

10. Ornithology

Introduction

- 10.1 This Chapter reports the outcome of the assessment of the likely significant environmental effects in relation to ornithology. Likely significant effects on other ecological features and species are considered separately in **Chapter 9: Ecology**.
- 10.2 The Chapter describes the scope of the assessment and assessment methodology and a summary of the baseline information that has informed the assessment.
- 10.3 Broadly in line with **Chapter 2: Approach to EIA**, the assessment:
- Sets out the methodology for assessment;
 - Describes the baseline of the Project for Assessment;
 - Describes the likely significant effects and identifies the receptors and the impacts taken forward for further assessment;
 - Identifies the further mitigation measures required to prevent, reduce or offset any significant adverse effects, or further enhance beneficial effects; and
 - Assesses the impacts in light of the mitigation described and determines whether any of these are considered to be significant in EIA terms.
- 10.4 It should be noted that the methodology applied within this Chapter does deviate from that set out in **Chapter 2: Approach to EIA** as there are some technical requirements and specific guidance to be followed.
- 10.5 This Chapter, and its associated figures (**Figures 10.1 – 10.14**) and appendices (**Technical Appendices 10.1 – 10.3**), is intended to be read as part of the wider ES with particular reference to the introductory Chapters of this ES (**Chapters 1 – 5**).
- 10.6 In addition, this Chapter should be read in conjunction with **Chapter 16: Assessment of Cumulative Effects**.

Summary of Consultation

2025 ES

- 10.7 The Project Team undertook an EIA Scoping exercise (described further under the ‘Scope of Assessment’ section below) in support of the 2025 ES, which included consultation with RMBC and RBC and other stakeholders. The outcomes of this process are documented in **Chapter 2: Approach to EIA** and **Appendices 2.1 and 2.2**. No consultation has been undertaken over and above that completed during the EIA Scoping process.

2026 FEI ES

- 10.8 Since the submission of the 2025 ES, the Applicant has been in receipt of a number of statutory and non-statutory consultation comments. The consultation responses have been

reviewed by the project team and those that are directly relevant to the ES and its supporting material have been considered, with the outcomes documented in **Appendix 2.4**.

Assessment Methodology

Legislative Framework, Policy and Guidance

10.9 The following legislation and policy have informed the assessment of effects within this Chapter and is detailed further in **Appendix 10.1**:

- Wildlife and Countryside Act 1981 (as amended) (WCA)¹; and
- The Conservation of Habitats and Species Regulations 2017 No. 1012 (as amended)².
- National Planning Policy Framework 2025 (NPPF)³; and
- Environment Act 2021⁴.

10.10 The NPPF was first published by the government on 27th March 2012. It provided new guidance for local authorities, replacing the existing planning policy guidance, including that relating to biodiversity in Planning Policy Statement 9 (PPS9): Biological and Geological Conservation. In February 2025, an updated version of the NPPF was published.

10.11 Section 15 of the NPPF specifies the requirements for conserving and enhancing the natural environment. While a key aim of the NPPF is to assist plan-makers, it also provides advice for the determination of planning applications, much of which reaffirms the protection previously afforded by PPS9 to designated sites, priority habitats and species and ancient woodland. The NPPF places a greater emphasis on ecological networks and states that the planning system should provide net gains for biodiversity, by “minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures” (Paragraph 187).

10.12 The Environment Act (2021) provides a framework for environmental protection. Measures to halt environmental decline include a requirement for all applicable planning applications to deliver a compulsory minimum of 10% biodiversity net gain from 12th February 2024 in accordance with the published guidelines.

10.13 The following guidance has informed the assessment of effects within this Chapter and is detailed further in **Appendix 10.1**.

10.14 Guidance from NatureScot has been relied on in determining the ornithology surveys required to gather the information to describe the baseline accurately which has allowed the assessment of the impacts of a wind farm development to be carried out. NatureScot, despite being the Statutory Nature Conservation Organisation for Scotland (SNCO), is the only SNCO with extant guidance related to the assessment of impacts on ornithology receptors from wind farm developments and as such it was considered the guidance was suitable for addressing the assessment for the Project for Assessment. In addition, NatureScot has also produced guidance related to methodologies for cumulative (in-combination impacts) as well as developing methodologies for collision risk modelling. Guidance which has been relied on from NatureScot is detailed below, together with a short summary for each document as to what it covers:

- Assessing Connectivity with Special Protection Areas (SPAs) (NatureScot, 2016)⁵ – describes the ranging distance for many species for which SPAs are designated, allowing determinations to be made as to whether a particular SPA is likely to be connected to a locale;
- Environmental Statements and Annexes of Environmentally Sensitive Bird Information (NatureScot, 2016)⁶ – outlines the rationale for when sensitive environmental information should be withheld from the public for the purposes of species protection;
- Avoidance Rates for the Onshore SNH Bird Wind Farm Collision Risk Model (NatureScot, 2025)⁷ – provides the avoidance rates to be used for bird species when carrying out collision risk model;
- Recommended bird survey methods to inform impact assessment of onshore wind farms (NatureScot, 2017)⁸ – sets out survey methodologies and requirements for survey programmes related to wind farm developments;
- Assessing the Significance of Impacts from Onshore Wind Farms on Birds at Sites Outwith Designated Areas (NatureScot, 2025)⁹ – describes the approach to assessing impacts on ornithological receptors when those receptors are not features of designated sites – sets out a list of ‘birds at risk from wind farms’ which is a primary consideration in impact assessment;
- Guidance on using an updated collision risk model to assess bird collision risk at onshore wind farms (NatureScot, 2024)¹⁰ – recently updated model by which collision risk should be carried out; and
- Assessing the Cumulative Impacts of Onshore Wind Energy Developments (NatureScot, 2025)¹¹ – guidance related to the approach to be taken for assessing cumulative impacts on ornithological receptors.

Defining the Study Area

10.15 The desk study included a search using MAGIC maps for statutory designated sites with ornithological receptors within 10km of the Assessment Boundary and extended out to 20km for SPAs designated for grey geese and gulls. Also, a review of existing ecological data on and within 2km of the former Assessment Boundary from local ecological records centres was conducted. The former Assessment boundary used for the study excludes the Electrical Grid Connection Infrastructure route from the north-west, the area extending to the east which is proposed for enhancement and some general broadening of the overall boundary.

Figure 10.1b illustrates that the revised Assessment Boundary falls within the 2km buffer that was searched.

10.16 Surveys focussed on gaining an understanding of the baseline within and in the immediate vicinity of the Assessment Boundary, informed by guidance as to what appropriate distances from the Assessment Boundary for consideration should be. As such where possible:

- Vantage point (VP) locations covered the wind turbine array and a 500m buffer around wind turbines;

- Breeding bird surveys covered the former Assessment Boundary plus a 500m buffer which includes much of the current Assessment Boundary and were walked over to a minimum distance of 100m (where accessible); and
- Breeding raptor survey area covered is dependent on the species concerned; in this location, given the species present, a 2km buffer from the former Assessment Boundary was used. Whilst full access was not available in all areas of the buffer, comprehensive coverage of the buffer was obtained through use of strategically sought high points in accessible areas.

Background Studies to Inform the ES

10.17 **Table 10.1** summarises all studies / surveys / analysis / evaluations undertaken to inform the assessment presented within this Chapter. It should be noted that survey methodologies are presented within **Technical Appendices 10.1 –10.3**. Methodologies followed NatureScot 2017.

Table 10.1: Studies / surveys / evaluations / analysis undertaken to inform the ES

Study / survey / analysis / evaluation	Overview	Date of completion
Desk study	A review of internationally, nationally and locally designated sites within appropriate buffers up to 20 km, and local ornithological records within 2km.	August 2023
Vantage Point surveys	Six survey locations recording flight activity of target bird species over the site (typically waders, wildfowl, and raptors), across at least 1 non-breeding season and 2 breeding seasons per VP.	August 2024
Breeding raptor walkover surveys	Four walkover survey visits carried out per year between April and July in 2022, 2023 and 2024. This included all areas on-site plus a 2km buffer from the former Assessment Boundary.	August 2024
Breeding bird surveys	Four walkover survey visits carried out per year between April and July in 2022, 2023 and 2024. This included all areas on-site plus a 500m buffer from the former Assessment Boundary.	August 2024
Ornithological technical reports (Technical Appendices 10.1 – 10.3)	Presents the results of the breeding bird and raptor territory analysis and the vantage point data for target species.	May 2025

Assessment Process

10.18 The Chartered Institute of Ecology and Environmental Management ('CIEEM') Guidelines for Ecological Impact Assessment in the UK and Ireland (CIEEM, 2022)¹², (henceforth referred to as the 'CIEEM Guidelines') form the basis of the impact assessment presented in this Chapter. The CIEEM Guidelines set out a process of identifying the value of each

ornithological receptor and then characterising the ‘impacts’ that are predicted, before discussing the ‘effects’ on the integrity or conservation status of the receptor, proposed secondary mitigation and residual impacts / effects.

- 10.19 The initial stage / action for assessment of impacts is to determine which features should be subject to detailed assessment. The ornithological receptors to be the subject of more detailed assessment should be of sufficient value that impacts upon them may be significant in terms of either legislation or policy or in EIA terms. This typically means receptors which have a nature conservation value of greater than local, although where receptors have special legal protection (i.e. listed on Schedule 1 of the WCA) then further consideration may also be given to ensure protection is in place to prevent unlawful acts such as disturbance arising from the Project for Assessment. The receptors should also be vulnerable to significant effects arising from the Project for Assessment.
- 10.20 All designated nature conservation sites, bird species and communities that occur within the “zone of impact” of the Project for Assessment are defined as potential ornithological features (as described below). The zone of impact is defined for individual receptors based upon the potential effects and if there is any research showing the range of those effects and also NatureScot guidance such as (NatureScot, 2025).

