Nature conservation resource, e.g., a habitat or species of importance in the context of the local district.</p>	<p>A breeding population of a species or a viable area of a habitat that is listed in a Local BAP because of its rarity in the locality.</p> <p>An area supporting 0.05-0.5 % of the UK population of a species.</p> <p>A breeding population of a species on the SBL.</p> <p>All breeding populations of EPS or Schedule 5 species.</p>
<p>Less than local</p>	<p>Unremarkable, common and widespread habitats and species of little/no intrinsic nature conservation value.</p>	<p>Common, widespread, modified and/or impoverished habitats.</p> <p>Common, widespread, agricultural and/or exotic species.</p>

- 6.5.6 Where a feature qualifies under two or more criteria, the higher value is applied to the feature.
- 6.5.7 In the EclA reported in this chapter, any ecological feature of local or higher value is considered an Important Ecological Feature (IEF).

### ***Impact Assessment Methods***

- 6.5.8 The approach to the EclA follows the CIEEM guidelines (CIEEM, 2018), which prescribe an industry-standard method to define, predict and assess likely ecological effects to a given proposed development. Starting with establishing the baseline through a mix of desk study and field survey, key ecological features (the IEFs) are identified and those requiring assessment established through a reasoned process of valuation and consideration of factors, such as statutory requirements, policy objectives for biodiversity, conservation status of the IEF (habitat or species), habitat connectivity and spatial separation from the proposed development. From this stage, these features are assessed for impacts with the assumption of this being in the presence of construction industry-standard mitigations to ameliorate impacts as far as practicably possible. Additional mitigation strategies can then be determined to minimise any residual impacts that would otherwise be experienced by the IEF and any opportunities for enhancement identified.
- 6.5.9 In summary, the impact assessment process (CIEEM, 2018) involves:
- identifying and characterising impacts and their effects;
  - incorporating measures to avoid and mitigate adverse impacts and effects;
  - assessing the significance of any residual effects after mitigation;
  - identifying appropriate compensation measures to offset significant residual effects; and
  - identifying opportunities for ecological enhancement.

### ***Ecological Zone of Influence***

- 6.5.10 The Ecological Zone of Influence (EZoI) is defined as the area within which there may be ecological features subject to effects from the Proposed Development. Such effects could be direct, e.g. habitat loss resulting from land-take or removal of a building occupied by bats, or indirect, e.g. noise or visual disturbance causing a species to move out of the EZoI. The EZoI was determined through:
- review of the existing baseline conditions based on desk study results, field surveys and information supplied by consultees;
  - identification of sensitivities of ecological features, where known;
  - the outline design of the Proposed Development and approach to construction; and
  - through liaison with other technical specialists involved in the assessment, e.g. hydrologists and noise specialists.

### ***Temporal Scope***

- 6.5.11 Likely impacts on ecological features have been assessed in the context of how the predicted baseline conditions within the EZoI might change between the surveys and the start of construction.

### ***Characterising Ecological Impacts and Effects***

- 6.5.12 In accordance with the CIEEM guidelines, the following definitions are used for the terms 'impact' and 'effect':
- impact – Actions resulting in changes to an ecological feature. For example, ground clearance prior to construction that results in the removal of a hedgerow; and

- effect – Outcome to an ecological feature from an impact. For example, the effects on a species population from loss of a hedgerow.
- 6.5.13 In accordance with the CIEEM guidelines, when determining impacts on IEFs, reference is made to the following:
- beneficial or adverse – i.e. whether the impact has a beneficial or adverse effect in terms of nature conservation objectives and policy;
  - magnitude – i.e. the size of an impact, in quantitative terms where possible;
  - extent – i.e. the area over which an impact occurs;
  - duration – i.e. the time for which an impact is expected to last;
  - timing and frequency – i.e. whether impacts occur during critical life stages or seasons; and
  - reversibility – i.e. 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.
- 6.5.14 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 affect ecological resources through effects on an intermediary ecosystem, process or feature, e.g. fencing of a development Site may cause scrub to invade marshy grassland.
- 6.5.15 The CIEEM guidelines state that impacts should be quantified, if possible, and expressed in absolute or relative terms (e.g. the amount of habitat lost, percentage change to habitat area, percentage decline in a species population). That approach has been followed here, where possible. However, following in the language of other chapters in the EIA report, impact magnitude has also been characterised with reference to the definitions in **Table 6.3** below. Major and moderate effects are considered significant in the context of the EIA Regulations.

**Table 6.3 – Levels of Impact**

Level of impact	Definition
No impact	No detectable impacts on the ecological resource, even in the immediate term.
Negligible	Detectable impact but reversible within 12 months. Not expected to affect the conservation status of the nature conservation designation, habitat or species under consideration.
Minor	Detectable impacts, and may be irreversible, but either of sufficiently small scale or of short-term duration to have no material impact on the conservation status of the nature conservation designation, habitat or species population.
Moderate	Detectable impact on the status of the nature conservation designation, habitat or species population in the medium term but is reversible / replaceable given time, and not a threat to the long-term integrity of the feature.

Level of impact	Definition
Major	Irreversible impact on the status of the nature conservation designation, habitat or species and likely to threaten the long-term integrity of the feature. Not reversible or replaceable. Will remain detectable in the medium and long term.
<p>The following definitions have been applied in respect to timescales:</p> <p>Immediate: Within approximately 12 months;</p> <p>Short term: Within approximately 1-5 years;</p> <p>Medium term: Within approximately 6-15 years; and</p> <p>Long term: More than 15 years.</p>	

6.5.16 It should be noted that the concept of ‘integrity’ refers to coherence of ecological structure and function and includes both temporal and spatial considerations.

### ***Determining Ecologically Significant Effects***

6.5.17 An EclA is undertaken in relation to the baseline conditions that would be expected to occur in the absence of a proposed development and, therefore, may include possible predictions of future changes to baseline conditions, such as environmental trends and other completed or planned development. Both adverse and beneficial impacts/effects are possible.

6.5.18 A significant effect, in ecological terms, is defined as an effect (whether adverse or beneficial) on the integrity of a defined site or ecosystem and/or the conservation status of habitats or species within a given geographical area, including cumulative and in-combination impacts.

6.5.19 In accordance with the CIEEM guidelines, the approach adopted in this chapter aims to determine if the effect of an impact is significant or not based on a discussion of the factors that characterise it, i.e. the ecological significance of an effect is not dependent on the value of the feature in question. Rather, the value of a feature that will be significantly affected is used to determine the geographical scale at which the effect is significant.

6.5.20 In accordance with the current CIEEM guidelines, effects of impacts are assessed in the presence of standard mitigation measures. Additional mitigation may be identified where it is required to reduce a significant effect.

6.5.21 Any significant effects remaining post-mitigation (the residual effect), 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.

6.5.22 In addition to determining the significance of effects on valued ecological features, this chapter also identifies any legal requirements in relation to wildlife.

### ***Assessment of Cumulative Effect Significance***

6.5.23 The main reason for assessing cumulative impacts is to identify whether effects, which may not be significant from individual developments, are likely to be significant when combined with nearby existing or proposed schemes. The main projects likely to cause similar impacts to those associated with the Proposed Development are other operational wind farms, those under construction or those for which planning permission has been granted. Several other wind farms are present within the wider area, in planning, under construction and operational.

### **Limitations to Assessment**

- 6.5.24 As described in **Appendices 6.1 to 6.2**, the extended Phase 1 habitat survey and the NVC survey were both carried out during the optimal survey period (April to September, inclusive) and there were no limitations to access within the Site.
- 6.5.25 As described in **Appendix 6.3**, no limitations were identified for the otter survey.

## **6.6 Baseline Conditions**

6.6.1 This section details the results of the desk study and field surveys conducted across the Site and respective Study Areas and describes the baseline conditions against which predicted impacts are assessed. This includes:

- designated sites and desk study/external data;
- habitats and vegetative communities; and
- protected species.

