

Chapter 9: Ornithology

Contents

9.1	Executive Summary	9-1
9.2	Introduction	9-1
9.3	Legislation, Policy and Guidelines	9-2
9.4	Consultation	9-3
9.5	Assessment Methodology and Significance Criteria	9-5
9.6	Baseline Conditions	9-10
9.7	Standard Mitigation	9-12
9.8	Receptors Brought Forward for Assessment	9-14
9.9	Potential Effects	9-16
9.10	Additional Mitigation and Enhancement	9-16
9.11	Residual Effects	9-16
9.12	Cumulative Assessment	9-16
9.13	Summary	9-17
9.14	References	9-17

9 Ornithology

9.1 Executive Summary

- 9.1.1 This chapter considers the potential significant effects on important ornithological features associated with the construction and operation of the Proposed Development.
- 9.1.2 The assessment is based upon comprehensive baseline data, comprising specifically targeted ornithological field surveys of important and legally protected ornithological features identified during desk study and consultation feedback. It draws on pre-existing information, where appropriate, from other studies, survey data sources and is based on standard Environmental Impact Assessment (EIA) guidance published by the Chartered Institute of Ecology and Environmental Management (CIEEM) and NatureScot.
- 9.1.3 A full year of ornithology surveys were carried out to support the application, as agreed through consultation with NatureScot. Surveys consisted of Vantage Point (VP) flight activity surveys, moorland breeding bird surveys, Annex 1 and Schedule 1 breeding raptor and owl searches and breeding black grouse searches.
- 9.1.4 The site (and adjacent habitats) support inconsequential numbers of ornithology species regarded as 'target species', as evidenced from baseline surveys (and desk study records). Standard mitigation adopted will include embedded mitigation through Proposed Development design (avoidance), good practice control measures including production of a breeding bird protection plan (BBPP), pre-clearance surveys and appointment of an Ecological Clerk of Works (ECoW) to oversee the implementation of the ornithology mitigation measures. Following the application of the proposed mitigation, no significant adverse direct and/or indirect effects on ornithological features are anticipated as a result of the Proposed Development. Habitat enhancement opportunities detailed in an outline Nature Enhancement Management Plan (NEMP) will also be implemented.

9.2 Introduction

- 9.2.1 This chapter considers the potential significant effects on important ornithological features associated with the construction and operation of the Proposed Development.
- 9.2.2 The assessment is based upon comprehensive baseline data, comprising ornithological field surveys of important and legally protected ornithological features identified during desk study and consultation feedback. It draws on pre-existing information, where appropriate, from other studies, survey data sources and is based on the 'Guidelines for Ecological Impact Assessment (EclA) in the United Kingdom' (CIEEM, 2018) and NatureScot's 'Environmental Impact Assessment Handbook' (formerly Scottish Natural Heritage (SNH), 2018a).
- 9.2.3 The specific objectives of the chapter are to:
- describe the ornithological baseline of the Proposed Development and associated study areas, to identify the ornithological features, which will be the focus of this assessment;
 - describe the assessment methodology and significance criteria used in completing the impact assessment;
 - evaluate the sensitivity of each ornithological feature;
 - describe the potential effects, including direct, indirect and cumulative effects;
 - describe the mitigation measures proposed to avoid, reduce and offset potential significant adverse effects; and
 - assess the significance of residual effects remaining following the implementation of mitigation.
- 9.2.4 The assessment has been carried out by Avian Ecology Ltd. Lead author: Dr Colin Bonnington DPhil MSc BSc (Hons) FBNA FLS MRSB MCIEEM, Principal Ecologist, with support from Mr Howard Fearn MSc MCIEEM, Director. Dr Bonnington and Mr Fearn have over 12 and 22 years' experience respectively as professional ecologists, specialising in renewable energy developments. Both Dr Bonnington and Mr Fearn have contributed to, and led on, many large-scale renewable energy projects in Scotland, including numerous wind energy projects.
- 9.2.5 This chapter is supported by the following figures and technical appendices:
- Figure 9.1: Statutory Designated Sites for Nature Conservation with Ornithological Interest.
 - Figure 8.2: Non-Statutory Designated Sites for Nature Conservation Interest.

- Figure 9.2: Desk Study Records.
- Figure 9.3: Vantage Point and Viewsheds Plan.
- Figure 9.4: Breeding Bird Survey Areas.
- Figure 9.5: VP Results – Target Species Flight Activity.
- Figure 9.6: Moorland Breeding Bird Survey (MBBS) Results.
- Confidential Figure 9.2.1: Black Grouse Lek Survey Records (Sensitive).
- Confidential Figure 9.2.2: Desk Study Records (Sensitive).
- Technical Appendix 9.1: Ornithology.
- Confidential Technical Appendix 9.2: Ornithology (Sensitive).

9.2.6 Figures and technical appendices are referenced in the text where relevant.

9.2.7 The site is defined by the red line site boundary shown on Figures 9.1 to 9.6.

9.3 Legislation, Policy and Guidelines

Legislation

9.3.1 Relevant legislation and guidance documents have been reviewed and taken into account as part of this ornithology assessment. Of particular relevance are:

- Conservation of Habitats and Species Regulations 2017, as amended in Scotland by the Conservation (Natural Habitats, &c.) (EU Exit) (Scotland) (Amendment) Regulations 2019 (collectively 'the Habitats Regulations').
- Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017.
- Nature Conservation (Scotland) Act 2004.
- Wildlife and Countryside Act 1981 (as amended).
- Wildlife and Natural Environment (Scotland) Act 2011.
- Implications of additional protection for hen harrier (*Circus cyaneus*), red kite (*Milvus milvus*) and golden eagle (*Aquila chrysaetos*) under schedules A1 & 1A of the Wildlife and Countryside Act (1981).

Planning Policy

9.3.2 Planning policy relevant to the Proposed Development is detailed in Chapter 4. National policy (National Planning Framework 4, Scottish Government, 2023) published in February 2023, is considered in this chapter particularly with reference to Policy 3, which concerns protection and enhancement of biodiversity. Relevant policies (from the Scottish Borders Local Development Plan, adopted in 2016) to the Ornithology assessment are LDP policies within the *Environmental Promotion and Protection (EP)* which are summarised below:

- Policy EP1: International Nature Conservation Sites and Protected Species. The aim of this policy is to give designated or proposed Natura sites, Ramsar sites and sites where there is the likely presence of European Protected Species (EPS) protection from potentially adverse development. As part of the Habitats Regulations Appraisal (HRA) where a proposal could have a likely significant effect on a Natura site, an appropriate assessment will be required to demonstrate that the proposal will not affect the integrity of the site. If there is evidence that an EPS is present on-site, or may be affected by a proposed development, their presence must be established and any likely impact on the species fully considered prior to the determination of the planning application.
- Policy EP2: National Nature Conservation and Protected Species. The aim of this policy is to protect nationally important nature conservation sites and protected species. The sites and protected species are defined under the Wildlife and Countryside Act 1981 as amended and the Protection of Badgers Act 1992 as amended. Any development which directly or indirectly effects nationally important sites like Sites of Special Scientific Interest (SSSI) and National Nature Reserves (NNR) would require mitigation measures of an appropriate nature to compensate for damage, and this may be required either on- or off-site.
- Policy EP3: Local Biodiversity. The aim of the policy is to safeguard and enhance local biodiversity.

9.3.3 The Scottish Biodiversity List (SBL) 2020 and Scottish Borders Local Biodiversity Action Plan (2018-2028) are also considered in the assessment, where applicable.