Collision Risk Modelling

- 10.21 The general methodology used to predict collision risk for birds using the wind farm airspace is provided by NatureScot (NatureScot, 2024)¹⁰, last updated in April 2025. Collision Risk Modelling (CRM) was carried out for Merlin *Falco columbarius*, Curlew *Numenius arquata*, Lapwing *Vanellus vanellus* and Kestrel *Falco tinnunculus* as those species had sufficient flight activity that impacts of collision risk had the potential to be significant.
- 10.22 Flights included in the calculations were all those recorded within the viewsheds of the VP locations during survey times (i.e. not including incidental records). Species specific parameters are shown in **Table 10.2**. Biometrics were taken from British Trust for Ornithology (BTO) Biometrics. Flight speed was taken from Alerstam (Alerstam *et al* 2007)²⁴. If the actual species was not available, then the closest comparison species was used.
- 10.23 A model (Forsyth *et al.*, 1995)²⁵ was used to calculate the daytime length as a function of latitude and date.
- 10.24 The turbine parameters used for the model are presented in **Table 10.3**.

Table 10.2: CRM biometric parameters

Species	Bird Length (m)	Wingspan (m)	Bird speed (m/s)	Standard Avoidance rate	Flapping / Gliding	% of flights upwind	Nocturnal activity (1-5)	Proportion at rotor risk height
Merlin	0.28	0.56	11.5	98.0%	flapping	50%	1	78%
Curlew	0.55	0.9	16.3	98.0%	flapping	50%	1	49%
Lapwing	0.30	0.84	12.8	98.0%	flapping	50%	1	88%
Kestrel	0.34	0.76	10.1	95.0%	flapping	50%	1	71%

Table 10.3: Turbine parameters

Turbine data		
Model	Nordex	N149
Number of turbines	n	12
Hub height (m)		105
Rotor radius (m)	R	75
Number of blades	b	3
Rotational speed (ms^{-1})	Ω	9.00
Max blade width (m)	C	4.3
Blade pitch (degrees)	λ	6
Risk height range (m)		30-180

10.25 In summary the following steps were taken for this assessment:

- Digitise all flight lines and record relevant characteristics (including species, number of birds, start time of flight, time within each height band and average flight height) in a database;
- Calculate total bird activity for each species with sufficient flight activity to justify CRM;
- Clip flights to 500m plus rotor diameter buffer and calculate the proportion of total flight activity in the clipped area;
- Calculate an 'areal bird density' which is the number of bird per unit area in flight at any height at a given point in time. The areal bird density is most usually expressed per square kilometre (km^2);

- Calculate an 'occupancy rate' for each vantage point, defined as the observed 'at risk' activity levels divided by total observation time and area observed, giving the occupancy per unit time and unit area for each VP;
- Average the occupancy rate across the VPs using an un-weighted mean approach;
- Apply the average occupancy rate to the wind development site, based on the Assessment Boundary, risk volume and total turbine rotor volume, applying a factor to estimate the total time that the birds could theoretically be active during the year, based on an algorithm for calculating day length (Forsyth *et al.*, 1995); thus determining the total predicted time spent by the individual species within air space that could be swept by turbine blades;
- Run the collision model with relevant turbine and ornithological parameters to calculate the theoretical probability of transits resulting in a collision assuming no avoiding action;
- Multiply the number of transits by the collision rate, avoidance factor and operating parameters of the proposed wind farm to estimate the theoretical number of collisions per year; and
- Avoidance rates used were in accordance with NatureScot guidance (NatureScot, 2025)⁷.

10.26 The predicted mortality through collision is dependent on a number of variables, including flight activity within the turbine envelope, the species' physiology, nocturnal flight behaviour, flight velocity, weather conditions, the predicted avoidance rate, the number, rotational speed and dimensions of the turbines, and the proportion of the time that the turbines are operational throughout the year.

Reporting of the Environmental Effect and Significance Criteria

10.27 The assessment of likely significant environmental effects as a result of the Project for Assessment has taken into account the construction, operational and decommissioning stages. The following sections define the approach adopted within the assessment for the determination of value, magnitude of impact, the level of effect and significance.

Determining Value to a Receptor

10.28 The CIEEM Guidelines recommend that the value of ornithological features is determined based on a geographic frame of reference. For this project the following geographic frame of reference has been used:

- **International** (nature conservation designation, habitat or populations of species of international importance, e.g. a SPA or significant numbers of a designated population outside the designated site);
- **National** (nature conservation designation, habitat or populations of species of Scottish importance, e.g. a Site of Special Scientific Interest (SSSI) or a National Nature Reserve (NNR), a nationally important population / assemblage of a species listed on Schedule 1 of the Wildlife and Countryside Act 1981 or Annex 1 of the Birds Directive);

- **Regional** (regionally (e.g. North of England) important population of birds which have a high conservation value (e.g. Schedule 1, Annex 1, UK Biodiversity Action Plan (UK BAP) species, or Birds of Conservation Concern (BoCC) amber or red species);
- **County** (i.e. Lancashire/Greater Manchester) (a population of high conservation birds which represent an important part of the county population of that species);
- **Local** (i.e. within 5 km) (a population of any species which is important at the local level); and
- **Less than local** (a population of birds which has little or no intrinsic nature conservation value).

10.29 In assigning a level of value to a species, it is necessary to consider its distribution and status, including a consideration of trends based on available historical records. Rarity is an important consideration because of its relationship with threat and vulnerability although, because some species are inherently rare, it is necessary to look at rarity in the context of status. A species that is rare and declining should be assigned a higher level of importance than one that is rare with a stable population.

10.30 Reference is made to a number of categorisations of ornithology conservation status, including:

- **Annex I:** Annex I of Directive 2009/147/EC on the conservation of wild birds (the Birds Directive) lists species that are of conservation importance at a European level;
- **Schedule 1:** Rare breeding species in the UK, and / or species under threat of human persecution are listed on Schedule 1 of the WCA, which provides additional legal protection for such species at or around their nests;
- **UK BoCC:** A national classification (Stanbury, *et al.*, 2021)¹³ that categorises breeding bird populations in the UK using a traffic light system to indicate an increasing level of conservation concern. Species are assessed against objective criteria such as population and distribution trends; those that have a declining range and / or population, or that are vulnerable to population effects due to their small population size are categorised as Red or Amber listed species, depending on the extent of the decline or vulnerability; and
- **UK BAP:** Species which are identified as being important from a conservation viewpoint within a UK context are listed on the UKBAP. However, the UKBAP has not been updated since 2004 and further Biodiversity Action Plan is delivered at the local level, in this case the Greater Manchester BAP and Lancashire BAP.

Determining the Magnitude of Impact

10.31 The magnitude of impact has been considered as the change experienced from the current baseline conditions or against prescribed thresholds and has been considered on a scale of **large, medium, small or negligible**.

10.32 In accordance with the CIEEM Guidelines, when ascribing magnitude of impact, reference is made to the following, where appropriate:

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

10.33 Both direct and indirect impacts are considered. Direct ornithological 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 ornithological impacts are attributable to an action which affect ornithological resources through effects on an intermediary ecosystem, process or receptor.

Determining the Level of Effect

10.34 The level of effect has been informed by the magnitude of change due to the Project for Assessment and the evaluation of the value of the affected receptor. The level of effect has been determined using professional judgement and is reported in the 'Summary' section.

10.35 The following terms have been used to define the level of the effects identified and these can be 'beneficial' or 'adverse':

- **Major effect:** Where the Project for Assessment is likely to cause a considerable change from the baseline conditions and the receptor has limited adaptability, tolerance or recoverability or is of the highest sensitivity;
- **Moderate effect:** Where the Project for Assessment is likely to cause either a considerable change from the baseline conditions at a receptor which has a degree of adaptability, tolerance or recoverability or a less than considerable change at a receptor that has limited adaptability, tolerance or recoverability;
- **Minor effect:** Where the Project for Assessment is likely to cause a small, but noticeable change from the baseline conditions on a receptor which has limited adaptability, tolerance or recoverability or is of the highest sensitivity; or where the Project for Assessment is likely to cause a considerable change from the baseline conditions at a receptor which can adapt, is tolerant of the change and / or can recover from the change; and
- **Negligible:** Where the Project for Assessment is unlikely to cause a noticeable change at a receptor, despite its level of sensitivity or there is a considerable change at a receptor which is not considered sensitive to a change.

- 10.36 The duration of the effect has been assessed as either ‘short-term’, ‘medium-term’ or ‘long-term’. Short-term is considered to be up to 2 years, medium-term is considered to be between 2 and 10 years and long-term is considered to be greater than 10 years. All effects during construction are considered to be direct, short-term and temporary unless otherwise stated. Effects during operational are considered to be direct, long-term and temporary, unless otherwise stated.

Determining Significance

- 10.37 For each effect, a statement has been made as to whether the level of effect is ‘**Significant**’ or ‘**Not Significant**’. This determination has been based on professional judgement and / or relevant guidance / legislation, where applicable.

- 10.38 Significance has only been concluded for residual effects (i.e. following the identification of mitigation and/or compensation).

- 10.39 In accordance with the CIEEM Guidelines, a significant impact, in ornithological terms, is defined as;

“...an impact (whether negative or positive) 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.”

- 10.40 The approach adopted in this Chapter aims to determine an impact to be Significant or Not Significant on the basis of a discussion of the factors that characterise it, i.e. the ornithological significance of an impact is not dependent on the value of the feature in question. The value of a feature that will be significantly affected is used to determine the geographical scale at which the impact is significant, e.g. an ornithologically significant impact on a feature of local importance would be considered to represent a significant impact at a local area level. This in turn is used to determine the implications in terms of legislation, policy and / or development control.

Baseline Conditions

- 10.41 The following section summarises the results of the desk study and also the ornithology surveys namely vantage point surveys and breeding bird and breeding raptor surveys undertaken between April 2022 and August 2024 at the Assessment Boundary and adjacent survey buffer. Details of methods, results and analysis for the desk study and baseline surveys are presented in **Table 10.1** and figures will be supplied in a confidential appendix where necessary as part of the ES due to inclusion of locations for sensitive breeding species and Schedule 1 / Annex 1 raptors.

- 10.42 The full results of the ornithological survey effort are presented within **Technical Appendices 10.1 – 10.3: Ornithological Surveys 2022 – 2024**. This section provides an assessment of the ornithological receptors found on and in the vicinity of the Assessment Boundary and assesses their value in the context of the Project for Assessment. Species for which accounts are provided include species included on Annex I of the Birds Directive, Schedule 1 of the WCA, qualifying receptors of SPAs and those species considered at risk from wind farms (NatureScot, 2025).