### **Desk Study**

#### **Nature Conservation Designations**

6.6.2 **Figure 6.2** shows the statutory nature conservation designations within 10 km of the Site and non-statutory designations within 2 km of the Site, respectively. These designations are detailed in **Table 6.4**. For the purposes of brevity, only non-avian ecological features are described; any information pertinent to ornithological or hydrological/geological interests is included within **Chapter 7** and **Chapter 11**, respectively.

**Table 6.4 – Nature Conservation Designations**

<b>Site Name</b>	<b>Designation</b>	<b>Distance and Direction from Site</b>	<b>Reasons for Designation</b>
Loch of Tingwall and Asta	SSSI	3.8 km south west	<ul style="list-style-type: none"> <li>• Mesotrophic loch</li> </ul>
Loch of Gurlsta	SSSI	6 km northwest	<ul style="list-style-type: none"> <li>• Mesotrophic loch; and</li> <li>• Arctic charr (<i>Salvelinus alpinus</i>)</li> </ul>
South Whiteness	SSSI	6 km west	<ul style="list-style-type: none"> <li>• Saltmarsh; and</li> <li>• Shetland mouse-ear hawkweed (<i>Pilosella flagellaris</i> ssp <i>bicapitata</i>)</li> </ul>
Sandwater	SSSI	9 km northwest	<ul style="list-style-type: none"> <li>• Mesotrophic loch; and</li> <li>• Open water transition fen</li> </ul>

6.6.3 No non-statutory designation for non-avian biological features has been identified within 2 km of the Site. The closest such designation is Clickimin Loch Local Nature Conservation-site (LNCS), which is located approximately 3.8 km south of the Site.

### Protected or Otherwise Notable Species

6.6.4 The Shetland Amenity Trust was contacted in November 2021 for a data search, and data has also been obtained from the Shetland Biological Records Centre (SBRC) (SBRC, 2021) and National Biodiversity Network (NBN) Atlas (NBN Atlas, 2021). The desk study results include records from this data within 5 km of the Site centre for protected or otherwise notable species within the last 10 years, as summarised in **Table 6.5**.

**Table 6.5 – Records of Protected or Otherwise Notable Species**

Common Name	Scientific Name	Legal / Conservation Status	Records
Charlock	<i>Sinapis arvensis</i>	SBL Priority Species	Two records of charlock were identified within 5 km, the nearest being 2.8 km to the northwest of the Site
European otter	<i>Lutra lutra</i>	Conservation (Natural Habitats, &c.) Regulations 1994 (as amended). SBL Avoid negative impacts	47 records of European otter were identified within 5 km of the Site. Of those, one record is for an active holt c.1.15 km east, dating from 2016. The closest record was of a female otter with three cubs c.800 m southeast and dating from 2018
Lesser trefoil	<i>Trifolium dubium</i>	Shetland LBAP	One record of lesser trefoil was identified 1.6 km southeast of the Site

6.6.6 As described in **Appendix 6.1**, all potentially suitable watercourses and waterbodies within the Site and a 500 m buffer were surveyed for otter in July 2010. No evidence of otter was recorded.

6.6.7 No records have been identified for the following:

- roosting bats: bat species are not known to roost in Shetland;
- protected or otherwise notable fish;
- notable fungi; or
- notable invertebrates. However, the 2011 Permitted Development ES noted existing records of *Rhiogognostis senilella*, a nationally notable moth, 2.2 km from the Site.

### Field Surveys

#### Habitats

6.6.8 The results of the vegetation surveys are summarised in this section and are shown in **Figures 6.3** and **6.4** (NVC communities and corresponding Phase 1 habitats). These figures illustrate the location and extent of vegetation types recorded within the Study Area. For a full description of the survey results, please refer to **Appendix 6.2**. A total of 12 habitats were recorded within the Study Area. **Table 6.6** presents the cover of NVC community, sorted under the broader Phase 1 habitat categories.

**Table 6.6 – Cover of Vegetation Types**

Phase 1 Habitat Code	NVC Type (where Relevant)	Extent on-site (ha*)	Extent in wider Study Area (ha*)
E1.6.1 Blanket mire	M2 <i>Sphagnum cuspidatum/fallax</i> bog pool community	0.94	0.64
	M3 <i>Eriophorum angustifolium</i> bog pool community	0.04	0.00
	M18 <i>Erica tetralix-Sphagnum papillosum</i> raised and blanket mire	1.18	0.46
	M19a <i>Calluna vulgaris-Eriophorum vaginatum</i> blanket mire, <i>Erica tetralix</i> sub-community	19.52	13.22
	M19b <i>Calluna vulgaris-Eriophorum vaginatum</i> blanket mire, <i>Empetrum nigrum nigrum</i> sub-community	22.95	24.61
E2.1 Acid flush	M6 <i>Carex echinata-Sphagnum fallax/denticulatum</i> mire (no clear sub-community)	0.12	0.18
	M6c <i>Carex echinata-Sphagnum fallax/denticulatum</i> mire, <i>Juncus effusus</i> sub-community	0.46	2.10
	M29 <i>Hypericum elodes-Potamogeton polygonifolius</i> soakway	0.01	0.01
	'MCx' Neutral small sedge mire	0.00	0.12
D2 Wet dwarf shrub heath	M15a <i>Trichophorum germanicum-Erica tetralix</i> wet heath, <i>Carex panicea</i> sub-community	0.06	0.40
	M15b <i>Trichophorum germanicum-Erica tetralix</i> wet heath, Typical sub-community	0.39	0.00
B5 Marsh/Marshy grassland	M23b <i>Juncus effusus/acutiflorus-Galium palustre</i> rush-pasture, <i>Juncus effusus</i> sub-community	0.00	0.12
	M28 <i>Iris pseudacorus-Filipendula ulmaria</i> mire	0.00	0.09
	'UJe' Acid rush pasture	0.07	3.55
Phase 1 Habitat Code	NVC Type (where Relevant)	Extent on-site (ha*)	Extent in wider Study Area (ha*)
D1.1 Dry dwarf shrub heath - Acid	H12a <i>Calluna vulgaris-Vaccinium myrtillus</i> heath, <i>Calluna vulgaris</i> sub-community	9.47	6.65
	H12c <i>Galium saxatile-Festuca ovina</i> sub-community	4.65	8.51

Phase 1 Habitat Code	NVC Type (where Relevant)	Extent on-site (ha*)	Extent in wider Study Area (ha*)
B1.2 Semi-improved acid grassland	U4a <i>Festuca ovina</i> - <i>Agrostis capillaris</i> - <i>Galium saxatile</i> grassland, Typical sub-community	0.16	0.31
	U4b <i>Holcus lanatus</i> - <i>Trifolium repens</i> sub-community	0.10	16.29
	U5 <i>Nardus stricta</i> - <i>Galium saxatile</i> grassland (no clear sub-community)	0.76	1.06
	U5b <i>Nardus stricta</i> - <i>Galium saxatile</i> grassland, <i>Agrostis canina</i> - <i>Polytrichum commune</i> sub-community	0.00	0.23
	U6 <i>Juncus squarrosus</i> - <i>Festuca ovina</i> grassland (including both the U6a <i>Sphagnum</i> sub-community and the U6d <i>Agrostis capillaris</i> - <i>Luzula multiflora</i> sub-community)	3.72	7.05
H4 Rock/boulders above high tide mark	MC2 <i>Armeria maritima</i> - <i>Ligusticum scoticum</i> maritime rock-crevice community	0.00	Too small to be mapped
H8.4 Coastal grassland	MC9 <i>Festuca rubra</i> - <i>Holcus lanatus</i> maritime grassland	0.00	0.42
N/A	OV27a <i>Chamaenerion angustifolium</i> community, <i>Holcus lanatus</i> - <i>Festuca ovina</i> sub-community	0.00	0.09
J5 Other habitat	Recolonising peat	0.65	0.05
	Recolonising sub-soil	0.00	0.49
	Exposed rock cutting	0.00	0.03
G1 Standing water	N/A (Loch of Kebister)	0.00	4.42
	Artificial pond	0.00	0.02
G2 Running water	N/A (Burn of Kebister and un-named watercourses)	22.34 m	2793.28 m
<b>Total areas (ha)</b>		<b>65.25 ha</b>	<b>91.12</b>
<b>Total linear habitat (m)</b>		<b>22.34 m</b>	<b>2793.28 m</b>

\* Except where metres are stated

- 6.6.9 An overview of the vegetation types and condition recorded within the Study Area is presented below; for full descriptions, scientific names and target notes please refer to **Appendix 6.2**.
- 6.6.10 There is extensive sheep grazing on the Site, with more intensive grazing in semi-improved fields on the low ground north of the public road.