Guidance

- 9.3.4 The interpretation of baseline ornithological information and this assessment has made reference to the following key pieces of guidance:
- Developing Field and Analytical Methods to Assess Avian Collision Risk at Wind Farms (Band et al., 2007).
 - Natural Heritage Zone Bird Population Estimates (Wilson et al., 2015).
 - Assessing Connectivity with Special Protection Areas (SNH, 2016a).
 - Environmental Statements and Annexes of Environmentally Sensitive Bird Information: Guidance (SNH, 2016b).
 - Guidelines for Ecological Impact Assessment in the UK and Ireland. Terrestrial, Freshwater, Coastal and Marine' (CIEEM, 2018).
 - Recommended Bird Survey Methods to Inform Impact Assessment of Onshore Wind Farms (SNH, 2017).
 - Assessing the Cumulative Impacts of Onshore Wind Farms on Birds (SNH, 2018b).
 - Assessing the Significance of Impacts from Onshore Wind Farms Outwith Designated Areas (SNH, 2018c).
 - Birds of Conservation Concern 5 (BoCC) (Stanbury et al., 2021).
 - Disturbance Distances Review: An updated literature review of disturbance distances of selected bird species (Goodship and Furness, 2022).
- 9.3.5 Additional sources of guidance and peer-reviewed literature have also been referred to during the interpretation of baseline ornithological information for the purposes of this assessment, and is referenced to where appropriate.

9.4 Consultation

9.4.1 Table 9.1 provides details of consultations undertaken with relevant regulatory bodies, together with action undertaken by the Applicant in response to consultation feedback, relevant to ornithology. Note, responses were not returned from some consultees, and these are accordingly omitted from Table 9.1.

Table 9.1 – Consultation

Consultee and Date	Consultation Response	Applicant Response
NatureScot (29 March 2022) – Pre-scoping correspondence to agree on survey scope.	<p>In agreement with scope of surveys.</p> <p>Follow guidance and explain the reasoning for any divergence from that.</p> <p>If during the surveys, it is apparent that the scope needs to be reviewed, then get back in touch to discuss.</p> <p>After one year of survey work is undertaken and reviewed, consultant should provide an explanation as to why it is appropriate to rely on a single year of survey work to inform the assessment, and NatureScot would advise whether they are in agreement, or not.</p> <p>Available survey information for the Whitelaw Brae Wind Farm should be considered as part of the desk study.</p> <p>The South of Scotland Golden Eagle Project (SSGEP) should be contacted for relevant information.</p>	<p>Noted.</p> <p>Noted.</p> <p>Noted, not applicable.</p> <p>Noted, and further consultation with NatureScot undertaken on 19 April 2023 (see below), and it was agreed that one full year of ornithology surveys was appropriate for assessment.</p> <p>Noted, and has been considered (see Section 9.5 and Technical Appendix 9.1).</p> <p>The SSGEP were contacted for relevant information (see Section 9.5 and Technical Appendix 9.1).</p>
NatureScot (19 April 2023) – Pre-scoping correspondence to agree on one year of ornithology surveys being proportionate.	<p>In agreement that due to low levels of target species flight activity, and the narrow range and low number of breeding species identified, one year of survey data is likely sufficient to inform the EIA.</p> <p>The figure showing target species flights should have the Proposed Development turbines shown.</p>	<p>Noted, and assessment is based on one full year of ornithology surveys.</p> <p>Noted, included on Figure 9.5.</p>

Consultee and Date	Consultation Response	Applicant Response
RSPB Scotland (5 January 2023) - Scoping	<p>Flights of the different target species on the figure should be easily distinguishable.</p> <p>Advised that data request made to the Southern Upland Partnership (SUP) for black grouse (<i>Tetrao tetrix</i>) records.</p> <p>Advised that given surveys were ongoing at the time of scoping, black grouse, breeding waders (especially curlew <i>Numenius arquata</i>) and Annex 1 breeding raptors should remain scoped into assessment as part of the EIA.</p> <p>Given the site is within the southern Scotland black grouse population range advise that cumulative impact to black grouse is assessed at the regional level (NHZ 20) and based on its current range and status.</p> <p>Agreed that potential effects upon statutory designated sites with ornithological features of interest can be scoped out of the assessment.</p>	<p>Noted, see Figure 9.5.</p> <p>Noted, data request was subsequently made to SUP, and information gathered (see Technical Appendix 9.1, Confidential Technical Appendix 9.2, and Confidential Figure 9.8).</p> <p>Black grouse, breeding waders and Annex 1 breeding raptors have been considered in this chapter, but given the standard mitigation committed, (see Section 9.7) no significant effects on these ornithological features are anticipated and they are accordingly scoped out of detailed assessment.</p> <p>Given no significant effects on black grouse from the Proposed Development are anticipated, cumulative effects on black grouse are also accordingly scoped out (see Section 9.12).</p> <p>Noted, and such effects are scoped out.</p>
NatureScot (10 January 2023) - Scoping	<p>Scoping report comprehensive in approach to EIA.</p> <p>Bird surveys proposed and approach to assessment of impacts appears appropriate. However, given surveys ongoing it is not possible to agree to scope out all species listed and recommend black grouse, raptors and breeding waders are scoped in (in the absence of the full survey data).</p> <p>Nightjar, geese and swans can be scoped out of assessment given the known current distribution of nightjar (<i>Caprimulgus europaeus</i>), and given geese and swans are unlikely to be disturbed/displaced.</p> <p>Supported the identification of enhancement opportunities to be included within the EIA report.</p> <p>Noted the proposed species-specific approach of cumulative effects and rationale for this.</p> <p>(NatureScot) are compiling a dataset of ornithological risk records of target species at wind farms in NHZ 20, and stated that this information should be sought from the 'Southern Scotland' NatureScot team if required.</p> <p>Advised that it is the responsibility of the application to decide on whether survey work is sufficient to allow a robust assessment of</p>	<p>Noted.</p> <p>Noted. Black grouse, breeding waders and Annex 1 breeding raptors have been considered in this chapter, but given the standard mitigation committed, (see Section 9.7) no significant effects on these ornithological features are anticipated and they are accordingly scoped out of detailed assessment (see Section 9.8 for justification).</p> <p>Noted, and effects on these ornithological features are scoped out of assessment (see Section 9.8).</p> <p>Noted, see the Outline Nature Enhancement Management Plan (NEMP) as Technical Appendix 8.6, for further details.</p> <p>Noted. Given no significant effects on key ornithological features from the Proposed Development are anticipated (see Section 9.8), cumulative effects are also accordingly scoped out (see Section 9.12).</p> <p>Noted. This was gathered from the Southern Scotland NatureScot team, but it has not been used in any detailed assessment given no significant effects on target species are anticipated, with the adoption of standard mitigation (see Sections 9.7 and 9.8).</p> <p>Noted. Approach was agreed with NatureScot on 19 April 2023 (see above), given the desk study and</p>

Consultee and Date	Consultation Response	Applicant Response
	<p>impacts on birds, and where less than two years undertaken, appropriate justification should be clearly given in the EIA report.</p> <p>Contact with SUP regarding black grouse would be useful.</p> <p>Content that upland breeding bird assemblage feature of the Tweedsmuir Hills SSSI is scoped out of assessment.</p>	<p>field surveys revealed a very narrow range and number of target species on, or adjacent to, the site.</p> <p>Noted, and SUP were approached and information gathered (see Technical Appendix 9.1, Confidential Technical Appendix 9.2, and Confidential Figure 9.8).</p> <p>Noted, and such effects on the SSSI are scoped out (see Section 9.8).</p>
<p>Scottish Borders Council (7 March 2024) – Gatecheck Consultation</p>	<p>Recommended that in cumulative assessment local woodland creation schemes should also be considered in cumulative impact assessment with respect to effects on open ground-nesting birds.</p>	<p>Effects of open ground-nesting species (like wading species) from the Proposed Development are scoped out of assessment (see Section 9.8), and accordingly such accumulative effects are also scoped out.</p>