Designated Sites

10.43 As described in Section 4.1.1 of **Appendix 10.1**, and shown in **Figure 10.1a**, three statutory designated sites with avian qualifying features were identified within 10km of the Assessment Boundary (extending to 20km for National Site Network Sites with qualifying interests for geese and / or gulls). There are also six non-statutory designated sites within the Assessment Boundary or within the 2km buffer across RBC and RMBC that have birds listed as part of the designation (**Figure 10.1b**). These designations are outlined in **Table 10.4**. Where a reference is made to 'birds at risk from windfarms' this indicates that only those species which are considered to be at risk from windfarms (NatureScot, 2025) are included.

Table 10.4: Designated sites with Avian Qualifying Features with 10km (extending to 20km for Natura 2000 sites with qualifying features for gulls and geese)

Site name	Designation	Distance from Assessment Boundary (Excluding Electrical Grid Connection Infrastructure)	Ornithological qualifying feature	Conservation value
Statutory Designations (Figure 10.1a)				
South Pennine Moors (Phase 2)	SPA	6.5 km E	Article 4.1 of the Birds Directive Golden plover <i>Pluvialis apricaria</i> , Merlin <i>Falco columbarius</i> Article 4.2 Breeding bird assemblage: Golden plover, Lapwing <i>Vanellus vanellus</i> , Dunlin <i>Calidris alpina</i> , Snipe <i>Gallinago gallinago</i> , Curlew <i>Numenius arquata</i> , Redshank <i>Tringa totanus</i> , Common sandpiper <i>Actitis hypoleucos</i> , Short-eared owl, Whinchat <i>Saxicola rubetra</i> , Wheatear <i>Oenanthe oenanthe</i> , Ring ouzel <i>Turdus torquatus</i> and Twite <i>Carduelis flavirostris</i> .	International
South Pennine Moors	SSSI	6.5 km E	Breeding Golden plover, Curlew, Merlin and Twite, also breeding bird assemblage. Species named include Dunlin, Lapwing, Snipe, Redshank, Peregrine <i>Falco peregrinus</i> , Whinchat, Wheatear, Stonechat, Ring ouzel, Little	National

Site name	Designation	Distance from Assessment Boundary (Excluding Electrical Grid Connection Infrastructure)	Ornithological qualifying feature	Conservation value
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ringed plover *Charadrius dubius* and Shelduck *Tadorna tadorna*

West Pennine Moors	SSSI	2.0 km (from the access track) WSW	Black-headed gull <i>Chroicocephalus ridibundus</i> , Mediterranean gull <i>Larus melanocephalus</i> and Grey heron <i>Ardea cinerea</i> Breeding birds named in the citation are Teal <i>Anas crecca</i> , Red grouse <i>Lagopus lagopus</i> , Merlin, Peregrine, Curlew, Short-eared owl <i>Asio flammeus</i> , Wheatear, Raven <i>Corvus corax</i> , Twite, Golden plover, Dunlin, Lapwing, Tree pipit <i>Anthus trivialis</i> , Wood warbler <i>Phylloscopus sibilatrix</i> , Spotted flycatcher <i>Muscicapa striata</i> , Pied flycatcher <i>Ficedula hypoleuca</i> Willow tit <i>Poecile montana</i> and Buzzard <i>Buteo buteo</i> .	National
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Non-statutory Designations (Figure 10.1b)

Cowpe Moss and Brandwood Moor	Biological Heritage Site (BHS)	Within Assessment boundary	Article 4.1 of the EC Birds Directive (Golden plover) Breeding bird assemblage	Local
Scout Moor	BHS	Adjacent (but access track passes directly through).	Article 4.1 of the EC Birds Directive (Golden plover, Dunlin) Breeding bird assemblage	Local

Site name	Designation	Distance from Assessment Boundary (Excluding Electrical Grid Connection Infrastructure)	Ornithological qualifying feature	Conservation value
Lee Quarry	BHS	Adjacent	Article 4.1 of the EC Birds Directive (Peregrine <i>Falco peregrinus</i>) Breeding bird assemblage	Local
Dearden Clough (Plunge Valley)	BHS	0.2 km NW	Breeding bird assemblage	Local
Knowl Moor	Site of Biological Importance (SBI)	Within Assessment Boundary	Article 4.1 of the EC Birds Directive (Golden plover, Dunlin, Dotterel <i>Charadrius morinellus</i>) Birds at risk from wind farms (NatureScot 2025) (Great black-backed gull <i>Larus marinus</i>) Breeding bird assemblage	Local
Healey Dell	SBI	0.3 km SE	Breeding bird assemblage	Local
Bowland Fells	Important Bird Area (IBA)	16.9 km NNW	Birds at risk from wind farms (NatureScot 2025) (Lesser black-backed gull <i>Larus fuscus</i>)	Regional

Species Accounts

10.44 A summary is provided below of the relevant species. Further details are provided in **Technical Appendices 10.1 – 10.3**, and **Figures 10.2 – 10.13** show the survey results which detail the flight activity and breeding bird distributions for the species accounts.

Barn owl

- 10.45 Barn owl *Tyto alba* are listed on Schedule 1 of the WCA 1981. There are historical sightings and records of breeding in the local area.
- 10.46 Barn owl were recorded during breeding raptor surveys as having a probable territory in the 2022 survey (**Confidential Figure 10.7**). The probable territory was located to the south-west of the Assessment Boundary and was more than 2 km away from any of the wind turbines. This species was not recorded during VP surveys on-site and was only observed during raptor surveys.

- 10.47 The breeding record in 2022 suggests that the survey area is used by Barn owl. However, breeding Barn owl have a relatively restricted foraging range of up to 1km (Hardey *et al.*, 2013)¹⁴ which suggests that much of the Project for Assessment will lie beyond the foraging range for the territory identified. As a result, given the absence of the species within the Assessment Boundary and the distance between the territory and the Assessment Boundary, the Assessment Boundary would be of significance at the less than local level for this species.

Black redstart

- 10.48 Black redstart *Phoenicurus ochruros* are listed on Schedule 1 of the WCA 1981, are on the Species of Principal Importance in England list and are amber-listed on BoCC 5. They are also included in the Greater Manchester BAP; and have historical records of presence locally.
- 10.49 While there was one recorded possible breeding territory during the 2022 breeding bird survey season, there were no further observations of this species. Additionally, the possible territory was located outside of the Assessment Boundary within the 500m buffer. Therefore, it is considered that Black redstart is of less than local significance due to the limited use of the Site by this species.

Black-headed Gull

- 10.50 Black-headed gulls are amber-listed on BoCC 5 and are a qualifying species for the West Pennine Moors SSSI. It is considered to be at risk from windfarms (NatureScot, 2025) and is a recent addition to this list.
- 10.51 The species was recorded occasionally during the VP surveys, and a small number of sightings were recorded during the breeding bird surveys. **Table 10.5** presents the flight activity recorded during the VP surveys which shows 10 flights over the survey period. Three flights were recorded during the breeding season; the remaining flights were recorded in the non-breeding season.

Table 10.5: Results of VP surveys for Black-headed gull

Species	Survey season	Minimum no. of birds	Maximum no. of birds	No. of flights	Total bird seconds	At-risk bird seconds
Black-headed gull <i>Chroicocephalus ridibundus</i>	April 2022 – August 2022	1	1	2	120	0
	September 2022 – February 2023	4	8	4	1,850	1,850
	March 2023 – August 2023	5	5	1	220	220
	September 2023 – January 2024	3	14	3	5,252	204
	April 2024 – August 2024	0	0	0	0	0

- 10.52 One possible breeding territory was recorded during breeding bird walkover surveys in 2024. The territory was located more than 3 km from any wind turbine.
- 10.53 Black-headed gull are a qualifying feature of the West Pennine Moors SSSI. However, with most of the records involving non-breeding birds which would not form part of the SSSI population and given the relatively infrequent occurrence of flights over the Assessment Boundary, the Assessment Boundary does not appear to be of importance for this species. As such it is considered to be of less than local importance for Black-headed gull.

Black-tailed godwit

- 10.54 Black-tailed godwit *Limosa limosa* are listed on Schedule 1 of the WCA 1981, are on the Species of Principal Importance in England list and are red-listed on BoCC 5. Flight activity for Black-tailed godwit was recorded. **Table 10.6** presents the flight activity recorded during the VP surveys. The species was seen on one occasion.

Table 10.6: Results of VP surveys for Black-tailed godwit

Species	Survey season	Minimum no. of birds	Maximum no. of birds	No. of flights	Total bird seconds	At-risk bird seconds
Black-tailed godwit <i>Limosa limosa</i>	April 2022 – August 2022	0	0	0	0	0
	September 2022 – February 2023	0	0	0	0	0
	March 2023 – August 2023	0	0	0	0	0
	September 2023 – January 2024	6	6	1	294	294
	April 2024 – August 2024	0	0	0	0	0

- 10.55 Black-tailed godwit was recorded only once during VP surveys (**Figure 10.10**). The record was in October and as such is considered to be from a vagrant migrant bird. There is no evidence of use of the Assessment Boundary by this species. As such, it is considered that the Assessment Boundary has less than local significance for this species due to a lack of evidence for use of the Assessment Boundary.

Curlew

- 10.56 Curlew *Numenius arquata* are on the Species of Principal Importance in England list, are red-listed on BoCC 5, and are considered to be at risk from wind farms (NatureScot, 2025). The population in England is estimated as approximately 30,000 pairs (Raby Estate, 2025)¹⁵, with much of that population in the north of England.
- 10.57 Declines of up to 40% have been recorded in breeding populations within about 620 m of wind farms (Pearce-Higgins *et al.*, 2012)¹⁶.

- 10.58 This species is also a qualifying species for South Pennine Moors SSSI and are listed as an assemblage species on the South Pennine Moors SPA (**Figure 10.1a**). Curlew are also a featured species for the non-designated Cowpe Moss and Brandwood Moor Lancashire BHS and the Knowl Moor Greater Manchester SBI (**Figure 10.1b**).
- 10.59 **Table 10.7** presents the flight activity recorded during the VP surveys. In VPs, the species was only recorded during the breeding season and was not seen outside of a section in the north-west of the Assessment Boundary (**Figure 10.10**).