### Blanket bog

#### *M2 Sphagnum cuspidatum/fallax bog pool community*

- 6.6.11 The great majority of the bog pools within the Site and wider study area are dominated by the bog-moss *Sphagnum cuspidatum*. Most have few associated species, with bulbous rush being the most frequent and sometimes co-dominant.

#### *M3 Eriophorum angustifolium bog pool community*

- 6.6.12 The M3 *Eriophorum angustifolium* bog pool community is infrequent within the Site. It is characterised by common cottongrass encroaching on areas of bare peat.

#### *M18 Erica tetralix-Sphagnum papillosum raised and blanket mire*

- 6.6.13 Within the wide expanse of blanket mire on-site are scattered shallow depressions and channels, sometimes associated with bog pools and runnels, where the vegetation is clearly wetter. In these the cover of heather is reduced though the presence of shrubs, notably crowberry, is constant and the cover of bog-mosses higher (and with more variety) than in the surrounding mire. This community aligns with M18 *Erica tetralix-Sphagnum papillosum* wet mire. The condition is favourable.

#### *M19 Calluna vulgaris-Eriophorum vaginatum blanket mire*

- 6.6.14 Virtually all of the blanket mire within the Site and wider study area can be classed as M19 *Calluna vulgaris-Eriophorum vaginatum* blanket mire and this community covers the bulk of the moorland area, particularly on the higher ground.

- 6.6.15 Of the two sub-communities present, the M19a *Erica tetralix* sub-community is found in the flatter areas and is generally wetter, with frequent pools and runnels scattered patchily across it. In some areas, e.g. at the northward extent of M19a close to the existing turbine, hare's-tail cottongrass is almost absent and replaced by common cottongrass at high cover. The condition is favourable, which suggests recovery since the 2011 Permitted Development ES, when most of the habitat was classified as wet modified bog with a high inclusion of grasses.

- 6.6.16 The M19b *Empetrum nigrum nigrum* sub-community is a dry blanket mire with a typically tussocky cover dominated by heather and the green leaves of hare's-tail cottongrass. It lacks the various hydrophilic species associated with M19a, such as cross-leaved heath, and it contains fewer bog-mosses, although other mosses are abundant. Again, the condition is favourable, which suggests recovery since the 2011 Permitted Development ES, when most of the habitat was classified as wet modified bog with a high inclusion of grasses. However, a flat area of M19b just north of the Loch of Kebister still has a higher inclusion of acid grassland species and herbs growing through, including Yorkshire fog, heath woodrush, common bent, sweet vernal-grass, spreading meadow-grass, green-ribbed sedge, tormentil and heath bedstraw.

### Flush

#### *M6 Carex echinata-Sphagnum fallax/denticulatum mire*

- 6.6.17 Four areas close together on the northwest slope are a form of acid flush that clearly falls within the M6 community but does not closely fit any of the four published sub-communities. The key features that indicate M6 are the abundance of rushes (here mainly jointed rush) with sedges (common sedge and occasional star sedge) and frequent bog-mosses (*Sphagnum palustre*, *S. denticulatum*, *S. subnitens* and *S. fimbriatum*). Other species typical of the community as a whole are tormentil, marsh violet, velvet bent and purple moor-grass.

- 6.6.18 However, soft-rush commonly forms patches and strips of taller vegetation along drainage flows on the lower slopes. In the peatland areas the majority of these also hold abundant bog-mosses beneath the rushes, making them easy to identify as the M6c *Juncus effusus* sub-community.

*M29 Hypericum elodes-Potamogeton polygonifolius soakway*

- 6.6.19 M29 soakway is often associated with narrow trickles over peat, usually with a thick covering of pondweed. It is found within two wider runnels at the very southern edge of the Study Area, in a wide expanse of flat blanket mire. Although lacking the St. John's-wort, the trickles here hold a good selection of the expected associates, such as lesser spearwort, star sedge, common yellow-sedge, carnation sedge, jointed rush and marsh violet.

*'MCx' neutral small-sedge mire*

- 6.6.20 One flushed area on the northwest slopes out with the Site boundary is distinctly less acidic than the surrounding vegetation, likely due to a more neutral or basic groundwater influence. This contains a selection of sedges and is clearly related to the M6 community, but lacking bog-mosses and with various species indicative of more neutral conditions. Jointed rush is present with sedges including star sedge, common sedge, carnation sedge and the more basiphilous flea sedge and dioecious sedge.

Wet dwarf shrub heath

*M15 Trichophorum germanicum-Erica tetralix wet heath*

- 6.6.21 There is very little wet heath within the Site and wider study area, because the peat substrate is often deeper than the <50 cm typical of wet heath.
- 6.6.22 Two small, flushed patches of heath hold an array of sedge that marks them out as the M15a *Carex panicea* sub-community. On the west slope this vegetation is associated with M6 acid flushes and includes jointed rush growing with the sedges beneath tussocky heather. On the lower east slope, the vegetation contains cross-leaved heath and purple moor-grass with the heather and is flushed by neutral or basic groundwater. It is a species-rich example and holds a good selection of sedges and broad-leaved herbs, such as carnation and flea sedges, lesser clubmoss, alpine meadow-rue, sea plantain, round-leaved sundew and common butterwort. The condition is favourable.
- 6.6.23 The M15b Typical sub-community occurs in four places around pool and runnel systems, on raised peat that is drier than the surrounding mire. Deer-grass is much more abundant amongst the heather, and there is a noticeably thinner cover of common cottongrass and a lower overall diversity relative to M15a wet heath. The M15b areas occur on deep peat, due to the very localised drier soil conditions. However, in the context of the valuation of the vegetation and its treatment in terms of potential mitigation, the M15b here is best included as part of the blanket mire within which it sits. The condition is favourable.

Marsh\Marshy grassland

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

- 6.6.24 This is a soft-rush dominated vegetation with an underlying rather grassy flora incorporating various 'poor-fen' (marsh) species, including common sorrel, marsh willowherb and lesser spearwort. It is present along one old ditch system within the semi-improved fields. The vegetation corresponds to the M23b *Juncus effusus* sub-community.

*M28 Iris pseudacorus-Filipendula ulmaria mire*

- 6.6.25 Vegetation dominated by yellow iris is present out with the Site boundary, along the lower Burn of Kebister. There are three recognised sub-communities of M28, typical of different ecological settings (Rodwell, 1991), but the stand does not conform to any of them, because the iris is so strongly dominant that there is little room for more than straggly individuals of a few species typical of the community as a whole, including common sorrel, rough meadow-grass, creeping bent and Yorkshire fog.

*'UJe' acid rush-pasture*

- 6.6.26 Soft-rush growing over acid grassland is not included within the NVC but is a common vegetation type in the uplands (Averis *et al.*, 2004), frequently on previously disturbed ground on peat. The Site and wider study area includes scattered small patches of this vegetation within U6 acid grassland

where sheep-trampling has opened up the grass cover, allowing the rushes to establish. There is more variable and extensive rushy vegetation inside the fences of the adjacent decommissioning and recycling sites. In the former, the rushes occur within a weedy form of acidic grassland, probably on soil spread from the adjacent working area. In the latter, rushes are colonising over what appears to be former blanket mire, with patchy common cottongrass and occasional heather among the grasses.