9.5 Assessment Methodology and Significance Criteria

- 9.5.1 The assessment presented within this chapter has been undertaken in accordance with CIEEM guidelines (CIEEM, 2018) and considers the following main potential impacts upon ornithological features associated with construction and operation of the Proposed Development:
- collision mortality – the risk of mortality resulting from collision or interaction with the turbines and/or other wind farm infrastructure; and
 - disturbance/displacement of species - disturbance and displacement of birds from the area occupied by the Proposed Development and surrounding areas as a result of the construction and operation of the Proposed Development.
- 9.5.2 The potential effects are considered as a result of the Proposed Development alone and cumulatively, in-combination with other wind farm developments.
- 9.5.3 CIEEM guidelines (2018) stipulate that it is not necessary to carry out a detailed assessment of impacts upon ornithological features that are sufficiently widespread, unthreatened and resilient to impacts of the Proposed Development.
- 9.5.4 As such, the assessment considers effects upon designated sites and ornithological features which are considered important on the basis of baseline information, relevant guidance, literature, professional judgement of the authors and opinions of statutory advisory bodies provided through consultations in relation to the Proposed Development and, where relevant, other wind farm developments.
- 9.5.5 Where ornithological features are not considered so important as to warrant a detailed assessment, or where they will not be significantly affected on the basis of baseline information (e.g. passerine species), these are 'scoped out' of the assessment. Mitigation measures for such features may however, still be outlined as appropriate to reduce and/or avoid any potentially adverse effects or to provide legislative compliance for breeding and roosting birds.

Study Area

- 9.5.6 Study areas, within which baseline information in relation to ornithological features has been obtained has comprised the site (Figure 9.1) and areas out to at least 500 m, extended up to 10 km for specific species. Field surveys have been carried out as per current NatureScot guidance (SNH, 2017) and as detailed in Technical Appendix 9.1.
- 9.5.7 The locations of statutory designated sites for nature conservation with ornithological qualifying interests have also been identified within 10 km of the site, extended to 20 km for internationally designated sites with migratory goose interests (note that there are no such sites out to 20 km, refer to Figure 9.1, which only shows out to 10 km given no such sites out to 20 km).
- 9.5.8 Full details of study areas adopted for desk study and field surveys are provided in Technical Appendix 9.1 and illustrated on Figures 9.1 to 9.6.
- 9.5.9 The study areas used have appropriately covered the developable areas within the site and adjacent habitats.
- 9.5.10 The Vantage Point (VP) flight activity study area, within which flight activity of target species has been recorded, included the Proposed Development turbine locations and areas out to 500 m of the site, as shown on Figure 9.3.

9.5.11 Species-specific study areas (see Figure 9.4) included the site, extended to:

- Moorland Breeding Birds Survey (MBBS) study area – 500 m of site boundary.
- Black grouse study area – 1.5 km of site boundary.
- Annex 1 and Schedule 1 raptors and owls study area – 2 km of site boundary.

Desk Study

9.5.12 In accordance with NatureScot guidance (SNH, 2017), a desk study has been undertaken to establish an overview of known and likely bird populations and designated sites in proximity to the Proposed Development, in order to identify known or likely target species and for which further survey may be required.

9.5.13 The desk study also included a review of designated sites within proximity to the Proposed Development and consultation with specialist recording groups for existing ornithological records as detailed in Technical Appendix 9.1. The study areas for the desk study are detailed in Technical Appendix 9.1 and are shown in Figure 9.2. Confidential records from the Lothian and Borders Raptor Study Group (L&BRSG), The Wildlife Information Centre (TWIC) and the Southern Uplands Partnership (SUP) are provided in Confidential Figure 9.8. Those sources contacted for desk study information were:

- Royal Society for Protection of Birds (RSPB);
- L&BRSG;
- TWIC;
- SUP; and
- South of Scotland Golden Eagle Project (SSGEP).

9.5.14 The desk study has also comprised a review of the NatureScot Sitelink website¹ to identify the proximity of the site to statutory designated sites.

9.5.15 EIA documentation for the consented Whitelaw Brae Wind Farm (Scottish Borders Council Planning Ref. Number: 15/00020/S36), located on open moorland c. 900 m south-west of the site has also been considered.

9.5.16 The following resources have been reviewed together with additional peer-reviewed literature and industry guidance referred to, where appropriate.

9.5.17 Full details of the desk study undertaken are provided within Technical Appendix 9.1, with accompanying Figure 9.2 and Confidential Figure 9.8.

Field Surveys

9.5.18 The following field surveys were undertaken:

- VP flight activity surveys (March 2022 to September 2023);
- MBBS (2022);
- breeding Annex 1 and Schedule 1 raptor and owl searches (2022); and
- breeding black grouse searches (2022).

9.5.19 Surveys have been undertaken in accordance with current NatureScot (SNH, 2017) guidance, agreed with NatureScot through consultation (see Table 9.1), with full details presented in Technical Appendix 9.1.

Target Species

9.5.20 Target species for survey and reporting consist of Annex 1 and Schedule 1 listed species and red-listed species on BoCC (Stanbury *et al.*, 2021), adopting a precautionary approach and with reference to NatureScot (SNH, 2017 and 2018c) guidance which details priority species for assessment at onshore wind farms.

9.5.21 Passerine species were not identified as target species for survey and recording and are not considered sensitive to wind farm developments (SNH, 2017 and 2018c). Observations of notable species e.g. those listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) during the MBBS were however recorded.

¹ <https://sitelink.nature.scot/home> (Accessed 15 March 2024).

9.5.22 Gulls and commoner species including buzzard (*Buteo buteo*), kestrel (*Falco tinnunculus*), sparrowhawk (*Accipiter nisus*), mallard (*Anas platyrhynchos*), grey heron (*Ardea cinerea*) and raven (*Corvus corax*), were also not identified as target species given their general widespread number and abundance but were recorded as secondary species during VP flight activity surveys.

Field Survey Personnel

9.5.23 All field surveys were completed by experienced, reputable, and professional ornithologists, fully conversant in established bird survey methodologies for proposed wind turbine developments.

9.5.24 Details of field surveyors are provided in Technical Appendix 9.1.

Assessment of Potential Effect Significance

9.5.25 The assessment has been undertaken in accordance with CIEEM guidelines (2018) and includes the following stages:

- determination and evaluation of important ornithological features;
- identification and characterisation of impacts;
- outline of mitigating measures to avoid and reduce significant impacts;
- assessment of the significance of any residual effects after such measures; and
- identification of appropriate compensation measures to offset significant residual effects.

9.5.26 The assessment has also considered (where relevant) effects on important ornithological features for the Proposed Development cumulatively with other developments, as described in sections 9.5.48 to 9.5.53.

Criteria for Assessing the Sensitivity of Features

9.5.27 Relevant European, national, and local guidance from governments and specialist organisations has been referred to in order to determine the sensitivity (or importance) of ornithological features. Reference has also been made to Annex 1 of NatureScot guidance (SNH, 2017) on key ornithological features when considering the development of onshore wind farms in Scotland and species with 'restricted ranges' potentially at risk of impacts from wind farms.

9.5.28 In addition, sensitivity has also been determined using professional judgement and taking account of the results of baseline field and desk study findings and the functional role of features within the context of the geographical area.

9.5.29 It should be noted that sensitivity, or importance does not necessarily relate to the level of legal protection that a receptor receives, and features may be important for a variety of reasons, such as their connectivity to a designated site, rarity, or the geographical location of species relative to their known range.

9.5.30 For the purposes of this assessment, the sensitivity or importance of an ornithological feature is considered in the context of a defined geographical area, ranging from International to Local, as detailed in Table 9.2.