Table 10.7: Results of VP surveys for Curlew

Species	Survey season	Minimum no. of birds	Maximum no. of birds	No. of flights	Total bird seconds	At-risk bird seconds
Curlew <i>Numenius arquata</i>	April 2022 – August 2022	1	1	2	178	178
	September 2022 – February 2023	0	0	0	0	0
	March 2023 – August 2023	1	3	4	451	368
	September 2023 – January 2024	0	0	0	0	0
	April 2024 – August 2024	1	1	1	26	0

- 10.60 Curlew sightings were recorded in both VP and walkover surveys, the latter of which were able to confirm breeding activity on-site (**Figures 10.2-10.4**). Whilst they were observed in flight on a small number of occasions during breeding season VPs and were localised in one region of the Assessment Boundary, more activity was recorded across the Assessment Boundary during designated breeding bird surveys. Curlew territories were identified in all years of breeding bird surveys.
- 10.61 One territory showed repeated use, with a nest being located in 2024, but the territory was also identified in 2022 and 2023 as a probable territory. The maximum number of territories was 12 in 2022, and four of those were within 620m of the proposed wind turbines (**Figure 10.2**). In 2023, four territories were within 620m of proposed turbines (**Figure 10.3**), and in 2024, three territories were within 620m of the proposed turbines (**Figure 10.4**).
- 10.62 The Assessment Boundary holds a population of breeding Curlew so holds some importance for the species. Birds breeding within the Assessment Boundary will not be connected to the West Pennine Moors SSSI population as birds from that population must be breeding within the West Pennine Moors SSSI. As such, the population is assessed as being of local significance.

Dunlin

- 10.63 The breeding British subspecies of Dunlin are listed on Annex I of the Birds Directive and are red-listed on the BoCC 5. They are an assemblage species for South Pennine Moors SPA and SSSI, are a reason for designation for the non-statutory Lancashire BHS designation of Cowpe Moss and Brandwood Moor and Scout Moor; and Greater Manchester SBI designation of Knowl Moor.
- 10.64 Two possible Dunlin territories were recorded in the first year of breeding bird surveys (**Figure 10.2**), both territories were within 500m of the nearest proposed turbine. The species was not observed during the other survey years or recorded during VP surveys. Although Dunlin are listed as an Annex I species and is a qualifying species for nearby statutory and non-statutory designated sites, the small number of territories and the intermittence of use during the survey period suggests that the Assessment Boundary is of local importance to this species.

Golden Plover

- 10.65 Golden plover are listed on Annex I of the EC Birds Directive and are green-listed on BoCC 5. They are considered to be at risk from wind farms (NatureScot, 2025). This species is also listed as a qualifying species for both the South Pennine Moors SPA and SSSI. Golden plover are also a qualifying feature for the non-statutory Lancashire BHS designation of Cowpe Moss and Brandwood Moor, and Scout Moor; and Greater Manchester SBI designation of Knowl Moor.
- 10.66 Golden plover were only observed during the first year of breeding bird surveys and were not recorded during the VP surveys. One probable and one possible breeding territory were recorded during the 2022 breeding birds survey (**Figure 10.2**), both territories were over 500m from the nearest proposed turbine. Birds breeding within the Assessment Boundary would not be considered part of the South Pennine Moors SPA / SSSI population.
- 10.67 Given the small number of breeding attempts during the first year of surveys, but no further occurrence of this species, and taking into account the sensitivity of the species, it is considered that the Assessment Boundary is of less than local significance for this species.

Greylag goose

- 10.68 Greylag geese are amber-listed on BoCC 5 and are considered to be at risk from wind farms (NatureScot, 2025). There is both a naturalised, resident population in the UK as well as a large number of international migrants which arrive from the Arctic to overwinter in the UK. The migrant population is considered the more sensitive population.
- 10.69 **Table 10.8** presents the flight activity recorded during the VP surveys and shows that there has not been consistent or regular use of the Assessment Boundary by this species and that a lack of large flocks in flight suggests it is not overflown by migration flight paths and that the provenance of birds are likely to be resident breeding birds. Greylag geese were not observed in the breeding bird walkover surveys over the three survey seasons.

Table 10.8: Results of VP surveys for Greylag goose

Species	Survey season	Minimum no. of birds	Maximum no. of birds	No. of flights	Total bird seconds	At-risk bird seconds
Greylag goose <i>Anser anser</i>	April 2022 – August 2022	2	8	7	846	726
	September 2022 – February 2023	7	7	1	1,106	1,106
	March 2023 – August 2023	0	0	0	0	0
	September 2023 – January 2024	0	0	0	0	0
	April 2024 – August 2024	0	0	0	0	0

- 10.70 Greylag goose were recorded on VP surveys in the first two seasons (**Figure 10.13**). The species was not recorded during the rest of the VP survey effort and was not recorded in any of the breeding bird walkover surveys. The small numbers of sightings overall combined with the small maximum bird numbers and no recorded evidence of breeding within or of the Assessment Boundary suggests this territory is of less than local importance to the species.

Hobby

- 10.71 Hobby *Falco subbuteo* are listed on Schedule 1 of the WCA 1981. They also have historical sighting records in the local area. **Table 10.9** presents the flight activity recorded during the VP surveys.

Table 10.9: Results of VP surveys for Hobby

Species	Survey season	Minimum no. of birds	Maximum no. of birds	No. of flights	Total bird seconds	At-risk bird seconds
Hobby Falco <i>subbuteo</i>	April 2022 – August 2022	0	0	0	0	0
	September 2022 – February 2023	0	0	0	0	0
	March 2023 – August 2023	1	1	1	28	0
	September 2023 – January 2024	0	0	0	0	0
	April 2024 – August 2024	0	0	0	0	0

- 10.72 With only one sighting of this species recorded (**Figure 10.11**) which was not at risk height, there are no at-risk bird seconds recorded. General lack of evidence of the presence of Hobby within the Assessment Boundary suggests this area is of less than local importance to this species.

Kestrel

- 10.73 This species is an Amber BoCC species and is listed on the 'long list' within the Lancashire BAP, as whilst it is a local breeder in all parts of Lancashire, it is categorised as having a 'probable local decline'. The BTO latest figures estimate there are 31, 000 breeding pairs of Kestrel in the UK¹⁷.
- 10.74 There were 13 records in a 2km radius between 2005 and 2025 within the combined data received from Greater Manchester and Lancashire ecological record centres in August 2023, all of which were in Lee Quarry adjacent north-east of the Assessment Boundary. Through breeding raptor surveys undertaken by Atmos over three breeding seasons, a maximum of 2 breeding territories were identified within the operational areas of the Assessment Boundary, and a peak of five territories within the Assessment Boundary and 2 km survey buffer combined (**Confidential Figures 10.7 – 10.9**).
- 10.75 Vantage point survey results further demonstrate they have an established presence on and adjacent to the Assessment Boundary, as they were present in all seasons throughout all periods of survey between April 2022 and August 2024. **Figure 10.12** shows the flight activity over the full survey period for kestrel. Consistent numbers of flights were observed through the first breeding season, the first non-breeding season and second breeding season when VPs 1-5 were all being actively surveyed. A peak count of 3 birds was observed in the first breeding season which is consistent with breeding territories identified during the breeding raptor surveys. **Table 10.10** presents the flight activity recorded during the VP surveys.

Table 10.10: Results of VP surveys for Kestrel

Species	Survey season	Minimum no. of birds	Maximum no. of birds	No. of flights	Total bird seconds	At-risk bird seconds
Kestrel <i>Falco tinnunculus</i>	April 2022 – August 2022	1	3	48	4,882	3396
	September 2022 – February 2023	1	1	43	4883	2898
	March 2023 – August 2023	1	2	46	5400	4692
	September 2023 – January 2024	1	1	28	2780	1421
	April 2024 – August 2024	1	1	3	163	163

- 10.76 Kestrel is a relatively widespread raptor which used the Assessment Boundary regularly, and was one of the more common species observed, with a number of breeding territories recorded across the survey area. As such, the Assessment Boundary would be evaluated as being of local importance for this species.

Lapwing

- 10.77 Lapwing *Vanellus vanellus* are on the Species of Principal Importance in England list, are red-listed on BoCC 5 and are considered to be at risk from wind farms (NatureScot, 2025). They also feature on the Lancashire BAP species list and have historical sightings and records of breeding in the local area. The species is listed as an assemblage species for the South Pennine Moors SPA / SSSI. Lapwing is also a qualifying species for the non-designated sites of Lee Quarry Lancashire BHS and the Knowl Moor Greater Manchester SBI.
- 10.78 **Table 10.11** presents the flight activity recorded during the VP surveys.

Table 10.11: Results of VP surveys for Lapwing

Species	Survey season	Minimum no. of birds	Maximum no. of birds	No. of flights	Total bird seconds	At-risk bird seconds
Lapwing <i>Vanellus vanellus</i>	April 2022 – August 2022	1	5	19	1,858	1,210
	September 2022 – February 2023	1	7	2	467	175
	March 2023 – August 2023	1	3	11	568	292
	September 2023 – January 2024	0	0	0	0	0
	April 2024 – August 2024	0	0	0	0	0

- 10.79 More flights were recorded during the breeding season and support the findings of the breeding bird surveys, but slightly larger groups of up to 7 birds were recorded infrequently in winter which suggests birds may also winter in the locality or pass through the area. The flightlines of this species were concentrated almost entirely on the eastern boundary of the Assessment Boundary north of Spring Mill Reservoir just under 1km from Turbine 1 (**Figure 10.10**).
- 10.80 A confirmed breeding territory for Lapwing was found during the first breeding bird survey year, with an additional possible territory the same year (**Figure 10.2**). One possible territory was recorded in the second year (**Figure 10.3**). One probable and four possible Lapwing territories were recorded in year 3 (**Figure 10.4**). All of these territories were within the survey buffer area of the Assessment Boundary. None of the territories were within 500m of a turbine location.
- 10.81 The Assessment Boundary is therefore considered to be of local importance for the species as a result of the volume of flight data collected, paired with the records of probable and confirmed breeding territories in each of the three survey years.

Lesser black-backed gull

- 10.82 Lesser black-backed gull are amber-listed on BoCC 5 and are considered to be at risk from wind farms (NatureScot, 2025). The species is a qualifying feature for the Bowland Fells IBA and the non-designated site of Knowl Moor Greater Manchester SBI. This species was observed on several occasions over the course of the survey period and was also recorded during breeding bird walkover surveys. **Table 10.12** presents the flight activity recorded during the VP surveys.