#### Dry heath

##### *H12 Calluna vulgaris-Vaccinium myrtillus heath*

- 6.6.27 H12 is a dry heath type, found on steeper slopes throughout the Site and wider study area and as smaller patches in areas of raised ground and on some raised banks alongside channels and runnels (both wet and dry) – these are locations where the peat is either shallower or is more freely draining. Two sub-communities, H12a and H12b are present.
- 6.6.28 In H12a, the *Calluna vulgaris* sub-community, the heather is very strongly dominant. Where grasses thicken up within the heather, or where grassy gaps appear between the heather, the dry heath falls into the H12c *Galium saxatile-Festuca ovina* sub-community. This occurs widely on the north-eastern slopes of the study area where acid grassland and heath interleave with each other. The condition is favourable.
- 6.6.29 The boundary between U6d grassland and H12c grassy heath was notionally set where the shrubs comprise 25% or more of the cover, and between H12c and H12a where patches of grass became small and no more than occasional. The condition is favourable.

#### Semi-improved Acid Grassland

##### *U4 Festuca ovina-Agrostis capillaris-Galium saxatile grassland*

- 6.6.30 U4 grassland occurs around the Operational Turbine and in the enclosed fields to the north and east of the public road. Two sub-communities, U4a and U4b, are present.
- 6.6.31 The U4a Typical sub-community is present only as a few small patches, mainly around the existing wind turbine. It is comprised of soft leaved grasses such as red fescue, bent-grasses and sweet vernal-grass. Tormentil is typically present but usually only a few other forbs and mosses. The vegetation is well-grazed.
- 6.6.32 The U4b *Holcus lanatus-Trifolium repens* sub-community is a semi-improved grassland and the main vegetation of the enclosed fields to the north and east of the public road. It contains most of the species found in U4a, but tormentil is only occasional whereas Yorkshire fog is more abundant. In addition, several very common species are present indicating less acid conditions; these include white clover, common mouse-ear and, in particular, perennial ryegrass. Acid grassland similar to U4b is also colonising roadside cuttings below the moorland edge and has been mapped as that sub-community. It occurs along much of the slope below the moorland fence down to the level of the road.

##### *U5 Nardus stricta-Galium saxatile grassland*

- 6.6.33 Acid grassland with abundant mat-grass is present only as small patches within U6 grassland. One strip between rushes at the base of the eastern slope is mossier and richer than the higher stands. It contains species not usually associated with this community, such as plentiful marsh violet, the bog-mosses *Sphagnum denticulatum* and *S. fimbriatum* and bog asphodel as well as several other species that are scarce within U5 as a whole, including heath grass and tufted hair-grass. Although the high abundance of mat-grass suggest a best fit with the U5 community, the stand does not fit any of the published sub-communities (Rodwell, 1992); but it is likely closest to the damper U5b *Agrostis canina-Polytrichum commune* sub-community and has been marked as such on **Figure 6.3**.

##### *U6 Juncus squarrosus-Festuca ovina grassland*

- 6.6.34 Most of the acid grassland in the moorland area comprises U6 grassland. Two sub-communities, U6a and U6d, are present.

6.6.35 Grassland with a high amount of bog-mosses is present towards the bottom of the eastern slopes, particularly when adjacent to M6c mire; this suggest a good fit with the U6a *Sphagnum* sub-community. However, these peripheral areas were not looked at in such detail and no attempt was made to define boundaries for this sub-community, and **Figure 6.3** simply shows all of the U6 as one colour code.

6.6.36 The main areas of U6 grassland on the upper northern and eastern slopes are quite uniform in appearance, with abundant heath rush in a short, grassy sward, and the vegetation conforms to the grassy U6d *Agrostis capillaris-Luzula multiflora* sub-community. Typical associates present at high abundance throughout include heath bedstraw, sweet vernal-grass, bent-grasses, tormentil and the moss *Hylocomium splendens*. Typical species present at low abundance include wavy hair-grass, mat-grass, a woodrush and the moss *Rhytidiadelphus squarrosus*.

Rock/boulders above high tide mark

*MC2 Maritime cliff community*

6.6.37 Maritime vegetation is present in a very narrow strip north of the Site boundary, along either side of the Vatsland peninsula. The vegetation is too narrow to be mapped but occurs more or less intermittently along the clifly sections of both shorelines within the Study Area Here there are low rocky cliffs and steep banks down to the sea with more or less scattered plants on ledges and in crevices. The vegetation is clearly related to MC2, being formed of scattered plant cushions on rocky cliffs, but it has no Scots lovage. On the west side it is more species-poor, comprising just three of the constant/frequent species of the community; thrift, red fescue and sea plantain. The taller cliffs on the east side, at the southern extent of the study area there, are richer and additionally hold sea campion, sheep's-bit and docks.

Coastal grassland

*MC9 Festuca rubra-Holcus lanatus maritime grassland*

6.6.38 Grassland along the western clifftops, off the Site boundary, has a maritime character, particularly where it continues down the slopes towards the shore. This vegetation is primarily MC9 *Festuca rubra-Holcus lanatus* maritime grassland, with both red fescue and Yorkshire fog present, as well as spreading meadow-grass and tufted hair-grass. More specifically maritime species include thrift, sea plantain, sea campion and bird's-foot trefoil, primarily on the steeper slopes. Others include ribwort plantain and wild thyme, which are indicative of the MC9 community as a whole, as well as common dog-violet and primrose which are preferential for the MC9d *Primula vulgaris* sub-community.

Other habitats/vegetation types

*OV27 Chamaenerion angustifolium community*

6.6.39 Rosebay willowherb colonises disturbed or burnt ground and can form dominant stands. It is present in one place off site, inside the recycling site fence, where the willowherb grows on spoil beside a ditch, with adjacent disturbed acid rush-pasture and grassland over former heath. The vegetation is concluded to be the OV27a *Holcus lanatus-Festuca ovina* sub-community found.

*Recolonising peat*

6.6.40 A patchily open cover of blanket mire and heath species, along with various pioneer species, is present alongside the hardstanding and track for the Operational Turbine, where peat was re-laid following construction. Bare peat now forms the minority of the area, with a varied mix of soft-rush, heath rush, hare's-tail cottongrass, common cottongrass, green-ribbed sedge, annual meadow-grass, early hair-grass, procumbent pearlwort, heath bedstraw and the moss *Polytrichum juniperum*. At the current stage of colonisation an NVC class cannot be assigned, although most of this area seems likely to become a form of blanket mire or rush-mire. Similar vegetation is present on small stretches of ditch and roadside bank.

*Recolonising subsoil*

- 6.6.41 Alongside one track inside the recycling site fence, dumped subsoil is being recolonised in various phases, with a patchy cover of soft-rush, grasses, thistles, scattered rosebay willowherb and thick stands of colt's-foot.

*Bare ground and hard standing*

- 6.6.42 Several tracks run throughout the Study Area as well as the base of the Operational Turbine.

*Road verges and cuttings*

- 6.6.43 The verges of the public road were variable. In places the vegetation behind the moorland fence continued through it down to the level of the road. Elsewhere cuttings have resulted in colonisation by a form of secondary acid grassland, appearing similar to the semi-improved U4b sub-community. One small stretch of cutting is a vertical face of stone with patchy vegetation cover including sheep's-bit, elsewhere found only on the eastern sea-cliffs.

- 6.6.44 Down at the level of the road, an island of grass at a lay-by beside sheep-pens is a mixture of tall species such as false oat-grass, cock's-foot, reed canary-grass and common couch, with tall herbs such as ground-elder and bindweed. This clearly disturbed vegetation is limited in extent and, although more neutral and apparently related to MG1 *Arrhenatherum elatius* grassland, it is included within the general U4b colour code on **Figure 6.3**.

- 6.6.45 Stretches of level, gravelly ground adjacent to the carriageway hold an open, low vegetation of a calcareous nature. This includes patches of autumn gentian, wild thyme, sea plantain and eyebright. In Phase 1 terms this would be coded as 'J1.3', 'short perennial' vegetation, typically found on free-draining and shallow, stony soil. It is too narrow to show on mapping.

Standing water

- 6.6.46 The Loch of Kebister lies off the south-western Site boundary. Another, small unnamed waterbody lies within 250 m of the south-eastern Site boundary.

Running water

- 6.6.47 There is no main watercourse within the Site. The Burn of Kebister is located off the western Site boundary and is narrow, approximately 25 cm wide and locally fast flowing. The burn runs underground in places and the bank vegetation is mainly low growing and approximately 50 cm high; it includes yellow iris, soft-rush and bell heather. Other small unnamed watercourses run through the Study Area.