Table 9.2 – Sensitivity / Geographic Scale of Ornithological Feature of Importance

Sensitivity / Geographical Scale of Importance	Definition
High - International/ National	Species listed on Annex 1 of the Birds Directive (2009/147/EC) and which comprise a qualifying interest of a potentially connected internationally statutory designated site for nature conservation i.e. SPA and/or Ramsar site. Nationally or internationally important numbers of a species, including regularly occurring migratory species listed on Annex II of the Birds Directive i.e. >1 % of the relevant national or international biogeographical population). Species not listed on Annex 1 of the Birds Directive but listed in Schedule 1 of the Wildlife and Countryside Act 1981 (as amended), and which comprise a qualifying interest of a potentially connected nationally designated site for nature conservation i.e. Site of Special Scientific Interest (SSSI).
Medium - Regional	Species not listed on Annex 1 of the Birds Directive, but listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) and which do not comprise a qualifying interest of a statutory designated site for nature conservation i.e. SPA, Ramsar site or SSSI. Regionally important numbers of a species i.e. >1 % of the relevant regional Natural Heritage Zone (NHZ) population or appropriate alternative and listed on Annex 1 of NatureScot guidance (SNH, 2018c).
Low – Local	All other species that are widespread and common and which are not present in regionally or nationally important numbers, but which form part of the breeding/wintering bird assemblage within the site.

Criteria for Assessing the Magnitude of Impact

- 9.5.31 Once identified, potential impacts are described making reference to the following characteristics as appropriate:
 - adverse or beneficial;
 - extent;
 - magnitude;
 - duration;
 - timing;
 - frequency; and
 - reversibility.
- 9.5.32 The assessment only makes reference to those characteristics relevant to understanding the nature of an impact and determining its magnitude. For the purposes of this assessment, the temporal nature of potential impacts are described as follows:
 - negligible: of inconsequential duration;
 - short-term: for 1-5 years;
 - medium-term: for 5-10 years;
 - long-term: >10-30 years; and
 - permanent: >30 years.
- 9.5.33 The criteria used to determine the magnitude of impacts are set out in Table 9.3.
- 9.5.34 It is important to note that, where reference is made to population level effects to assess magnitude (e.g. at the Regional NHZ population level), the most recently published population estimates used are considered to be guides.
- 9.5.35 In addition, it will often be impossible to equate an impact to an actual population loss. For example, where birds may be displaced from a wind farm site as a result of construction or operational activities, such a loss may be temporary or may reasonably result in the relocation of birds to suitable habitats elsewhere within the site, immediate or wider area. Where uncertainty arises, a precautionary approach has been adopted.
- 9.5.36 As such, professional judgement, on the basis of best available evidence, has been used to inform the assessment of impacts presented within.

Table 9.3 – Impact Magnitude

Magnitude	Definition
Very High	The impact (either on its own or in-combination with other proposals) may result in the permanent total or almost complete loss of a designated site and/or species status or productivity. Or alternatively notable gains in the species status or productivity. E.g. Affecting >80 % of the relevant Regional NHZ population.
High	The impact (either on its own or in-combination with other proposals) may adversely, or positively, affect the conservation status of a designated site and/or species population, in terms of the coherence of its ecological structure and function (integrity), across its whole area, that enables it to sustain the habitat, complex of habitats and/or the population levels of species of interest. E.g. Affecting >21 % - 80 % of the relevant Regional NHZ population.
Medium	The impact (either on its own or in-combination with other proposals) would not adversely, or positively, affect the conservation status of a designated site and/or species in the long-term, but some element of the functioning might be affected, and impacts could potentially affect its ability to sustain some part of itself in the short to medium-term. E.g. Affecting >6 % - 20 % of the relevant Regional NHZ population.
Low	Neither the above or below applies, but some observable adverse, or positive, impact is evident on a short-term basis or affects the extent of a species abundance in the local area. E.g. Affecting >1 % - 5 % of the relevant Regional NHZ population.
Negligible	A very slight (indiscernible) reduction, or increase, in a species status or productivity and/or no observable effect. E.g. Affecting ≤1 % of the relevant Regional NHZ population.

Criteria for Assessing Effect Significance

- 9.5.37 CIEEM guidelines (2018) note that "A significant effect does not necessarily equate to an effect so severe that consent for the project should be refused planning permission. For example, many projects with significant negative ecological effects have been lawfully permitted following EIA procedures."
- 9.5.38 For the purposes of assessment, significant effects are identified as those which encompass impacts on the structure and function of defined sites, habitats or ecosystems and the conservation status of habitats and species (including extent, abundance, and distribution).
- 9.5.39 Such effects are identified by considering the sensitivity of a receptor, the magnitude of the impact and applying professional judgement based on best available evidence, to identify whether the integrity of a receptor will be affected.
- 9.5.40 The term integrity is used here to refer to the maintenance of the conservation status of a population of a species at a specific location or geographical scale.
- 9.5.41 For the purposes of this assessment, significant effects are primarily considered with reference to the most recently published Regional NHZ population level (Wilson et al., 2015; or suitable alternative), in line with NatureScot's interests of a species status at wider spatial levels. The significance of effects at other geographical scales is also considered where appropriate on a precautionary basis and where sufficient information allows a meaningful assessment.
- 9.5.42 In cases of reasonable doubt, where it is not possible to robustly justify a conclusion of no significant effect, a significant effect has been assumed as a precautionary approach. Where uncertainty exists, this is acknowledged.
- 9.5.43 Where the assessment proposes measures to mitigate adverse effects on ornithological features, a further assessment of residual effects, taking into account such measures, has been undertaken.
- 9.5.44 CIEEM guidelines (2018) do not recommend the sole use of a matrix table as commonly set out in EIA Reports to determine 'significant' and 'non-significant' effects. For the purposes of this assessment presented herein, Table 9.4 sets out adapted CIEEM terminology and equivalent in the context of the EIA Regulations.
- 9.5.45 **Major** and **moderate** effects are considered significant in the context of the EIA Regulations.

Table 9.4 – Effect (EIA Significance)

Sensitivity	Impact Magnitude				
	Very High	High	Medium	Low	Negligible
High	Major	Major/Moderate	Moderate/Minor	Minor	Negligible
Medium	Major/Moderate	Moderate	Minor	Minor/Negligible	Negligible
Low	Moderate/Minor	Minor	Minor	Minor/Negligible	Negligible

Requirements for Mitigation

- 9.5.46 A mitigation hierarchy has been adopted to avoid, mitigate, and compensate for potential ornithological impacts as a result of the Proposed Development:
 - avoidance is used where an impact has been avoided e.g., through changes in Proposed Development design;
 - mitigation is used to refer to measures to reduce or remedy a specific adverse impact in situ;
 - compensation describes measures taken to offset residual effects, i.e., where mitigation in situ is not possible; and
 - enhancement is the provision of new benefits for biodiversity that are additional to those provided as part of mitigation or compensation measures, although they can be complementary.

Assessment of Residual Effect Significance

- 9.5.47 Where the ornithological assessment proposes measures to mitigate adverse effects on ornithological features, a further assessment of residual effects, taking into account any ornithological mitigation recommended, will be undertaken.

Cumulative Assessment

- 9.5.48 Potentially significant cumulative effects can result from individually insignificant but collectively significant actions taking place over a period of time or concentrated in a location.
- 9.5.49 Cumulative impacts have therefore been considered with reference to NatureScot (SNH, 2018b) guidance for important ornithological features subject to a detailed assessment.
- 9.5.50 The cumulative assessment includes consideration of:

- existing wind farm developments, either operational or under construction;
- consented wind farm developments, awaiting implementation; and
- wind farm applications awaiting determination within the planning process with design information in the public domain.

9.5.51 Those developments which have been withdrawn and/or refused are not considered, unless an appeal is currently in progress and information is available.

9.5.52 Small wind farm developments, including those with three turbines or less, have also been scoped out as applications for such developments do not generally consider the potential for impacts upon ornithological features in sufficient detail.

9.5.53 With regards to the spatial extent of the cumulative assessment, NatureScot (SNH, 2018b) guidance recommends that cumulative effects should typically be assessed at the relevant Regional NHZ population level, unless an alternative is justified. All developments within the NHZ 20 ('Border Hills') are considered as part of any cumulative assessment.