Table 10.12: Results of VP surveys for Lesser black-backed gull

Species	Survey season	Minimum no. of birds	Maximum no. of birds	No. of flights	Total bird seconds	At-risk bird seconds
Lesser black-backed gull <i>Larus fuscus</i>	April 2022 – August 2022	11	11	1	330	330
	September 2022 – February 2023	0	0	0	0	0
	March 2023 – August 2023	4	8	2	288	288
	September 2023 – January 2024	2	2	1	578	0
	April 2024 – August 2024	1	1	1	9	0

- 10.83 The species was recorded more frequently during the breeding season.
- 10.84 Lesser black-backed gull were observed in two of three years during breeding bird surveys. No breeding territories were recorded during the 2022 or 2023 seasons (**Figures 10.2 and 10.3**), one possible territory was recorded in 2024 at Ashworth Moor Reservoir (**Figure 10.4**) to the south-east of the Assessment Boundary.
- 10.85 The observation of only one possible territory in addition to the relatively low number of ‘at risk’ flight seconds from VP surveys suggests that the Assessment Boundary is of less than local importance for the species.

Merlin

- 10.86 Merlin are listed on Annex 1 of the Birds Directive and Schedule 1 of the WCA. They are also a red-listed species on BoCC 5 and are considered to be at risk from wind farms (NatureScot, 2025). The species is also a qualifying feature for the South Pennine Moors SPA / SSSI and has historical records of breeding locally. **Table 10.13** presents the flight activity recorded during the VP surveys.

Table 10.13: Results of VP surveys for Merlin

Species	Survey season	Minimum no. of birds	Maximum no. of birds	No. of flights	Total bird seconds	At-risk bird seconds
Merlin <i>Falco columbarius</i>	April 2022 – August 2022	1	2	3	246	246
	September 2022 – February 2023	1	2	7	993	782
	March 2023 – August 2023	1	1	1	47	47
	September 2023 – January 2024	0	0	0	0	0
	April 2024 – August 2024	1	1	1	7	0

- 10.87 One possible territory for Merlin was recorded in 2022 within the Assessment Boundary (**Confidential Figure 10.7**); no further breeding territories were identified.
- 10.88 Several Merlin flights were recorded during the VP survey effort consistently over the entirety of the Assessment Boundary, including several sightings during the non-breeding season of 2022 –2023 (**Figure 10.11**).
- 10.89 While only one possible breeding territory for Merlin was recorded over the raptor survey effort, this species was seen occasionally across VP surveys, suggesting the land within the Assessment Boundary has some suitability for Merlin. Merlin is a sensitive species due to their inclusion on Annex I of the Birds Directive and Schedule 1 of the WCA. However, with no regular breeding recorded and only limited foraging, while the Assessment Boundary is used occasionally, it is not used at a level which would suggest it was of any more than local significance.

Peregrine

- 10.90 Peregrine *Falco peregrinus* are listed on Annex 1 of the EU Birds Directive and Schedule 1 of the WCA 1981. They are green-listed on BoCC 5 and are considered to be at risk from wind farms (NatureScot, 2025). Peregrine is also highlighted as a qualifying species for the nearby Lee Quarry BHS.
- 10.91 This species was recorded as a possible breeding species in the 2022 breeding bird survey season with two possible territories recorded; one within the periphery of the Assessment Boundary and the other within the survey area but some distance from the Assessment Boundary (**Confidential Figure 10.7**), with no proposed infrastructure within 1.2km of either territory. There was also a single Peregrine sighting in the 2024 breeding raptor survey, however, there was no evidence for breeding (**Confidential Figure 10.9**).

10.92 Peregrine have been recorded breeding at an SSSI / BHS adjacent to the Assessment Boundary for many years, and so activity observed on the Assessment Boundary (**Figure 10.11**), albeit infrequent, could be associated with birds breeding in the SSSI / BHS. However, given that the only flight was recorded in the year when two breeding attempts were also identified in the raptor survey area, then it is difficult to determine if this flight involved a bird from the SSSI.

10.93 **Table 10.14** presents the flight activity recorded during the VP surveys.

Table 10.14: Results of VP surveys for Peregrine

Species	Survey season	Minimum no. of birds	Maximum no. of birds	No. of flights	Total bird seconds	At-risk bird seconds
Peregrine <i>Falco peregrinus</i>	April 2022 – August 2022	1	1	1	80	60
	September 2022 – February 2023	0	0	0	0	0
	March 2023 – August 2023	0	0	0	0	0
	September 2023 – January 2024	0	0	0	0	0
	April 2024 – August 2024	0	0	0	0	0

10.94 While there were two possible breeding territories recorded in 2022, these were not close to the Assessment Boundary, suggesting that the Assessment Boundary is only used intermittently by this species for hunting. Peregrine are generally a species of national importance but given the very low use of the Assessment Boundary by this species, when they are known to breed in the wider area, suggests the Assessment Boundary is of limited suitability and it is therefore considered to be of less than local significance only.

Pink-footed goose

10.95 Pink-footed goose *Anser brachyrhynchus* are amber-listed on BoCC 5 and is considered to be at risk from wind farms (NatureScot, 2025). Pink-footed goose only breed in the UK in very small numbers, generally as migrants which have failed to return to their Arctic breeding grounds. As such, all records relate to non-breeding individuals. A flock of Pink-footed goose were seen on only one occasion during the VP survey effort (see **Table 10.15**).

Table 10.15: Results of VP surveys for Pink-footed goose

Species	Survey season	Minimum no. of birds	Maximum no. of birds	No. of flights	Total bird seconds	At-risk bird seconds
Pink-footed goose <i>Anser brachyrhynchus</i>	April 2022 – August 2022	0	0	0	0	0
	September 2022 – February 2023	0	0	0	0	0
	March 2023 – August 2023	0	0	0	0	0
	September 2023 – January 2024	27	27	1	1,620	1,620
	April 2024 – August 2024	0	0	0	0	0

- 10.96 A single flock of Pink-footed goose was recorded on one occasion (**Figure 10.13**). As Pink-footed geese are a migratory species, a large number of recorded flightlines would indicate an area as being part of a migratory route during spring and autumn migration periods. The single Pink-footed goose flightline indicates that the Assessment Boundary is not part of such a route, and therefore the overall importance of the Assessment Boundary for this species is considered to be less than local.

Red kite

- 10.97 Red kite *Milvus milvus* are listed on Annex 1 of Birds Directive and Schedule 1 of the WCA. They are green listed on BoCC 5 and are considered to be at risk from wind farms (NatureScot, 2025). **Table 10.16** presents the flight activity recorded during the VP surveys.

Table 10.16: Results of VP surveys for Red kite

Species	Survey season	Minimum no. of birds	Maximum no. of birds	No. of flights	Total bird seconds	At-risk bird seconds
Red kite <i>Milvus milvus</i>	April 2022 – August 2022	1	1	1	20	20
	September 2022 – February 2023	0	0	0	0	0
	March 2023 – August 2023	0	0	0	0	0
	September 2023 – January 2024	0	0	0	0	0
	April 2024 – August 2024	0	0	0	0	0

- 10.98 Only one recorded flight from Red kite was recorded – in the first year of VP surveys (**Figure 10.11**). There was also a single sighting of red kite during the 2024 breeding raptor surveys, which was classified as non-breeding. As a result of the limited occurrence of this species, the Assessment Boundary is classified as having less than local importance for Red kite.

Other species

- 10.99 **Table 10.17** provides the data for those species recorded during the VP surveys divided between the survey seasons and a summary evaluation is provided in **Table 10.18** for all other Annex I / Schedule 1 / non-passerine Species of Principal Importance in England, red-listed species (according to BoCC 5) which are considered to be at risk from wind farms (NatureScot, 2025) and were recorded on the ornithology surveys. Snipe *Gallinago gallinago* has also been included in **Table 10.17** as this species has been shown to be negatively affected by wind farms (Pearce-Higgins *et al.*, 2012).

Table 10.17: Results of VP surveys for all species divided by survey season

Species	Survey season	Minimum no. of birds	Maximum no. of birds	No. of flights	Total bird seconds	At-risk bird seconds
Common gull <i>Larus canus</i>	September 2022 – February 2023	8	19	2	1585	0
Gadwall <i>Anas streptera</i>	March 2023 – August 2023	1	1	1	39	39

Species	Survey season	Minimum no. of birds	Maximum no. of birds	No. of flights	Total bird seconds	At-risk bird seconds
Goosander <i>Mergus merganser</i>	April 2022 – August 2022	2	2	1	94	0
Herring gull <i>Larus argentatus</i>	April 2022 – August 2022	1	1	2	92	92
	September 2022 – February 2023	1	34	4	2631	2040
	March 2023 – August 2023	5	5	1	290	290
	September 2023 – January 2024	7	7	1	280	280
Little egret <i>Egretta garzetta</i>	April 2022 – August 2022	1	1	1	41	41
Mute swan <i>Cygnus olor</i>	September 2022 – February 2023	3	3	1	156	0
Oystercatcher <i>Haemotopus ostralegus</i>	April 2022 – August 2022	1	1	1	47	47
Redshank <i>Tringa totanus</i>	March 2023 – August 2023	1	1	1	20	20
Shoveler <i>Anas clypeata</i>	March 2023 – August 2023	2	2	1	78	0
	September 2023 – January 2024	2	2	1	80	80
Snipe	September 2022 – February 2023	1	1	1	23	23
Tufted duck <i>Aythya fuligula</i>	March 2023 – August 2023	2	2	3	518	518