**Groundwater-Dependant Terrestrial Ecosystems**

- 6.6.48 Guidance issued by SEPA (2017) classifies NVC communities in terms of their potential groundwater dependency. The actual groundwater dependency is often dependant on setting, and not all communities listed may therefore be truly groundwater dependent. See **Chapter 11** for further details of the assessment of groundwater dependency.

- 6.6.49 **Table 6.7** lists the NVC communities that have a potential for moderate or high groundwater dependency as defined by SEPA (2017). In total, four communities have moderate potential, and three communities have high potential groundwater dependency. These are shown on **Figure 6.5**.

**Table 6.7 - Potential GWDTE Recorded in Study Area**

NVC Community Name	GWDTE Potential
M6 <i>Carex echinata</i> - <i>Sphagnum recurvum</i> mire (including MCx neutral small-sedge mire)	High
M15 <i>Scirpus cespitosus</i> – <i>Erica tetralix</i> wet heath	Moderate
M23 <i>Juncus effusus/acutiflorus-Galium palustre</i> rush-pasture	High
‘UJe’ non-NVC rushes over acid grassland (Not in SEPA (2017) but treated as MG10)	Moderate
M28 <i>Iris pseudacorus-Filipendula ulmaria</i> mire	Moderate
M29 <i>Hypericum elodes-Potamogeton polygonifolius</i> soakway	High
U6 <i>Juncus squarrosus-Festuca ovina</i> grassland	Moderate

6.6.50 **Chapter 11** includes a hydrological assessment of these wetlands. It concludes that the majority of potential GWDTE at the Proposed Development are ombrogenous (i.e. rain fed). However, as shown in **Figure 11.6**, two wetland areas are considered to be groundwater dependent:

- MCx - non-NVC neutral small-sedge mire. One flush emerging mid-way down the northwest slope (by the Site boundary) where it is surrounded by acidic vegetation; its neutral status implies that at least part of its water source is from the underlying rock, offsetting the surface acidity. It is classified as highly groundwater dependent.
- M15a wet heath, the *Carex panicea* sub-community. The flushed heath area at the bottom of the eastern slope (c.100 m east of the Site boundary) contains several species indicative of calcareous influence. It is surrounded by acidic vegetation, implying that at least part of its water source is from the underlying rock, offsetting the surface acidity. It is classified as moderately groundwater dependent.

### Species

#### Plants

6.6.51 Autumn gentian (*Gentianella amarella* subsp. *septentrionalis*) was recorded on gravelly verges of the public road in the NVC survey (see **Appendix 6.2**).

#### Otter

6.6.52 No evidence of otter was recorded within the Site boundary in the 2021 survey. As detailed in **Appendix 6.3**, evidence was recorded along the shoreline north and northeast of the Site; this comprised spraints and feeding remains only. No holt or other resting places were identified. No evidence was found on the loch southwest of the Site, and although otters may move along the Site’s watercourses, they are unlikely to provide sufficient prey for a permanent presence.

#### Bats

6.6.53 Bat species are not known to roost on Shetland. A preliminary search of the NBN Gateway within the 10 km grid square (HU44) returned an old record of pipistrelle bat from 1979, listed as occurring in Lerwick. The Proposed Development will be located in an exposed, coastal site with no trees and structures within 500 m of the proposed turbine area that have the potential to support bat roosts. Therefore, bats are concluded to be absent from Site.

Reptiles and amphibians

6.6.54 Surveys have not been undertaken for reptiles or amphibians. No existing records are known from the Site or local area, but presence of common species cannot be ruled out.

Fish

6.6.55 Given the absence of major watercourses and standing water within the Site fish presence is unlikely.

Invertebrates

6.6.56 The 2011 Permitted Development ES noted existing records of the moth *Rhiogognostis senilella* 2.2 km from the Site. Given the distance and the fact that the moth larvae feed on rock-cress (*Anachis* spp) and dame's violet (*Hesperis matronalis*), which are unlikely to be present on-site, this moth species is concluded to be absent. No evidence of other notable invertebrates has been identified.

Other species

6.6.57 Badger (*Meles meles*), water vole (*Arvicola amphibius*), Scottish wildcat (*Felix sylvestris*) is not present on Shetland.

**Evaluation of Baseline Features**

6.6.58 **Table 6.8** below provides a summary of the level of importance of each of the recorded features.

**Table 6.8 – Summary of Evaluation of Ecological Features**

Feature	Rationale for Evaluation	Level of Importance
Loch of Tingwall and Asta SSSI	For designated sites, the value corresponds to the level of the designation.	National
Loch of Girsta SSSI		National
South Whiteness SSSI		National
Sandwater SSSI		National
M18 and M19 blanket mire (including M2 and M3 pools)	M18 and M19 align with the SBL priority habitat 'Blanket bog'. Blanket mire is widespread within the Site. As stated in <b>Appendix 6.2</b> , the majority of these habitats are in favourable condition.	Council
M6, MCx and M29 acid/neutral flush and spring	These habitats align with 'Upland flushes, fens and swamps' category, which is listed with a watching brief on the SBL. The Site's examples are generally poor examples of their NVC type.  The single MCx flush is a confirmed GWDTE.	MCx: Local M6 and M29: Less than local
M15 wet heath	M15 wet heath aligns with the 'Upland heathland' priority habitat on the SBL. Although of small extent, the areas of	Local

Feature	Rationale for Evaluation	Level of Importance
	M15 wet heath are in favourable condition. The flushed M15a <i>Carex panicea</i> sub-community is a confirmed GWDTE	
Marsh/marshy grassland comprising M23b rush-pasture, the <i>Juncus effusus</i> sub-community, M28 mire and UJe acid rush pasture	M23 can align with the SBL priority habitat 'Purple moor-grass & rush pastures' but occur as fragmented stands along old ditches within semi-improved fields and alongside the lower stretch of the Burn of Kebister. M28 aligns with 'Upland flushes, fens and swamps' category, which is listed with a watching brief on the SBL.	Less than local
H12 dry dwarf shrub heath	H12 aligns with the 'Upland heathland' priority habitat on the SBL. Widespread within the Site and in favourable condition.	Council
U4, U5 and U6 acid grassland	U5 and U6 align with communities on the SBL but they are listed with a watching brief only. The U6 is concluded not to be groundwater dependent. U4 grassland is not a conservation priority.	Less than local
MC2 rock-crevice community	Although it has a patchy distribution and varying diversity, MC2 aligns with the SBL priority habitat 'Maritime cliff and slopes'.	Local
MC9 maritime grassland	A narrow strip of cliff-top grassland on the west side of the Vatsland peninsula. This grassland also aligns with the SBL priority habitat 'Maritime cliff and slopes'.	Local
OV27a Rosebay willowherb stand	Disturbed ground within the fence of the recycling site. Not a conservation priority.	Less than local
Other terrestrial habitat - Bare ground including hard standing, recolonising peat, recolonising sub-soil, road verges and rock cuttings	Not conservation priorities.	Less than local
Standing water	Loch of Kebister is located off the south-western Site boundary. Aligns with the SBL Priority habitat	Loch of Kebister: Council



Feature	Rationale for Evaluation	Level of Importance
	'Oligotrophic and dystrophic lakes'. It also aligns with the LBAP 'Freshwater' priority habitat. The artificial pond does not align with conservation priorities.	Artificial pond: Less than local
Running water	The Burn of Kebister aligns with the SBL priority habitat 'Rivers' although it is very small and flows underground in places. Smaller, un-named unnamed watercourses that run through the Study Area do not align with conservation priorities.	Burn of Kebister: Local Other watercourses: Less than local
Autumn gentian	The subspecies is endemic to Britain and classed as 'Near Threatened' (Cheffings and Farrell, 2005). Not present within the Site but occurs along the public road.	Council
Charlock	A species of arable or farmland habitat and not recorded on-site.	Less than local
Lesser trefoil	Not recorded on-site.	Less than local
European otter	Otter is an EPS and is a priority species on the SBL. Although no holts or hovers were recorded within the Study Area, evidence of otter was recorded within the Site. The species is known to be present in the local area, and otters could on occasion move between watersheds either side of the Study Area.	Local
Bats	Not likely to be present on-site.	Less than local
Reptiles and amphibians	Some common species could be present on-site but the absence of aquatic habitat for breeding amphibians and terrestrial habitats for non-breeding amphibians and reptiles suggest that significant populations are unlikely to be present	Less than local
Fish	Species of conservation interest are not likely to be present on-site.	Less than local
Invertebrates	Species of conservation interest are not likely to be present on-site.	Less than local