Enhancement Opportunities

9.5.54 As a fundamental part of the Proposed Development, habitat enhancement opportunities on-site are investigated. The requirements of Policy 3 of NPF4 states that developments will contribute to the enhancement of biodiversity, and this could include restoring degraded habitats and strengthening nature networks and connections between them. Enhancement measures to be investigated and adopted are accordingly provided in the outline NEMP, Technical Appendix 8.6.

Limitations to Assessment

9.5.55 Limitations for field surveys are discussed in full within Technical Appendix 9.1. In summary no limitations to baseline information gathering and subsequent assessment herein presented have been identified.

9.5.56 Overall, no limitations to the survey data in establishing an accurate reflection of the levels of target species activity within adopted study areas, and particularly the site, are identified, as used as the basis for this assessment.

9.6 Baseline Conditions

Current Baseline

9.6.1 This section provides a summary of baseline ornithological conditions.

9.6.2 It provides an overview of the proximity of the Proposed Development to designated sites for nature conservation with ornithological interests, together with the known distribution and flight activity of target species.

9.6.3 Full details are provided within Technical Appendix 9.1, with information that is considered sensitive presented in Confidential Technical Appendix 9.2.

Designated Sites for Nature Conservation

9.6.4 This section should be read with reference to Figure 9.1.

9.6.5 Table 9.5 provides a summary of statutory designated sites for nature conservation with cited ornithological interests, located within 10 km of the site, extended to 20 km for internationally designated sites with migratory goose interests (although there are no such sites out to 20 km).

9.6.6 Statutory and non-statutory sites designated for ecological features are addressed separately in Chapter 8.

9.6.7 The distances specified within Table 9.5 are from the site boundary to the designated boundary at its nearest point.

Table 9.5 - Designated sites for nature conservation. SSSI – Site of Special Scientific Interest

Designated Site	Distance and Direction from the Site	Ornithological Qualifying Interests
Tweedsmuir Hills SSSI	2.38 km, east	Breeding bird assemblage, including red grouse (<i>Lagopus lagopus</i>), black grouse, golden plover (<i>Pluvialis apricaria</i>), curlew, dunlin (<i>Calidris alpina</i>), snipe (<i>Gallinago gallinago</i>), ring ouzel (<i>Turdus torquatus</i>), whinchat (<i>Saxicola rubetra</i>), stonechat (<i>Saxicola torquata</i>) and wheatear (<i>Oenanthe oenanthe</i>). Several Schedule 1 species also use the site for foraging while breeding offsite, in winter or on passage.

9.6.8 Table 9.6 provides a summary of non-statutory designated sites for nature conservation with listed 'notable' ornithological species. These sites are shown in Figure 8.2.

Table 9.6 – Non-statutory Designated Sites of Nature Conservation

Designated Site	Distance and Direction from the Site	'Notable' Ornithological Species Listed
Glenmuck Bog	Within the site	Mallard, meadow pipit (<i>Anthus pratensis</i>), siskin (<i>Spinus spinus</i>), kestrel, snipe, red grouse, curlew, golden plover and whinchat.
Hawkshaw Bog	Adjacent to southern Site boundaries, other side (south) of the River Tweed	Common sandpiper (<i>Actitis hypoleucos</i>), teal (<i>Anas crecca</i>), meadow pipit, short-eared owl (<i>Asio flammeus</i>), dipper (<i>Cinclus cinclus</i>), cuckoo (<i>Cuculus canorus</i>), kestrel, snipe, oystercatcher (<i>Haematopus ostralegus</i>), swallow (<i>Hirundo rustica</i>), curlew, wheatear and whinchat.
Talla Reservoir	1.1 km south-east of the site	Common sandpiper, siskin, ringed plover (<i>Charadrius hiaticula</i>), oystercatcher, wheatear and osprey (<i>Pandion haliaetus</i>).

VP Flight Activity Surveys

- 9.6.9 VP flight activity surveys were undertaken between March 2022 and February 2023 adopting three VP locations (Figure 9.3) to provide coverage of the VP study area required in accordance with NatureScot (2017) guidance, comprising the Proposed Development turbine locations out to 500 m as far as was practically achievable in an undulating and partially forested locality.
- 9.6.10 Survey effort and viewshed visibility coverage of the VP study area is detailed on Figure 9.3 and discussed within Technical Appendix 9.1.
- 9.6.11 Target species flight activity recorded 'at collision risk' during the VP survey effort (March 2022 to February 2023) is summarised in Table 9.7. The total number of flights, total number of birds and the total spent at collision risk is presented. This is those target species flights which pass within a 200 m buffer of the outer-most turbines at a height of between 25 m to 200 m.
- 9.6.12 Detailed flight records for all species are presented in Technical Appendix 9.1 and illustrated on Figure 9.5.

Table 9.7 – 'At collision risk' Target Species Flight Activity Summary

Species	Total No. of Flights	Total No. of Birds	Total Flight Time (secs) ²
Pink-footed goose (<i>Anser brachyrhynchus</i>)	1	25	475
Osprey	1	1	65
Red kite (<i>Milvus milvus</i>)	1	1	120
Goshawk (<i>Accipiter gentilis</i>)	2	2	510

Collision Mortality Risk

- 9.6.13 Collision mortality risk (CRM) analysis as detailed in Band *et al.* (2007) is appropriate for those target species where there is a sufficient number of at collision risk flight (typically \geq three flights and / or >25 birds, where the number of at risk flights $<$ three, in a survey year). For target species whose flights do not meet the threshold flight activity is considered to be inconsequential. Note, CRM analysis on migratory geese is typically only undertaken where the species has potential to be part of a SPA / Ramsar population, and there are no such designated sites within 20 km of the site. Given no target species met the threshold, no CRM analysis was undertaken on any target species.

Moorland Breeding Bird Surveys

- 9.6.14 The MBBS study area comprised the site boundary, plus a 500 m buffer (where accessible), as shown in Figure 9.4.
- 9.6.15 The MBBS study area was found to support a very narrow breeding bird assemblage comprising curlew, snipe, lapwing (*Vanellus vanellus*), oystercatcher, common sandpiper, golden plover and goosander (*Mergus merganser*) (1 to 3 breeding territories). Territories were principally associated with the River Tweed to the south of the site (three wader territories on-site, to the south of the A701), with one curlew and one golden plover territory also in open habitat to the north of the site, as presented in Figure 9.6. A small number of common crossbill (*Loxia curvirostra*) breeding territories were also recorded in the commercial forestry within the MBBS study area.

Breeding Annex 1 and Schedule 1 Raptor and Owl Searches

- 9.6.16 The breeding Annex 1 and Schedule 1 raptor and owl search study area comprised the site boundary, plus a 2 km buffer (where accessible), as shown in Figure 9.4.
- 9.6.17 No breeding territories (or nest sites) of any target raptor or owl species was recorded within the study area. A very limited number of goshawk, red kite, osprey and peregrine (*Falco peregrinus*) flights were

² Total time at risk height multiplied by the number of birds.

recorded within the study area (including a goshawk flight across the site in late-April) but no evidence of breeding or territoriality was recorded.

Breeding Black Grouse Searches

- 9.6.18 The breeding black grouse search study area comprised the site boundary, plus a 1.5 km buffer (where accessible), as shown on Figure 9.4.
- 9.6.19 No black grouse were recorded during the targeted searches within the study area, however a suspected lek site with three males present was identified during the MBBS in May within the study area, and this lek location is provided in Confidential Figure 9.2.1.

Additional Results from Desk Study

- 9.6.20 Full desk study results are presented in Technical Appendix 9.1 and Confidential Technical Appendix 9.2, and results are included on Figure 9.2 and, for sensitive breeding records, Confidential Figure 9.2.2. Desk study information gathered from the TWIC, SUP and L&BRSR included breeding records of peregrine (historic record), merlin, osprey, red kite and black grouse.