Table 10.18: Conservation evaluations – Other species

Species	Reason for inclusion	Occurrence on Assessment Boundary	Evaluation	Justification
Common gull	Amber-listed on BoCC 5, at risk from wind farms (NatureScot, 2025)	Sightings during VPs, one sighting during 2024 breeding bird survey; considered non-breeding	Less than local	Only two flights observed in three years of monitoring
Gadwall	Amber listed on BoCC 5	Limited sightings during VPs	Less than local	Very limited use of the Assessment Boundary
Hen harrier	Annex I; Red-listed on BoCC 5,	One sighting during 2022 breeding bird survey; considered non-breeding	Less than local	No repeat observations or flight records from VPs
Herring gull	Red-listed on BoCC 5, Species of Principal importance in England, UK BAP listing, at risk from windfarms (NatureScot, 2025)	Sightings during VPs; two possible breeding territories in 2024 survey both close to Ashworth Moor Reservoir (Figure 10.4), other sightings considered non-breeding	Less than local	Species with a large population showing very limited occurrences on the Assessment Boundary
Little egret	Annex I	Limited sightings during VPs	Less than local	Limited use of the Assessment Boundary; no breeding territories
Little ringed plover	Schedule 1; Lee Quarry Lancashire BHS listing	Historical records only	Less than local	No sightings recorded during surveys
Oystercatcher	Amber-listed on BoCC 5	Limited sightings during VPs; confirmed and possible breeding territories in 2022 and 2023 surveys (Figures 10.2 and 10.3), all were in the southern section of the survey area, approximately 2km from	Less than local	Little flight activity recorded on VPs; limited use of the Assessment Boundary for a relatively

Species	Reason for inclusion	Occurrence on Assessment Boundary	Evaluation	Justification
		the southern-most turbine		widespread species
Redshank	Amber-listed on BoCC 5; Listed in local BHS and SBI non-statutory designations.	Limited sightings during VPs	Less than local	Limited use of the Assessment Boundary
Short-eared owl	Annex I / Schedule 1; Amber-listed on BoCC 5; West Pennine Moors SSSI listing	One sighting during 2022 breeding bird survey; considered non-breeding	Less than local	No repeat observations or flight records from VPs
Shoveler	Amber-listed on BoCC 5	Limited sightings during VPs	Less than local	Limited use of the Assessment Boundary
Snipe	At risk from wind farms (NatureScot 2025)	Limited sightings during VPs; probable and possible breeding territories in all three years (Figures 10.2-10.4), only one territory from 2024 was within 500m of a proposed turbine	Less than local	Virtually no flight activity recorded on VPs
Twite	UK BAP Listing; Species of Principal Importance in England	One sighting during 2022 season breeding bird survey.	Local	Possible territory in east of Assessment Boundary in 2022. No repeat observations

Future Baseline

10.100 If the current land management practices were to continue, it is likely that the range and condition of habitats currently present would deteriorate further given grazing, drainage and management pressures as evidenced through the declining condition of many of the bog and heath habitats recorded during surveys.

10.101 It is noted that quad bikes and offroad motorbikes are already accessing parts of the Assessment Boundary in the north due to the existing access routes such as farm tracks and public footpaths which connect the Assessment Boundary to nearby villages. Intensive sheep

grazing has also potentially had an impact on the condition of habitats within the moors. This would have the effect of reducing the suitability of the Assessment Boundary for upland breeding species, potentially reducing the bird populations within the Assessment Boundary.

10.102 Climate change may also affect the future baseline, which could affect the climate of the area and the range of species using the Assessment Boundary.

Scope of the Assessment

10.103 An EIA Scoping Report was submitted to RMBC and RBC on 16th December 2024 as **Appendix 2.1**. At the time of writing (May 2026), no Scoping Opinion has been received. This Section provides an update on the scope of the assessment presented within this Chapter following submission of the EIA Scoping Report.

Effects Unlikely / Not Significant

10.104 The following effects were considered unlikely / not significant as part of the EIA Scoping Report and therefore have not been considered further within the EIA or reported in the ES:

- Noise, disturbance / displacement and loss of breeding habitat for breeding passerines;
- Collision risk to migratory wildfowl; and
- Disturbance, loss of foraging habitat and additional mortality for Special Protection Area (SPA) and Site of Special Scientific Interest (SSSI) bird populations (beyond those carried forward for further assessment in **Table 10.19**).

Effects Likely / Significant

10.105 Since the submission of the EIA Scoping Report (**Appendix 2.1**), there have been changes to the receptors 'scoped in', as follows:

Displacement due to loss and degradation of habitats, and disturbance

- Golden Plover have been removed as a receptor for effects from displacement due to loss and degradation of habitats, and disturbance. This is due to the very low usage of the Assessment Boundary across all years of survey and lack of sightings during extensive vantage point surveys such that it is highly unlikely this species would be subject to adverse displacement effects that would give rise to a likely significant effect; and
- Merlin have been added as a receptor to the effects of displacement due to loss and degradation of habitats, and disturbance. This is due to a review of the activity on-site for this species, their distribution in a wider context and the potential value of the Assessment Boundary to their conservation.

10.106 In addition, following EIA Scoping, an additional effect has been included within this Chapter:

Population decline of breeding upland birds within the West Pennine Moors SSSI

10.107 Given consultee feedback through the EIA Scoping process and further additions to the Assessment boundary following scoping, consideration has been given to impacts related to the population decline of breeding upland birds within the West Pennine Moors SSSI from the Project for Assessment and the assessment is presented within this Chapter.

10.108 Of the statutory sites identified within the desk top search, the following sites remain scoped out of further assessment due to the distance between the site and the Assessment Boundary and based on no evidence of use by birds from the site, suggesting that the Assessment Boundary does not form functional supporting habitat:

- South Pennine Moors Phase 2 SPA; and
- South Pennine Moors SSSI.

10.109 The SPA is clearly an important designated site, but its closest point is 6.5km from the Assessment Boundary. For there to be a likely significant effect on the SPA populations, there needs to be evidence that birds from the SPA breeding populations will travel to the Project for Assessment regularly enough for it to be considered functional habitat, such that its loss could have an adverse impact on the integrity of the SPA. For those species which are qualifying features in their own right (Merlin and Golden plover), Merlin have a range distance of approximately 5km (NatureScot, 2016) so will not forage over the Project for Assessment; in addition, most records were during the non-breeding season, so could not be from the breeding population of the SPA.

10.110 Golden plover have a core range of 3km, with a maximum range of 11km (NatureScot 2016); given that and the very limited occurrence on the Project for Assessment, the level of activity is such that there could be no likely significant effect on the SPA population; the species has been 'scoped out' of assessment because the activity level is so low there would be no significant adverse impact on the population in the vicinity of the Project for Assessment.

10.111 The SPA is also designated for its breeding bird assemblage. However, many of these species are species with a limited home range or where birds recorded within or adjacent to the Project for Assessment were breeding in the survey area so any potential impacts would fall on locally breeding birds which would not form part of the SPA population. As a result, there would be no likely significant effect on the feature of the breeding bird assemblage and so no further assessment is required.

10.112 Significant effects could occur on West Pennine Moors SSSI if species for which the site was designated, or which are listed in the assemblage are also significantly affected. Of the three non-assemblage species, Black-headed gull while recorded were mainly recorded outwith the breeding season so birds would not form part of the SSSI population; there were no records for Mediterranean gull or Heron. For those species which had potential to range from the SSSI to the Project for Assessment, only four species Curlew, Dunlin, Lapwing and Merlin are considered to have potential for significant effects to occur due to the levels of activity recorded. As such, further consideration to impacts on the West Pennine Moors SSSI will be considered.

10.113 **Table 10.19** outlines the effects that are considered both likely to occur and have potential to be significant and are therefore assessed within this Chapter.

10.114 For an effect to have potential to be Significant, the species evaluation must be local or higher (see 'Determining Value of Receptor' section below). **Table 10.19** therefore takes into account the baseline as described above in this chapter and the potential effects which are associated with wind farm development at the different stages of the Project for Assessment.

Table 10.19: Effects likely / significant

Likely significant effect	Receptor(s)	Applicable stage(s)
Increased mortality due to collision	Breeding Lapwing, Curlew and Kestrel. Non-breeding Merlin	Operation
Displacement due to loss and degradation of habitats, and disturbance	Breeding Waders: Curlew, Lapwing, and Dunlin Merlin	Construction / operation / decommissioning
Population decline of breeding upland birds within the West Pennine Moors SSSI.	Breeding Merlin, Lapwing, Dunlin and Curlew	Construction / operation / decommissioning

Primary and Tertiary Mitigation

10.115 In line with CIEEM guidelines, the impact assessment in this chapter is carried out on the basis that mitigation measures will be in place during construction and operation. The following good practice and mitigation measures will be applied to the Project for Assessment during construction and operation to ensure that effects on Important Ornithological Features (IOFs) are reduced. The Applicant would be content that these measures be conditioned.

Construction Stage

10.116 The following primary and tertiary mitigation which has been evaluated as part of the construction stage assessment is outlined below.

10.117 Details of construction mitigation measures will be provided in a CEMP. The CEMP will be submitted to the Local Planning Authorities for approval prior to development commencing. The CEMP will include information on the following ecological related activities:

- Construction works will require a Construction Method Statement (CMS) to be prepared post-determination and in advance of the commencement of construction on-site; and
- Construction works will be overseen by an Ecological Clerk of Works (ECoW) and their role and responsibilities will be detailed in a CEMP.

10.118 A toolbox talk will also be provided during the induction process, detailing that there may be sensitive species present during the construction period and identifying any restrictions on work which may be in place and the process for flagging potential issues to the ECoW.

10.119 Wherever possible, vegetation clearance will take place outside the bird breeding season (i.e. September – mid-March). Should this not be possible, then the vegetation to be removed will be searched by a suitably qualified ecologist no more than 24 hours before clearance commences. During construction, within the breeding season, regular breeding bird checks would be carried out in proximity to active construction areas to identify bird nests.

- 10.120 Nests of non-Schedule 1 or non-Annex 1 species present will be marked with a buffer (likely to be 5m but can be less with ECoW oversight) to prevent damage to the nest. This buffer can only be removed with ECoW approval once they have confirmed the nest is no longer in use.
- 10.121 In the 12 months before construction commences, breeding raptor surveys should be undertaken (and should also be carried out during construction if construction falls within a breeding season) with the aim of identifying the presence of any Annex I or Schedule 1 species which may be disturbed by the construction work.
- 10.122 Should the nest of an Annex 1 or Schedule 1 species be located, then disturbance buffers based on guidance (currently Goodship & Furness, 2022¹⁸) will be established around the nest and no construction activity should be allowed within this area. The ECoW will carry out a risk assessment if access roads are within the buffer distance of the nest to establish if they can be used without unlawfully disturbing specially protected species.