## ***Changes in Baseline since the 2011 Environmental Statement***

### **Nature conservation designations**

6.6.59 No change with regards to designated non-avian ecological interest.

### **Habitats**

6.6.60 The 2011 Permitted Development ES classed the bog within the Site as wet modified bog, which generally contains a low cover of active bog-forming species and contains more acid grassland species. As mentioned above, a flat area of M19b just north of the Loch of Kebister still includes a high inclusion of acid grassland species and herbs growing through, but elsewhere habitats appear to have recovered in the intervening time, thus causing the change in classification to blanket mire. The 2021 NVC survey also recorded habitats that were not identified in 2011, including maritime cliff and slopes as well as upland flushes, fens and swamps.

### **Species**

6.6.61 No new protected or otherwise notable species were recorded during the 2021 surveys.

### ***Impacts Scoped Out of Assessment***

6.6.62 Ecological features of local or higher importance are considered IEFs in the assessment. However, not all IEFs are susceptible to impacts from the proposed development.

6.6.63 Specifically for habitats, adverse impacts will include direct losses, e.g. permanent land-take for turbine foundations and other infrastructure, temporary land-take for the construction-site compounds as well as temporary disturbance of habitats within and adjacent to works areas and at the temporary construction compound, as well as indirect adverse drying impacts on wetlands through changed hydrological conditions, notably drainage. The assessment assumes a temporary disturbance zone of 10 m around works areas during construction and similarly a 10 m zone across which wetland habitat may experience drying during operation, although it should be noted that drying effects may not extend throughout the whole 10 m zone and that some areas could also get wetter, e.g. owing to pooling. In both cases, effects are likely to be a modification of habitat rather than its complete loss. For clarity, Table 6.9 presents the areas of habitat loss by habitat type, including non-IEFs. IEFs are marked with an asterisk. The habitat loss areas shown in Table 6.9 are in the absence of mitigation, for example micro-siting.

**Table 6.9 – Summary of Effects on Habitats**

<b>Broad Habitat</b>	<b>NVC Community / other Type</b>	<b>Permanent Loss (ha)</b>	<b>Indirect Construction Effects (10 m) (ha)</b>	<b>Operational Drying Effects (10 m Buffer) (ha)</b>
Blanket mire	M2 bog pool*	0.02	0.08	0.08
	M3 bog pool*	0	0	0
	M18 mire*	0	0	0
	M19a blanket mire*	0.40	0.66	0.66
	M19b blanket mire*	0.24	0.38	0.38
Flush	M6 mire (no sub-community identified)	0	0	0
	M6c mire	0	0.001	0.001
	M29 soakway	0	0	0

Broad Habitat	NVC Community / other Type	Permanent Loss (ha)	Indirect Construction Effects (10 m) (ha)	Operational Drying Effects (10 m Buffer) (ha)
	MCx sedge mire*	0	0	0
Wet dwarf shrub heath	M15a wet heath*	0	0	0
	M15b wet heath*	0	0	0
Marsh / marshy grassland	M23b rush-pasture	0	0	0
	M28 mire	0	0	0
	UJe acid rush pasture	0	0.003	0.003
Dry dwarf shrub heath	H12a heath*	0.09	0.20	n/a
	H12c heath*	0.08	0.20	n/a
Acid grassland	U4a grassland	0	0.01	n/a
	U4b grassland	0	0	n/a
	U5 grassland (no sub-community identified)	0.12	0.14	n/a
	U6 grassland (including both the U6a and U6d sub-communities)	0.01	0.08	0.08
Rock / boulders above high tide mark	MC2 maritime rock-crevice community*	0	0	0
Coastal grassland	MC9 maritime grassland*	0	0	0
Tall herbs	OV27a rosebay willowherb stand	0	0	0
Other terrestrial habitat	Recolonising peat	0.04	0.09	0.09
	Recolonising sub-soil	0	0	0
	Bare ground including hard standing	n/a	n/a	n/a
	Exposed rock cutting	0	0	n/a
Standing water	Loch of Kebister*	0	0	0
	Artificial pond	0	0	0
Running water	Burn of Kebister*	0	0	0
	Other watercourses	0	0	0
<b>Total</b>		<b>1.0</b>	<b>1.84</b>	<b>1.29</b>

6.6.64 **Table 6.10** below provides a rationale for scoping individual IEFs in or out of the assessment.

**Table 6.10 – IEFs Scoped In or Out of the Assessment**

Feature	Level of Importance	Rationale	Scoped In/Out
Loch of Tingwall and Asta SSSI	National	Located over 3.8 km from the nearest proposed infrastructure and the designated loch habitat is not hydrologically connected to the Proposed Development.	Out
Loch of Girsta SSSI	National	Located over 6 km north of the nearest proposed infrastructure, and there is no connectivity between the designated interests and the Site.	Out
South Whiteness SSSI	National	Located 6 km west of the nearest proposed infrastructure. The physical separation by distance, roads, land and sea suggests a lack of connectivity between the designated habitat and species features and the Site.	Out
Sandwater SSSI	National	Located 9 km northwest of the nearest proposed infrastructure. The physical separation by distance, roads, land and sea suggests a lack of connectivity between the designated habitat features and the Site.	Out
M18 and M19 blanket mire (including M2 and M3 pools)	Council	Present within the Site. M19 will be impacted by the Proposed Development. A very small area of M2 is predicted to be lost, however this will be avoided in practice through micro-siting (refer the standard mitigation set out in Section 6.7). M3 and M18 (which is >50 m from the nearest infrastructure)	M2 and M19: In M3 and M18: out

Feature	Level of Importance	Rationale	Scoped In/Out
		will not be impacted (see Table 6.9).	
MCx flush	Local	Located over 250 m from any proposed deep excavation or 100 m from shallow excavations (the distances within which SEPA (2017) considers impacts to be possible).	Out
M15 wet heath	Local	Present within the Site but over 90 m from the nearest proposed infrastructure and will not be impacted by the Proposed Development (see Table 6.9).	Out
H12 dry dwarf shrub heath	Council	Present within the Site and will be impacted by the Proposed Development (see Table 6.9).	In
MC2 rock-crevice community	Local	Not present within the Site and will not be impacted by the Proposed Development (see Table 6.9).	Out
MC9 maritime grassland	Local	Not present within the Site and will not be impacted by the Proposed Development (see Table 6.9).	Out
Standing water	Council	Over 775 m from the Proposed Development and not likely to be directly impacted or indirectly impacted through sedimentation or pollution events draining into the habitat.	Out
Burn of Kebister	Local	Over 200 m from the Proposed Development and not likely to be directly impacted or indirectly impacted through sedimentation or pollution	Out

Feature	Level of Importance	Rationale	Scoped In/Out
		events draining into the habitat.	
Autumn gentian	Council	Not present within the Site and will not be impacted by the Proposed development.	Out
European otter	Local	Occurs on the coast but not within the Site itself. No resting places identified. However, to minimise the risk of any wildlife offences occurring related to individual animals, mitigation is proposed in Section 6.7.	Out

## 6.7 Standard Mitigation

### ***Embedded mitigation***

6.7.1 The following considerations have been taken into account in the iterative design of the Proposed Development, considered as embedded mitigation:

- A 50 m buffer has been maintained around all surface watercourses identified in OS 1:25k mapping.
- The deepest areas of peat have been avoided through Stage 1 and Stage 2 peat surveys informing design iterations, in consideration of other constraints such as topography.
- Floating tracks have been used where topography will allow to reduce the amount of peat excavation required.
- Existing infrastructure has been reused as far as practicable.