Future Baseline

- 9.6.21 In the absence of the Proposed Development, assuming a “do-nothing” scenario or gap between baseline surveys and the commencement of construction of the Proposed Development, changes in the baseline ornithology conditions (i.e. distributions and populations) are most likely to result from habitat modifications within, or surrounding, the site due to local land management practices, principally, forestry works and some livestock grazing in open habitats in the north of the site.
- 9.6.22 Breeding bird densities would therefore reasonably be expected to remain at comparable levels with those recorded during field surveys and identified through desk study i.e. at relatively low levels, albeit central territory locations may shift.
- 9.6.23 The establishment of breeding raptor territories within the site is considered unlikely, given the general absence of suitable nesting habitat features for raptor species (such as deep heather swards and crags).
- 9.6.24 Climatic changes may include increased summer and winter temperatures and higher average precipitation rates in summer and winter. These factors are likely to result in an extended breeding bird season with earlier in the year (and likely more) nesting attempts (which has potential to increase breeding productivity, although this will be dependent on prey availability), but contrary to this, the increased rainfall is likely to result in higher rates of fledgling mortality.
- 9.6.25 The opposing potential effects of climatic change on ornithology receptors makes predicting future likely outcomes difficult. There is no reason to consider that the breeding bird assemblage presenting using the site will change substantially over the next 50 years due to climate change. However, breeding productivity, given the predicted substantially higher rates of average precipitation across the next 50 years is considered likely to reduce, and this may have notable effects for species which have one brood per year.
- 9.6.26 Potential effects on ornithology receptors detailed in this chapter are not predicted to substantively change in relation to climate change over the next 50 years.

9.7 Standard Mitigation

Mitigation through Design

- 9.7.1 The Proposed Development has been subject to a number of design iterations and evolution in response to constraints identified as part of the baseline studies, intended to reduce environmental effects (see Chapter 2 for further details).
- 9.7.2 In accordance with the mitigation hierarchy, the following design considerations have been incorporated to avoid and minimise adverse effects upon ornithological features:
- design of the Proposed Development has largely avoided those open bog/grassland habitats in the north, with five of the Proposed Development’s seven turbines (and majority of other infrastructure) located within commercial forestry plantation blocks, which are of very limited ornithological value and sub-optimal for ground-nesting wetland species and breeding raptors, like hen harrier and golden eagle (*Aquila chrysaetos*);
 - buffers adopted between turbine locations and woodland, watercourses, and buildings, principally for bats (as detailed in Chapter 8) will reduce the potential for effects on bird species that use these habitat features (such as woodland);

- the Proposed Development has avoided the non-statutory site Glenmuck Bog (which has a number of listed 'notable' ornithological species, including curlew and golden plover; see Table 9.6), with the existing forestry track running through the non-statutory site to be used;
- the Proposed Development is separated from the non-statutory site Hawkshaw Bog by the River Tweed (see Table 9.6) and so effects on the non-statutory site are not anticipated by the Proposed Development;
- the Proposed Development turbines are located > 500 m from the nearest ground-nesting species territory recorded (including lapwing, oystercatcher, curlew and golden plover; see Figure 9.6) and thus the potential for disturbance to these breeding birds is minimised (in accordance with disturbance distances in Goodship and Furness, 2022);
- the Proposed Development is north of the A701, with the breeding territories of most ground-nesting species identified to the south of the A701, associated with the River Tweed. Accordingly, the Proposed Development is not only spatially separated from these breeding territories, but is also buffered (in terms of noise and visually) from the A701 and associated habitats (such as shelterbelt);
- the Proposed Development is located greater than the disturbance distances (reported in Goodship and Furness, 2022) from the confirmed nest sites of Annex 1 and Schedule raptors returned from the desk study (as shown on Confidential Figure 9.8), thus minimising the potential to disturb these breeding birds; and
- the Proposed Development is located > 1.5 km from the suspected black grouse lek identified during field surveys (as shown on Confidential Figure 9.7) and all lek sites identified from the desk study (see Confidential Figure 9.8), and thus the potential to disturb lekking black grouse is minimised (in accordance with disturbance distances in Goodship and Furness, 2022).

Embedded Mitigation Measures

- 9.7.3 Full details of construction phase mitigation measures for the Proposed Development will be contained within a Construction Environmental Management Plan (CEMP) (an outline CEMP is provided in Technical Appendix 3.1). The CEMP will include all good practice construction measures, pollution prevention controls and monitoring to be implemented over the course of the construction and operation of the Proposed Development in line with current industry and statutory guidance.
- 9.7.4 All wild birds in the UK are protected under Section 1 of the Wildlife and Countryside Act 1981 (as amended), which makes it an offence to intentionally or recklessly kill, injure or take any wild bird or take, damage or destroy the nest (whilst being built or in use) or its eggs. In addition, all wild birds listed on Schedule 1 of the Act receive additional legal protection which makes it an offence to intentionally or recklessly disturb these species while building a nest, using, or when near, a nest containing eggs or young; or to disturb their dependent young.
- 9.7.5 Prior to the commencement of construction activities, a Construction Breeding Bird Protection Plan (CBBPP) will be prepared and submitted for agreement in consultation with SBC and NatureScot which will form part of the CEMP.
- 9.7.6 The CBBPP will be informed by a pre-commencement breeding bird survey to establish the contemporary status and distribution of Schedule 1 breeding birds (and black grouse) within the site and within 500 m of any potentially disturbing activities. This will be done in the breeding season preceding the construction phase of the Proposed Development to ensure the most updated information is considered, following receipt of consent.
- 9.7.7 Site clearance activities (including forestry works), where commenced during the core breeding bird season (1 March to 31 August, inclusive), will therefore be subject to a pre-clearance survey by a competent ornithologist to identify any active wild bird nests. Should any active nests be found, works will only proceed under the advice of the appointed ornithologist. Work exclusion buffers around identified nest sites would be implemented where necessary in accordance with best available species guidance applicable at the time and/or as agreed in consultation with NatureScot.
- 9.7.8 The CBBPP will detail any additional measures required on account of findings from the pre-commencement breeding bird survey, to ensure the protection of breeding birds over the course of construction works during the breeding season, updated to reflect best available species guidance applicable at the time.
- 9.7.9 The CEMP will also include measures to safeguard any roosting hen harriers during the non-breeding season, if any are located during pre-construction surveys, in accordance with additional protection afforded to the species listed on Schedule 1A of the Wildlife and Countryside Act 1981 (as amended). Prior to commencement of works, a suitably experienced ornithologist would undertake checks for

roosting harriers in suitable areas of habitat up to 750 m from active construction areas (in accordance with maximum documented disturbance distance; Goodship and Furness, 2022). In the event that, roosting hen harriers are present, works would only proceed under the advice of the appointed ornithologist and following a disturbance risk assessment.

Ecological Clerk of Works

9.7.10 A suitably qualified Ecological Clerk of Works (ECoW) would be employed for the duration of the construction and reinstatement periods, to ensure ornithological interests are safeguarded, although this may not necessarily be a full-time role throughout. The role of the ECoW would include the following tasks:

- provide toolbox talks and information to all staff on-site, so staff are aware of the ornithological sensitivities within the site and the legal implications of not complying with agreed working practices;
- agree and monitor measures designed to minimise damage to retained habitats;
- undertake pre-construction surveys and advise on ornithological issues and working restrictions where required; and
- complete site-supervision works as required, in relation to sensitive habitats and protected bird species.

Decommissioning Environmental Management Plan

9.7.11 At the point of decommissioning, a Decommissioning Environmental Management Plan (DEMP) will be developed through consultation with Scottish Borders Council (SBC), NatureScot and other relevant consultees in line with relevant legislation and guidance at that point in time. This will detail those measures to be adopted to ensure the protection of key ecological receptors. This will typically mirror those measures adhered to in the CEMP and will include pollution prevention protocols and pre-decommissioning surveys.