Operational Stage

- 10.123 The following primary and tertiary mitigation which has been evaluated as part of the operational stage assessment is outlined below.
- 10.124 A habitat management and monitoring plan (HMMP) has been established. This aims to monitor the occurrence of sensitive species on-site with a view to identifying adaptive habitat management measures to support species which appear to be declining. This has been provided in outline (**Appendix 9.7**) and will be submitted to RBC and RMBC for approval, in consultation with Natural England, before construction commences. It aims to particularly improve the quality of blanket bog habitats on-site and the extent of native habitats through the promotion of rewilding in the wider area. This would have the potential to increase the suitability of the Assessment Boundary for upland species.

Decommissioning Stage

- 10.125 Measures identified for the construction stage would be adopted for the decommissioning stage, informed by the results of any monitoring conducted prior to decommissioning commencing, which would be carried out at a similar occurrence as set out in the pre-construction period.

Assessment of Effects, Secondary Mitigation and Residual Effects

- 10.126 All mitigation is set out in the proceeding section. There is no requirement for secondary mitigation for any receptor and therefore the assessment as presented describes the residual effects as well.

Construction Stage

Displacement due to loss and degradation of habitats, and disturbance

- 10.127 Disturbance occurs when human activity within the construction area, including the presence of machinery and infrastructure, causes disturbance responses in birds, these can range from increased watchfulness and short distance avoidance movements through to removal from the area entirely. Should disturbance be great enough, it can also lead to displacement which is when birds will avoid an area because the levels of disturbance they experience are so great. As such, displacement and disturbance can be linked. There is also a linkage between

displacement due to loss of habitats on-site – when a habitat is removed or is degraded, it may reduce the suitability of it for use and so birds may reduce or stop using it altogether.

- 10.128 Species for which this impact was assessed as having potential to be significant were breeding Curlew, Lapwing, Dunlin and breeding and non-breeding Merlin. These species are considered in turn below.

Curlew

- 10.129 Curlew are known to be sensitive to wind farm developments (Pearce-Higgins *et al.*, 2012) with reductions of up to 40% of territories occurring within 620m of wind turbines (although the effect has not been identified on all studies of Curlew (Whitfield, 2010)¹⁹. This effect commences during construction but continues through to the operational stage of wind farms and is therefore considered permanent but is considered further under operational effects.
- 10.130 The maximum number of territories identified in any one year was twelve territories in 2022. There was considerable overlap between Curlew territories and the proposed wind turbines, such that four territories were within 620m of the wind turbines in 2022, four were within 620m of turbines in 2023 and two in 2024, the variability is likely in part due to differences in survey boundaries in each year, alongside that these species are mobile. Using the peak count in 2022/2023, this would amount to displacement of 1.6 territories. This number would fluctuate based on the number of pairs in occupancy, but this would represent a worst-case assessment. In addition, one to two additional Curlew territories were located within 500m of the Option C grid connection route, this could lead to the temporary loss of these territories if construction of the grid connection is carried out in the breeding season. However, the fluctuation in numbers indicates that the temporary loss of one or two territories lies within the natural variation in number of pairs breeding in this area.
- 10.131 The displacement would likely persist during the construction period, and the territories would assume to be lost in the absence of any mitigation / compensation. However, with the proposed HMMP aiming to restore degraded habitat, there is potential for the carrying capacity of the Assessment Boundary to be increased for this species which would offset some or all of the loss. There is likely to be a period when the territories have been lost and the habitat improvement is still occurring, such that from a precautionary viewpoint it cannot be stated with confidence that would be no net loss of territories. However, given the limited loss of a relatively widespread albeit declining species, this would be assessed, as a minor loss which is significant at the local level and therefore **Not Significant** in EIA terms. Given no secondary mitigation is required, this would also be the residual effect. The assessment would not be altered by the micro-siting allowance.

Lapwing

- 10.132 The extent of indirect and indirect habitat loss as a result of the proposed infrastructure is negligible for this species, due to all territories lying within the 500m buffer in all survey years and as such having limited exposure to direct and indirect habitat loss. Whilst it is possible for part of the Assessment Boundary to overlap with areas used by the birds holding these territories, the core activity has been identified away from wind turbines and access tracks, therefore displacement associated with habitat loss will have a negligible effect on Lapwing which is not considered to be significant even at the less than local level. This would make it **Not Significant** in EIA terms.

10.133 Experience during wind farm construction has demonstrated that Lapwing are unlikely to suffer displacement effects related to human activity during the construction stage. Atmos has experienced them nesting on recently constructed crane pads during wind farm construction, the rocky surfaces apparently considered suitable nesting habitat despite the construction activity in the environs. Given all territories were beyond 500m from proposed turbine locations, any disturbance effects would therefore be assessed as negligible and not significant even at the less than local level and as such, **Not Significant** in EIA terms. Given no secondary mitigation is required, this would also be the residual effect. The assessment would not be altered by the micro-siting allowance.

Dunlin

10.134 There was variable use of the Assessment Boundary with two territories present in 2022 but in no other year. As a result, the extent of impacts on this species would depend on their presence within the Assessment Boundary during construction and it would not be clear if their absence meant that displacement had occurred or not. As such, if the effects of displacement are not distinguishable from the natural variation of the usage of the Assessment Boundary it cannot be considered significant even at the less than local level. This would mean any disturbance effects would be **Not Significant** in EIA terms.

10.135 The two Dunlin territories which were present, were within 500m of the proposed infrastructure so there could potentially be disturbance as a result of construction, albeit it with the primary and tertiary mitigation in place this would reduce effects to a level where, in EIA terms the significance would be no greater than less than local and as such **Not Significant** in EIA terms. Given no secondary mitigation is required, this would also be the residual effect. The assessment would not be altered by the micro-siting allowance.

Merlin

10.136 Merlin range up to 5km from their nests (NatureScot 2016)⁵ with estimates of 20km² required to support a breeding pair of Merlin in Scotland (Orchel, 1992, in Sales, 2015)²³. As a result, the extent of direct and indirect habitat loss associated with the construction works will have **No Significant** effects in EIA terms on Merlin even at the less than local level due to the large area they range over and the small area affected by habitat loss, even where that habitat loss is permanent.

10.137 There will be no disturbance effects on breeding Merlin; breeding Merlin are protected from disturbance around their nests and the primary and tertiary mitigation set out aims to prevent disturbance to breeding Merlin such that works would proceed lawfully. As a result, this would be **Not Significant** in EIA terms.

10.138 There is potential for disturbance effects on foraging Merlin, both breeding and non-breeding. This is likely to be localised to active working areas during the construction phase, as Merlin can adapt to human activity relatively well (Goodship & Furness, 2022)¹⁷, (Sales, 2015)²³. Given the ranging distance of Merlin (NatureScot, 2016)⁵, the scale of effect is likely to be local at most and therefore **Not Significant** in EIA terms.

10.139 Application of micro-siting allowance does not change the level of effect for any impacts considered. Since no secondary mitigation is required as described above, then the residual effects are reported here.

Population decline of breeding upland birds within the West Pennine Moors SSSI

10.140 Potential impacts have only been identified for Lapwing, Dunlin, Curlew and Merlin, due to the levels of activity and distance between the Project for Assessment and the SSSI for other species listed in the SSSI citation. Such effects would be direct, short-term and temporary. However, the assessment for those species has identified no significant impacts during the construction stage such that no significant population decline was identified for any of those species in relation to the population in the vicinity of the Assessment Boundary.

10.141 There is potential for a loss in the number of breeding Curlew as set out above, but these are associated with the breeding population of the Assessment Boundary and as such, there would no impact on the West Pennine Moors SSSI; birds which are breeding within the Assessment Boundary cannot also form part of the SSSI population which is 2.0km from the Project for Assessment. Similarly, while no significant effect has been identified on the other species assessed, the birds being assessed were not part of the SSSI population, as Lapwing and Dunlin were assessed because of territories present within the survey area. While Merlin were observed foraging, most of the activity came outwith the breeding season. As such, there is no pathway for impact on the SSSI population, such that the SSSI population would decline as a consequence of the Project for Assessment.

10.142 It can therefore be concluded that there would be **No Significant** construction stage impacts on the West Pennine Moors SSSI. As detailed above, application of micro-siting allowance does not change the level of effect reported above. Since no secondary mitigation is required as described above, then the residual effects are reported here.

Operational Stage

Increased mortality due to collision

10.143 There is a potential for additional mortality as a result of collision risk associated with birds being struck by turbines or, while much less likely, from flying into turbine infrastructure.

10.144 Not all species were observed to have enough flight activity at collision risk height to warrant collision risk modelling being carried out. The following species are assessed for collision risk:

- Curlew;
- Merlin;
- Lapwing; and
- Kestrel.

10.145 For all other species, levels of observed flight activity indicated the usage of the Assessment Boundary was so limited that there would no significant effect upon the species and are not considered further.

10.146 CRM was run based on the infrastructure layout plan (**Figure 4.1**) and using NatureScot's most recent collision risk model (CRM) (NatureScot, 2024), updated in April 2025.

10.147 Results of the collision risk modelling are detailed in **Table 10.20**. A single 18-month model was used and the model was run for 40 years (to align with the operation lifespan of the Project for Assessment).

Table 10.20: Collision risk results

Species	Uncertainty							Range		
	Avoidance rate	Predicted collision risk rate	Years per collision	Collisions over 40 year operational period	Variance in flight activity	Simplifications in model	Design options	Overall	Lower range value	Upper range value
Curlew	98%	0.007	142.9	0.28	50%	20%	15%	56%	0.003	0.011
Lapwing	98%	0.034	29.4	1.36	50%	20%	15%	56%	0.015	0.053
Merlin	98%	0.017	58.8	0.68	50%	20%	15%	56%	0.007	0.027
Kestrel	95%	0.889	1.12	35.6	50%	20%	15%	56%	0.392	1.386

10.148 For Curlew, Lapwing and Merlin, collision risk was so low such that it is predicted that fewer than two birds would be lost over the lifetime of the Project for Assessment. For Curlew and Lapwing, the loss of 0.28 and 1.36 birds respectively over the lifetime of the Project for Assessment would be considered significant at less than local level. For Merlin, given the smaller population of the species, the loss of 0.68 birds over the lifetime of the Project for Assessment would be considered significant at the local level only. As such, for these species it would be considered **Not Significant** in EIA terms.