### ***Good Practice Mitigation***

6.7.2 In line with the current CIEEM guidelines, the assessment of likely effects is carried out in the presence of standard mitigation measures. In the event of planning permission being granted, this mitigation will be implemented as part of the Proposed Development. The following good practice and mitigation measures will be applied to the Proposed Development during construction to ensure that likely effects on the IEFs and legally protected species are reduced:

- A suitably qualified Ecological Clerk of Works (EcoW) will be appointed prior to the commencement of any construction activities take place. The EcoW will be present and oversee construction activities, identify appropriate exclusion zones around sensitive features (e.g. mire and heath), provide toolbox talks to all Site personnel with regards to priority species and habitats, as well as undertaking monitoring works and briefings to relevant staff and contractors as appropriate.
- Avoidance of direct impacts to/loss of habitat identified as M2 bog pools will be achieved through micro-siting, under the direction of the EcoW.

- Development of an otter-specific protection plan inclusive of:
  - Pre-construction survey to update the baseline with regards to otter within 200 m of works areas.
  - Cap any exposed pipe systems when not being worked and provide exit ramps for any exposed trenches or excavations (to prevent otters entering and becoming trapped).
  - Driver awareness and 10 mph speed controls within works areas to limit the risk of road traffic accident mortality.
  - Implementation of an exclusion zone of at least 30 m to be implemented around any new holt or resting place.
- In order to prevent impacts on watercourses with particulate matter or other pollutants such as fuel, best practice pollution prevention techniques will be employed.
- Full details of construction mitigation measures will be provided in a Construction Environmental Management Plan (CEMP) to be agreed with SIC, in consultation with NatureScot and SEPA, post-determination but prior to development commencing.

## 6.8 Potential Effects

### **Construction**

#### **Blanket mire (M2 and M19)**

- 6.8.1 Both direct and indirect adverse effects are likely on blanket mire during the construction phase, although as noted in Section 6.7 above, direct impacts on M2 bog pools will be avoided through micro-siting, under the direction of the ECoW. There will be a direct loss of blanket mire habitat during construction of the Proposed Development and indirect losses from temporary construction disturbance.
- 6.8.2 Blanket mire within the Study Area covers the bulk of the moorland area, particularly on the higher ground. M19 is an Annex I habitat and all are SBL priority habitats. In the 3<sup>rd</sup> UK Habitats Directive Report (JNCC, 2019) the conservation status of blanket bog status is listed as 'Bad' and 'Declining' at the UK level. The corresponding Scottish report (SNH 2013) does not include an assessment specifically for Scotland.
- 6.8.3 Scotland has an estimated 1,759,000 ha of blanket bog (SNH 2013). Blanket mire accounts for 44.62 ha of the Site, of which 0.94 ha is M2 mire, 19.52 ha is M19a and 22.95 ha is M19b.
- 6.8.4 Based on recent NatureScot guidance on peatland, carbon-rich soils and priority peatland habitats, the M2 and M19 blanket mire habitat recorded within the Study Area is considered to be priority peatland habitat.
- 6.8.5 As shown in **Table 6.9**, a total of 0.66 ha will be directly and permanently lost to the Proposed Development infrastructure, representing 1.47% of the blanket mire within the Site. This direct loss is of a small extent in the local and regional context. In addition to direct loss, there may also be indirect losses associated with construction disturbance, although these are likely to be reversible in the short term. If, as a worst-case scenario, impacts were fully realised out to 10 m in all areas of blanket mire, this would result in an additional loss of 1.12 ha blanket mire, thus increasing the overall predicted lost or disturbed habitat to 1.78 ha or 3.98% of the blanket mire within the Site. However, the adoption of standard good practice and environmental management techniques are likely to reduce the magnitude of these temporary impacts, e.g. through the ECoW implementing 'no-go areas' around habitat of particular interest.
- 6.8.6 The direct losses to the Proposed Development, as well as the temporary construction disturbance, are considered to constitute a **minor** adverse effect on blanket mire and is not significant under the EIA Regulations.

### **Dry dwarf shrub heath (H12)**

- 6.8.7 Both direct and indirect adverse effects are likely on dry dwarf shrub heath during the construction phase. There will be a direct loss of habitat during construction of the Proposed Development and indirect losses through temporary construction disturbance.
- 6.8.8 H12 is listed as an Annex 1 habitat and is an SBL priority habitat. It is found on steeper slopes throughout the study area. It is also present in smaller patches on areas of raised ground and on some raised banks alongside channels and runnels (both wet and dry) – these are locations where the peat is either shallower or is more freely draining.
- 6.8.9 Dry dwarf shrub heath accounts for 14.12 ha of the Site, of which 9.47 ha is H12a and 4.65 ha is H12c. A total of 0.17 ha will be directly lost to the Proposed Development infrastructure (Table 6.9). Direct habitat loss due to permanent infrastructure is therefore predicted to be at most 1.20% of the dry dwarf shrub heath within the Site. There will also be indirect effects from construction disturbance amounting to 0.4 ha, thus increasing the overall predicted lost or changed habitat to 0.57 ha or 4.0% of the dry heath within the Site. However, the adoption of standard good practice and environmental management techniques are likely to reduce the magnitude of these temporary impacts, e.g. through the ECoW implementing ‘no-go areas’ around habitat of particular interest.
- 6.8.10 The direct losses to the Proposed Development, as well as the temporary construction disturbance, are considered to constitute a **minor** adverse effect on dry heath and is not significant under the EIA Regulations.

### **Operation**

#### **Blanket mire (M2 and M19)**

- 6.8.11 Indirect adverse effects are likely on blanket mire, during the operational phase.
- 6.8.12 Blanket mire accounts for 44.62 ha of the Site, of which 0.94 ha is M2 mire, 19.52 ha is M19a and 22.95 ha is M19b.
- 6.8.13 As shown in **Table 6.9**, in a worst-case scenario a total of 1.12 ha of blanket mire will be subject to drying around infrastructure if impacts extend out to 10 m in all areas of blanket mire. This area represents 2.51% of the blanket mire within the Site. However, effects are likely to operate on a much smaller scale. In addition, drainage impacts are very unlikely to result in the entire blanket bog resource suffering drying impacts leading to habitat change, as drying impacts may not be significant enough to facilitate such change in some areas, and because other areas may have water diverted to them.
- 6.8.14 The drying impact on blanket mire during operation of the Proposed Development are considered to constitute a **minor** adverse effect on blanket mire and is not significant under the EIA Regulations.

#### **Dry dwarf shrub heath (H12)**

- 6.8.15 Dry heath is by definition not vulnerable to drying effects. Therefore, drying impact on dry heath during operation of the Proposed Development are considered to have **no impact** on the habitat and is not significant under the EIA Regulations.

### **Decommissioning**

- 6.8.16 In the event of decommissioning, or replacement of turbines, it is anticipated that the levels of effect would be similar but of a lesser level than those during construction. Decommissioning would be undertaken in line with best practice processes and methods at that time and will be managed through an agreed Decommissioning Environmental Management Plan.



## 6.9 Additional Mitigation & Biodiversity Enhancement

- 6.9.1 Although no significant adverse effects have been identified, which would require additional mitigation measures to reduce or avoid, some additional measures are nonetheless defined for the construction and operational phases within the CEMP documentation and Peat Management Plan (PMP), to appropriately protect ecological and peat receptors during the construction of the Proposed Development.
- 6.9.2 Additionally, in line with the current policy requirement to demonstrate that the proposal will conserve, restore and enhance biodiversity, habitat management measures are proposed during the construction phase as part of the PMP, as well as during the operational phase as part of a Biodiversity Enhancement Plan (BEP), provided in outline as **Appendix 6.4**.
- 6.9.3 The additional mitigation and biodiversity enhancement measures are detailed below:
- Construction phase:
    - Site run-off will be intercepted and treated according to SEPA PPG guidelines. The CEMP will include measures to prevent sedimentation of watercourses and reduce potential for pollution incidents and provision of spill kits.
    - An Outline PMP has been produced, which sets out the re-use of on-site peat as far as reasonably practicable and to provide suitable restoration, landscaping and repair/reprofiling of local hag features to improve peatland habitat and hydrological function (**Appendix 11.2**)
  - Operation phase:
    - An Outline BEP has been produced (**Appendix 6.4**), which sets out the objectives and measures for protection, reinstatement and re-creation of blanket mire habitats within the a 92.71 ha Habitat Management Area, inclusive of the following:
      - Measures to minimise disturbance to habitats;
      - Restoration of areas of disturbed habitat during construction;
      - Restoring, enhancing and managing areas of blanket bog habitats that show signs of degradation and erosion, through local slope reprofiling, seeding, damming and use of turves;
      - Converting areas of acid grassland to blanket bog, through the exclusion/reduced levels of grazing and seeding; and
      - Installing wildlife friendly features to support locally important species.
    - Peatland management and monitoring of habitats will continue into the operational phase as set out in the PMP (**Appendix 11.2**) and OBEP (**Appendix 6.4**).