9.8 Receptors Brought Forward for Assessment

9.8.1 The results of the desk study and field survey were used to inform the identification of important ornithological features within and around the site to be considered in the assessment.

9.8.2 Through consultation (see Table 9.1) effects on the only designated site with ornithological interest within 10 km (Tweedsmuir Hills SSSI) are scoped out of assessment (given lack of identified pathways of effects to qualifying interest, which are target species). Similarly, effects on nightjar and migratory geese and swans are also scoped out of assessment. Note, waterfowl are included in Table 9.8 given pink-footed goose and greylag goose (*Anser anser*) were recorded in limited numbers during field surveys, and thus full justification is provided to scope these species out of detailed assessment.

9.8.3 In accordance with NatureScot guidance (SNH, 2017) effects on passerines, which are not sensitive to wind farm developments, are also scoped out of detailed assessment.

9.8.4 Effects on non-statutory sites including the Glenmuck Bog on-site which lists a number of ‘notable’ ornithological species in its ‘Site Statement’ is considered in Chapter 8, given the non-statutory site is designated for its habitat interest. Listed ‘notable’ species of the Glenmuck Bog comprise passerines, kestrel, mallard, curlew, golden plover and red grouse. These species are considered in Table 9.8, or in the case of passerines, are scoped out in accordance with NatureScot guidance (SNH, 2017). Red grouse is not routinely considered a target species for assessing effects of wind farm developments, in NatureScot guidance (SNH, 2017). No breeding red grouse were recorded during surveys in the Study Area, and effects on red grouse are accordingly discounted.

9.8.5 The desk study and field survey have revealed very limited use of the site, and adjacent habitats, by a modest number of target species, and it is proposed that no ornithological features are brought forward for assessment. Justification for this is provided in Table 9.8.

Table 9.8 – Summary of Important Ornithological Features and Effects Scoped Out

Importance / Sensitivity	Feature	Summary and Justification
Medium / Regional	Black grouse	Included as a target species for survey and recording in accordance with NatureScot guidance (SNH, 2017). Listed on Annex 1 of NatureScot guidance (SNH, 2018a) and potentially sensitive to onshore wind turbine developments. The suspected black grouse lek (comprising three males) identified within the Study Area during field surveys constitutes 3.37 % of the NHZ 20 population (89 males, as taken from Wilson <i>et al.</i> 2015, and confirmed through NatureScot consultation).

Importance / Sensitivity	Feature	Summary and Justification
		<p>The lek site is > 1.5 km from the Proposed Development, and no black grouse (including flight activity) were recorded using the site during the field surveys. Furthermore, all lek site records returned from the desk study (see Confidential Figure 9.8) are > 1.5 km from the Proposed Development.</p> <p>Potential for significant effects are accordingly scoped out in the absence of the likely loss or disturbance to males at identified lek sites, inconsequential collision risk from operational turbines (through lack of flight activity recorded), and the adoption of good practice measures to be included within the Proposed Development's CEMP to protect breeding birds -see summary in Section 9.7).</p> <p>Effects on black grouse are therefore scoped out of detailed assessment.</p>
Low / Local	Waders (incl. breeding)	<p>The field surveys identified very low numbers of wading species in the Study Area, consisting of a modest breeding bird assemblage (1 - 3 territories of curlew, lapwing, snipe, common sandpiper, oystercatcher and golden plover), and no at collision risk flights during VP flight activity surveys of these species. The site itself is predominantly forested and thus unsuitable for waders.</p> <p>All breeding territories were >500 m from the Proposed Development, and most, other than three (one lapwing pair, one common sandpiper pair and one oystercatcher pair) were off-site. The three breeding territories on-site are south of the A701 and associated with the River Tweed. These territories are therefore buffered from the Proposed Development by the A701 and associated habitat (such as shelterbelt), as well as the dense forestry on-site.</p> <p>Embedded mitigation, including the implementation of a CBBPP and pre-clearance surveys (as detailed in Section 9.7) are considered adequate to avoid any potentially significant adverse direct or indirect population effects upon wading species.</p> <p>Effects on waders (incl. breeding) are therefore scoped out of detailed assessment.</p>
Low / Local	Annex 1 and Schedule 1 Raptors and Owls	<p>Inconsequential numbers of at collision risk flights during VP flight activity surveys comprising only one osprey, one red kite and two goshawk flights.</p> <p>Although individual flights of goshawk, peregrine, red kite and osprey were recorded during raptor searches, no evidence of breeding (including territorial behaviour) for any of these species was recorded, within the Study Area.</p> <p>All confirmed Annex 1 and Schedule 1 nest site records returned from the desk study (from the last ten years, see Confidential Figure 9.8) are distanced greater than the species-specific documented disturbance distances (taken from Goodship and Furness, 2022) from the Proposed Development.</p> <p>Part of a golden eagle breeding territory (understood to be a tagged bird released as part of the SSGEP) is within c. 3 km of the site (as identified from the desk study). No nest site was however identified, from the desk study, within 10 km of the site. Furthermore, no golden eagles were recorded during the field surveys. The site is also predominantly forested and closed canopy forestry is considered unsuitable habitat for golden eagles (which is a fundamental consideration of Golden Eagle Topographical modelling (Fielding <i>et al.</i> 2019).</p> <p>Embedded mitigation measures, including the implementation of a CBBPP (as detailed in Section 9.7), are considered adequate to avoid any potentially significant adverse direct or indirect effects upon Annex 1 and Schedule 1 raptors and owls. Note, measures will be included within the Outline NEMP (see Technical Appendix 8.6) to minimise the potential for species like hen harrier and short-eared owl being attracted into the key-holed areas to accommodate the Proposed Development.</p> <p>Effects on Annex 1 and Schedule 1 raptors and owls are therefore scoped out of detailed assessment.</p>
Low / Local	Waterfowl	<p>The site is principally forested and therefore unsuitable for waterfowl like geese.</p> <p>Inconsequential numbers of at collision risk flights during VP flight activity surveys comprising only one pink-footed goose flight. No at collision risk flights for any other waterfowl was recorded.</p> <p>There is no designated site with qualifying migratory waterfowl within 20 km of the site.</p>

Importance / Sensitivity	Feature	Summary and Justification
		No evidence from the field surveys or desk study information that habitats in the wider area support foraging and/ or roosting geese (including migratory species). Effects on waterfowl are therefore scoped out of detailed assessment.
Low / Local	Other Wetland Species	Other wetland species identified during baseline surveys included goosander (one breeding territory along the River Tweed), and non-target species (in accordance with SNH, 2017) recorded during VP flight activity surveys in modest numbers, comprising mallard, cormorant, grey heron and a narrow range and number of gulls (herring, lesser black-backed and black-headed). No substantive records of other wetland species were returned from the desk study. Embedded mitigation measures, including the implementation of a CBBPP and pre-clearance surveys (as detailed in Section 9.7) are considered adequate to avoid any potentially significant adverse direct or indirect population effects upon any other wetland species. Effects on other wetland species are therefore scoped out of detailed assessment.
Low / Local	Other Commoner Raptors and Owls	Treated as non-target species in accordance with NatureScot guidance (SNH, 2017). Low numbers of common raptors, consisting of buzzard, sparrowhawk and kestrel were recorded during surveys. A buzzard breeding territory was confirmed within the Study Area, and a suspected kestrel breeding territory. No evidence of owls was recorded during surveys. Embedded mitigation measures, including the implementation of a CBBPP and pre-clearance surveys (as detailed in Section 9.7) are considered adequate to avoid any potentially significant adverse direct or indirect effects upon other commoner raptors and owls. Effects on other commoner raptor and owl species are therefore scoped out of detailed assessment.
Low / Local	Raven	Treated as a non-target species in accordance with NatureScot guidance (SNH, 2017). Modest numbers recorded during field surveys, with no evidence of breeding. Embedded mitigation measures, including the implementation of a CBBPP and pre-clearance surveys (as detailed in Section 9.7) are considered adequate to avoid any potentially significant adverse direct or indirect effects upon other raven. Effects on raven are therefore scoped out of detailed assessment.