10.149 For Kestrel, collision risk was higher than other species, such that it is predicted that 0.889 birds per year would be lost, equating to approximately 35.6 birds lost over the lifetime of the Project for Assessment owing to their lower avoidance rate and relatively high level of activity on-site.

10.150 Information on local and regional population estimates for this species are limited, however, 19 out of 25 tetrads reported Kestrel sightings in the greater Manchester 2010 county report²⁰ and a report on Kestrel populations in Britain²¹ estimated that in the counties of Yorkshire and Nottinghamshire there were approximately 70-80 breeding pairs per hectad (100km²) in 2007; this was the most comparable estimate to the location of the Project for Assessment.

10.151 Additionally, the level of flight activity observed over the Project for Assessment is occurring in the vicinity of the operational Scout Moor windfarm; it is considered that it would be unlikely that such relatively high levels of activity would occur if the existing windfarm was adversely affecting the population over time due to collision risk. Up to five breeding territories were recorded during breeding bird surveys for the Project for Assessment, which suggests a healthy population around the existing Scout Moor windfarm.

10.152 Therefore, while the level of collision risk is the highest estimated of the species assessed, it is likely that that it would be considered significant at the local level only, due to the

probable size of the county population given the information on densities described above. As such, this would be a minor impact and **Not Significant** in EIA terms.

- 10.153 Given the widespread flight activity of Kestrel across the Assessment Boundary, the micro-siting allowance would have no effect on collision risk estimates and therefore no effect on the assessment. Since no secondary mitigation is required as described above, then the residual effects are reported here.

Displacement due to loss and degradation of habitats, and disturbance

- 10.154 Operational stage impacts are those associated with ongoing disturbance / displacement as a result of the presence of the infrastructure associated with the Project for Assessment where previously there was no such infrastructure, along with ongoing maintenance on the Project for Assessment.

- 10.155 Species for which this impact was assessed as having potential to be significant were breeding Curlew, Lapwing, Dunlin and breeding and non-breeding Merlin. These species are considered in turn below.

Curlew

- 10.156 As described above, there can be a displacement effect upon Curlew within 620m of wind turbines. While Pearce-Higgins *et al.* (2012) found this effect persisted in the operational stage, a study by Whitfield (2010) which took place over several years pre and post construction at five different windfarms found no significant difference in number or position of Curlew territories as a result of turbine placement. This study also found that there was no significant difference in hatching success post development, and at one wind farm Curlew were noted to have moved closer to turbine locations. With the number of potentially lost limited to 1.6 territories per year, and the uncertainty about the strength of the effect on Curlew breeding populations and taking into account habitat management occurring within the Assessment Boundary, it is considered that over the long term, the effect would be less than local and therefore **Not Significant** in EIA terms.

- 10.157 Application of micro-siting allowance does not change the level of effect for any impacts considered. Since no secondary mitigation is required as described above, then the residual effects are reported here.

Lapwing

- 10.158 Pearce Higgins *et al.* (2009; 2012)²² found no impacts on Lapwing from wind farms. Given the separation between the areas where Lapwing are active and the infrastructure associated with the Project for Assessment, and the absence of effect on Lapwing from wind farm operation, there would be **No Significant** impact on Lapwing during the operation of the Project for Assessment.

- 10.159 Application of the micro-siting allowance does not change the level of effect for any impacts considered. Since no secondary mitigation is required as described above, then the residual effects are reported here.

Dunlin

- 10.160 Pearce-Higgins *et al.* (2012) found no significant impact on Dunlin from wind farms. Given the limited and irregular use of the Assessment Boundary there would be **No Significant** impact on this species.

10.161 Application of the micro-siting allowance does not change the level of effect for any impacts considered. Since no secondary mitigation is required as described above, then the residual effects are reported here.

Merlin

10.162 There is limited evidence as to how Merlin respond to wind farms. However, in a number of SPAs they have been observed breeding close to overhead lines which suggests some tolerance of vertical infrastructure. Merlin in North America can nest in cities (Sale, 2015), although those that do tend to be tree nesting but it does demonstrate an adaptability to human infrastructure and activity. Additionally, most Merlin were observed foraging along the slopes around the Assessment Boundary, rather than in areas which would fall within the turbine array, limiting opportunity for displacement. Monitoring for SSE at their operational Tangy Wind Farm also recorded Merlin foraging between the turbines (SSE, 2006)²³, suggesting that the species may not be greatly affected by the operating turbines. As a result and given the low usage of the Assessment Boundary by the species, displacement effects would be expected to occur to a level where they would be considered **Not Significant** in EIA terms.

Population decline of breeding upland birds within the West Pennine Moors SSSI

10.163 No significant impacts of displacement or increased mortality have been identified to bird populations within the Assessment Boundary. Given the distance between the Assessment Boundary and the SSSI, the not-significant impacts are likely to fall on individuals which do not form part of the SSSI populations and so there would not be significant impacts of displacement or increased mortality on the SSSI populations. For example, impacts on Curlew are likely to fall mainly on birds from the Assessment Boundary population. As a result, there are no pathways by which the impacts could rise to the level of significance on the SSSI population, given the total low level of impact assessed. As such, there would be **No Significant** impact on the SSSI populations of Merlin, Lapwing, Dunlin and Curlew.

Limitations and Assumptions

10.164 To ensure transparency within the EIA process, the following limitations and assumptions have been identified:

- Due to additions to the Assessment Boundary after the commencement of ornithological surveys, not all areas of the Assessment Boundary have had equal survey effort and been surveyed in the same seasons. However, as the majority of the Assessment Boundary has had at least two years of survey and buffer zones during breeding bird surveys and breeding raptor surveys have been used throughout, this has reduced the impact that introducing additional areas has had on achieving good coverage and interpretation of results. Further to this, it has been ensured that all additional areas have had at least one year of ornithological survey to ensure comprehensive coverage has been achieved. Particularly as this has allowed for survey across three breeding seasons there is ample information about use of the Assessment Boundary and adjacent land by bird species, sufficient to inform the identification and assessment of likely significant effects;
- The extensive Electrical Grid Connection Infrastructure route to north-west has not had ornithological survey beyond what was included in the breeding bird and raptors survey buffers. However, cable would be underground. Also given that the works these

routes are existing tracks, while there could be potential impacts as a result of increased traffic along these routes during construction, the duration of the impact would be very short term and falling only on species breeding in close proximity to the existing track. As a result, it is not considered to alter the assessment of effects upon receptors contained within this Chapter; and

- Due to the upland nature of the Assessment Boundary, some surveys have been affected by adverse weather conditions. However, to minimise these impacts, where wind, rain or fog significantly affected the ability to undertake surveys or detect birds, the VP watches were stopped and rescheduled to a later date when conditions were more favourable, sometimes in the following month. However, as surveys were successfully completed within the relevant survey seasons with an overall even spread across months for the full suite of surveys, this dataset is considered robust and representative of bird activity within the Assessment Boundary in all seasons.

Summary

10.165 **Table 10.21** provides a summary of the effects, receptors, residual effects and conclusions of significance considered within the Chapter.

10.166 The table only provides a summary of the residual effects identified within the assessment and details of all primary, secondary and tertiary mitigation measures that have been taken into account are set out in detail within the Chapter and summarised in the Environmental Management Plan included in **Volume 3: Environmental Management Plan**.

Table 10.21: Summary of residual effects

Effect	Receptor	Residual effect	Is the residual effect Significant?
Construction stage			
Displacement due to loss and degradation of habitats, and disturbance	Breeding Waders: Lapwing and Dunlin	Negligible adverse	No
	Curlew	Minor adverse	No
	Merlin	Minor adverse	No
Population decline of breeding upland birds within the West Pennine Moors SSSI	Merlin, Lapwing, Dunlin and Curlew	Negligible adverse	No
Operational stage			
Increased mortality due to collision	Lapwing	Negligible adverse	No
	Curlew	Negligible adverse	No
	Merlin	Minor adverse	No
	Kestrel	Minor adverse	No
Displacement due to loss and degradation of habitats, and disturbance	Breeding Waders: Curlew, Lapwing and Dunlin	Negligible adverse	No
	Merlin	Negligible adverse	No
Population decline of breeding upland birds within the West Pennine Moors SSSI	Merlin, Lapwing, Dunlin and Curlew	Negligible adverse	No

References

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- ¹ Wildlife and Countryside Act 1981 c.69 (as amended).
- ² The Conservation of Habitats and Species Regulations 2017 No. 1012 (as amended).
- ³ NPPF.
- ⁴ Environment Act 2021
- ⁵ NatureScot (2016) *Assessing Connectivity with Special Protection Areas (SPAs)*. Battleby: NatureScot.
- ⁶ NatureScot (2016) *Environmental Statements and Annexes of Environmentally Sensitive Bird Information*. Battleby: NatureScot.
- ⁷ NatureScot (2025) *Use of Avoidance Rates in the NatureScot Wind Farm Collision Risk Model*. Inverness: NatureScot, updated: September 2025 v4.
- ⁸ NatureScot (2017) *Recommended bird survey methods to inform impact assessment of onshore wind farms*. Battleby: SNH/NatureScot, updated: March 2025.
- ⁹ NatureScot (2025) *Assessing the Significance of Impacts from Onshore Wind Farms on Birds at Sites Outwith Designated Areas*. Inverness: NatureScot.
- ¹⁰ NatureScot (2024) *Guidance on using an updated collision risk model to assess bird collision risk at onshore wind farms*. Inverness: NatureScot, last updated: 16/04/2025.
- ¹¹ NatureScot (2025) *Assessing the Cumulative Impacts of Onshore Wind Energy Developments*. Battleby: NatureScot, updated: March 2025.
- ¹² CIEEM (2022) *Guidelines for Ecological Impact Assessment in the UK and Ireland; terrestrial, freshwater, coastal and marine*. CIEEM, version 1.2.
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- ¹⁶ Pearce-Higgins, J. S., Stephen, L., Douse, A. & Langston, R. W. H. (2012). Greater impacts of wind farms on bird populations during construction than subsequent operation: results of a multi-site and multi-species analysis. *Journal of Applied Ecology*, **49**: 386-394.
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