## 6.10 Residual Effects

- 6.10.1 With the implementation of the additional measures listed in Section 6.9, principally implementation of the PMP and BEP, beneficial effects on habitats and the biodiversity of the Site and Study Area will be realised. Residual effects on blanket mire, dry heath, invertebrates and bumblebees are assessed as beneficial effects of minor to moderate significance in EIA terms. Ongoing monitoring will be carried out as set out in the OBEP, to ensure that biodiversity at the Site and Study Area is, over time, in a demonstrably better state than it would be in the absence of the Proposed Development.

## 6.11 Comparison of Effects

- 6.11.1 The 2011 Permitted Development was assessed as having no anticipated significant adverse impacts on the only valued ecological receptor, wet modified bog. No enhancement measures were proposed and therefore no beneficial effects were predicted.
- 6.11.2 Therefore, based on the assessment in section 6.10 above, in comparison with the 2011 Permitted Development, the Proposed Development represents an improvement from low magnitude (not significant) adverse effects, to beneficial effects of minor to moderate significance.

## 6.12 Assessment of Cumulative Effects

- 6.12.1 The main reason for assessing cumulative impacts is to identify whether effects, which may not be significant from individual developments, are likely to be significant when combined with nearby existing or proposed schemes. The main projects likely to cause similar impacts to those associated with the Proposed Development are other operational wind farms, those under construction or those for which planning permission has been granted. Several other wind farms are present within the wider area, in planning, under construction and operational.
- 6.12.2 Wind farm projects at the scoping stage have been scoped out of the Cumulative Assessment because they generally do not have sufficient information on likely impacts to be included, as the baseline survey period is ongoing, or results have not been published. Projects that have been refused or withdrawn have also been scoped out.
- 6.12.3 It should be noted that there is no published NatureScot guidance for cumulative impact assessment on terrestrial ecological receptors. NatureScot guidance is confined to landscape and visual impacts and to those affecting birds. The key principle of NatureScot's cumulative impact assessment guidance (SNH, 2012) for birds is to focus on any significant effects and, in particular, those that are likely to influence the outcome of the planning process. Application of the outlined principles to terrestrial ecological features leads to a focus on the likely cumulative impacts to the Proposed Development's IEFs.
- 6.12.4 At time of writing (June 2023), there are a number of wind farms projects in Shetland to take into consideration. However, due to the limits of connectivity between terrestrial ecological features, this assessment has considered a 10 km radius to be appropriate, but excluding developments located on islands other than the Shetland Mainland. In addition, single turbines close to the Proposed Development have been included in the assessment. The installations considered for this cumulative assessment were therefore limited to those listed in **Table 6.12**.

**Table 6.12 – Schemes included in the Cumulative Assessment**

Site Name	Status	Number of Turbines	Height to Blade Tip	Distance and Direction from the Site
2011 Permitted Development	Operational	1	121 m	adjacent
Mossy Hill	Planning permission granted	12	145 m	1.4 km southwest
Hoo Field	Part-built, planning permission granted	2	77 m	1.7 km south
Burradale	Operational	5	70 m	3.8 km southwest
Viking	Planning permission granted	103	155 m	10 km northwest

- 6.12.5 The assessment for the 2011 Permitted Development predicted no significant effects on the only valued ecological receptor, wet modified bog. Only one of the then permitted turbines (i.e. the Operational Turbine) was constructed. In the time since, the modified bog appears to have undergone some recovery and most of it is now blanket mire.
- 6.12.6 The Mossy Hill, Hoo Field and Viking assessments all concluded no significant adverse residual effects.
- 6.12.7 Because residual effects on blanket mire and dry heath are predicted to be minor to moderate beneficial in the present assessment, no significant cumulative effects are predicted.

### ***Comparison of Cumulative Effects***

- 6.12.8 There have been no significant cumulative effects anticipated related to the Proposed Development. Similarly, no significant cumulative effects were identified from the 2011 Permitted Development

## **6.13 Conclusion**

- 6.13.1 An assessment of terrestrial ecology effects arising from the construction and operation of the Proposed Development has been undertaken, based on an ecological desk study and field surveys.
- 6.13.2 Through a standardised evaluation method, Important Ecological Features (IEFs) were identified and brought forward for assessment. IEFs identified, and taken forward for assessment, include blanket mire dry dwarf shrub heath.
- 6.13.3 In the absence of any additional mitigation or enhancement measures, predicted construction phase effects were assessed as being minor adverse and not significant for both blanket mire and dry heath. Predicted operation phase effects were also assessed as being minor adverse and not significant for blanket mire, with no impact predicted for dry heath.
- 6.13.4 In line with the current policy requirement to demonstrate that the proposal will conserve, restore and enhance biodiversity, habitat management measures are proposed during the construction phase as part of a Peat Management Plan (PMP) as well as during the operational phase as part of an Outline Biodiversity Enhancement Plan (OBEP). The OBEP sets out proposals for restoring, enhancing and managing areas of blanket bog habitats that show signs of degradation and erosion, as well as converting areas of acid grassland to blanket bog, and installing wildlife friendly features to support locally important species.



- 6.13.5 Taking account of the enhancement measures to be delivered through implementation of the OBEP, residual effects for the operation phase are considered to be minor to moderate beneficial.
- 6.13.6 Likely cumulative effects of nearby developments, include the Operational Turbine on-site, as well as Mossy Hill, Hoo Field, Burradale and Viking wind farms. No significant cumulative effects are predicted.
- 6.13.7 Refer to **Table 6.13** and **6.14** for a summary of the assessment.

**Table 6.13 – Summary of Effects**

Description of Effect	Significance of Potential Effect		Mitigation Measure	Significance of Residual Effect		Comparison in Residual Effect Significance from 2011 Permitted Development
	Significance	Beneficial/ Adverse		Significance	Beneficial/ Adverse	
<b>Construction</b>						
Loss and disturbance of blanket mire	Minor and not significant	Adverse	Implementation of CEMP Implementation of BEP	Minor to moderate	Beneficial	Change from an adverse to a beneficial effect
Loss and disturbance of dry heath	Minor and not significant	Adverse	Implementation of CEMP Implementation of BEP	Minor	Beneficial	Change from an adverse to a beneficial effect
<b>Operation</b>						
Drying effect on blanket mire	Minor and not significant	Adverse	Implementation of PMP and BEP	Minor to moderate	Beneficial	Change from no effect to a beneficial effect
Drying effect on dry heath	No impact and not significant	N/A	Implementation of PMP and BEP	Minor	Beneficial	Change from no effect to a beneficial effect

**Table 6.14 – Summary of Cumulative Effects**

Receptor	Effect	Cumulative Developments	Significance of Cumulative Effect		Comparison in Residual Effect Significance from 2011 Permitted Development
			Significance	Beneficial/ Adverse	
Blanket mire	Loss and drying of habitat  Habitat recovery (BEP)	Operational Turbine, Mossy Hill, Hoo Field, Burradale and Viking	Minor	Beneficial	No change in significance
Dry heath	Loss of habitat  Habitat recovery (BEP)	Operational Turbine, Mossy Hill, Hoo Field, Burradale and Viking	Minor	Beneficial	No change in significance

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