9.9 Potential Effects

9.9.1 Effects on important ornithological features are scoped out of assessment (see Table 9.8). It is considered that with the embedded and committed mitigation in place (as detailed in Section 9.7), potentially significant adverse direct and / or indirect effects on such ornithological features can be avoided at all stages of the Proposed Development (construction, operation and decommissioning).

9.10 Additional Mitigation and Enhancement

- 9.10.1 Embedded mitigation and good practice measures are detailed in Section 9.7, as well as in the outline CEMP (see Technical Appendix 3.1). Note, methods and mitigation during the decommissioning phase will follow best practice and guidance at that time, which will be detailed in a DEMP.
- 9.10.2 No additional mitigation measures are required or proposed in relation to ornithology given potentially significant effects as a result of the Proposed Development are avoidable.
- 9.10.3 In accordance with Policy 3 of NPF4, the outline NEMP for the Proposed Development (see Technical Appendix 8.6) details enhancement measures. This includes riparian native tree planting, peat/bog restoration (including with the on-site non-statutory site Glenmuck Bog) and grassland management.

9.11 Residual Effects

9.11.1 No significant residual adverse effects are anticipated to occur upon any important ornithological feature as a result of the construction, operation or decommissioning of the Proposed Development.

9.12 Cumulative Assessment

9.12.1 Given no ornithological features are scoped into the assessment, and therefore no significant adverse direct and/or indirect effects on such features are anticipated from the Proposed Development, in-

combination effects of the Proposed Development with other existing and proposed developments in the area are considered inconsequential and are therefore not considered further in this assessment.

9.13 Summary

- 9.13.1 This assessment establishes the likely presence or likely absence of protected or notable ornithological species, identifies statutory and non-statutory designated sites for nature conservation in the vicinity of the Proposed Development and evaluates the overall conservation status of the site. The potential for the Proposed Development to have an effect on designated sites and protected and notable ornithological species is discussed along with proposed mitigation measures where applicable. Opportunities for biodiversity enhancement are also outlined.
- 9.13.2 The assessment was informed by a desk study, and a full year of VP flight activity surveys, MBBS, breeding Annex 1 and Schedule 1 raptors and owl searches and breeding black grouse searches. The desk study consisted of data gathering, including, from the biological records centre, raptor study group, RSPB, SUP and a review of documentation which supported the consented nearby Whitelaw Brae Wind Farm application. The approach was in accordance with NatureScot guidance (SNH, 2017) and was agreed through consultation with NatureScot.
- 9.13.3 The site and adjacent habitat were used by a modest range and number of target species. Standard mitigation including embedded mitigation in scheme design to avoid those most ecologically valuable habitats and important habitat features (e.g. woodland edge and watercourses) will be adopted, as well as the Proposed Development being offset from the breeding and / or nest sites of key ornithological species (with adoption of appropriate buffers). Furthermore, with good practice measures, including production of a CBBPP, pre-clearance surveys and the appointment of an ECoW no potentially significant adverse direct and/or indirect effects on ornithological features are anticipated, either alone or in combination with any other development.
- 9.13.4 In accordance with Policy 3 of NPF4, habitat enhancements would also be adopted (as detailed in the NEMP, Technical Appendix 8.6) and this would result in the restoration of biodiversity on-site, improved habitat connectivity and the enhancement of a local wildlife site, which has suffered from some previous condition degradation.

9.14 References

- Band, W., Madders, M. and Whitfield, D.P. (2007). *Developing field and analytical methods to assess avian collision risk at wind farms*. In De Lucas, M., Janss, G. and Ferrer, M. (eds). *Birds and Wind Power*.
- CIEEM (2018). *Guidelines for Ecological Impact Assessment in the UK and Ireland. Terrestrial, Freshwater, Coastal and Marine*. Version 1.1 (updated 2019). Chartered Institute of Ecology and Environmental Management, Winchester.
- Fielding, A.H., Haworth, P., Anderson, D., Benn, S., Dennis, R., Weston, E. and Whitfield, D.P. (2019). *A simple topographical model to predict Golden Eagle *Aquila chrysaetos* space use during dispersal*. *Ibis* 162, 400-415.
- Goodship, N.M. and Furness, R.W. (2022). *Disturbance Distances Review: An updated literature review of disturbance distances of selected bird species*. A report from MacArthur Green to NatureScot.
- NatureScot (2024). *NatureScot pre-application guidance for onshore wind farms*. Version: February 2024.
- Scottish Borders Council (2016). *Local Development Plan*. Available at: <https://www.scotborders.gov.uk/plans-guidance/local-development-plan>. Accessed on: 19 March 2024.
- Scottish Borders Council (2018). *Scottish Borders Local Biodiversity Action Plan. Supplementary Guidance. 2018-2028*. Available at: https://www.scotborders.gov.uk/directory-record/7442/local_biodiversity_action_plan. Accessed on: 19 March 2024.
- Scottish Government (2004). *Nature Conservation (Scotland) Act 2004*. Available at: <https://www.legislation.gov.uk/asp/2004/6/contents>. Accessed on: 19 March 2024.
- Scottish Government (2011). *Wildlife and Natural Environment (Scotland) Act 2011*. Available at: <https://www.legislation.gov.uk/asp/2011/6/contents/enacted>. Accessed on: 19 March 2024.

Scottish Government (2017). *The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017*. Available at: <https://www.legislation.gov.uk/ssi/2017/101/contents/made>. Accessed on: 19 March 2024.

Scottish Government (2019). *The Conservation (Natural Habitats, &c.) (EU Exit) (Scotland) (Amendment) Regulations 2019*. Available at: <https://www.legislation.gov.uk/sdsi/2019/9780111041062>. Accessed on: 19 March 2024.

Scottish Government (2020). *Scottish Biodiversity List 2020*. Available at: <https://www.nature.scot/doc/scottish-biodiversity-list>. Accessed on: 19 March 2024.

Scottish Government (2023). *National Planning Framework 4*. Available at: <https://www.gov.scot/publications/national-planning-framework-4/pages/3/>. Accessed on: 19 March 2024.

SNH (2014). *Guidance note – implications of additional protection for hen harrier, red kite and golden eagle under Schedules A1 & 1A of the Wildlife and Countryside Act (1981)*.

SNH (2016a). *Assessing connectivity with special protection areas*. Scottish Natural Heritage Inverness.

SNH (2016b). *Environmental statements and annexes of environmentally sensitive bird information*. Scottish Natural Heritage, Inverness.

SNH (2016c). *Wind farm proposals on afforested sites – advice on reducing suitability for hen harrier, merlin and short-eared owl*. January 2016.

SNH (2017). *Recommended bird survey methods to inform impact assessment of onshore wind farms*. Scottish Natural Heritage, Inverness.

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

SNH (2018b). *Assessing the cumulative impacts of onshore wind farms on birds*. Scottish Natural Heritage, Inverness.

SNH (2018c). *Assessing the significance of impacts from onshore wind farms outwith designated areas*. Scottish Natural Heritage, Inverness.

Stanbury, A., Eaton, M., Aebischer, N., Balmer, D., Brown, A., Douse, A., Lindley, P., McCulloch, N., Noble, D. and Win, I. (2021). *The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and the Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain*. *British Birds* 114, 723-747.

UK Government (1981). *Wildlife and Countryside Act 1981*. Available at: <https://www.legislation.gov.uk/ukpga/1981/69>. Accessed on: 19 March 2024.

Wilson, M. W., Austin, G. E., Gillings S. and Wernham, C. V. (2015). *Natural Heritage Zone Bird Population Estimates*. SWBSG Commissioned Report Number 1504.