

Preliminary Environmental Information Report

Calderdale Energy Park

7 April 2026

Volume 2, Chapter 9 : Ornithology

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Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations
2009 – Reg 5 (2) (a).



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9 Ornithology

9.1 Introduction

- 9.1.1 This Chapter of the Preliminary Environmental Information Report (PEIR) has been prepared by RSK Biocensus on behalf of the Applicant and provides a preliminary assessment of the likely significant environmental effects of the Proposed Development upon Ornithology. It is based on the environmental information available to date (which is detailed in this Chapter), as well as the current description of the Proposed Development as set out in **Chapter 4: The Proposed Development**.
- 9.1.2 This Chapter reaches the preliminary conclusion that there are likely significant environmental effects of the Proposed Development on ornithology during the construction, operation and maintenance, and decommissioning phases.
- 9.1.3 Given the sensitive nature of the habitats and species present within the Turbine Area in particular, a comprehensive mitigation and compensatory approach is required to address the predicted impacts. These are being developed by the Applicant with a view to being agreed with relevant consultees and stakeholders. These measures will be designed to reduce the impact magnitude. Mitigation and compensatory approaches will be developed and submitted as part of the Environmental Statement (ES).
- 9.1.4 This assessment is informed by data derived from desk studies and a suite of baseline field surveys and assessments. The methodologies and results of the desk studies and field surveys are summarised and reported in this Chapter (see **Sections 9.4 and 9.5**).
- 9.1.5 The conclusions of the following topic assessments are relevant to the receptors of this assessment and have been considered in the assessment for Ornithology:
- **Chapter 8: Biodiversity;**
 - **Chapter 10: Hydrology, Hydrogeology, Geology and Peat;**
 - **Chapter 15: Noise and Vibration;** and
 - **Chapter 16: Air Quality.**
- 9.1.6 This Chapter is supported by:
- **Appendix 9-1: Baseline Ornithology Report;** and
 - **Appendix 9-2: Ornithology Data Document.**

- 9.1.7 As the Proposed Development overlaps with two European sites, the South Pennine Moors Special Area of Conservation (SAC) and the South Pennine Moors Phase 2 Special Protection Area (SPA), any mitigation or compensation will need to ensure that requirements under The Conservation of Habitats and Species Regulations 2017 (the ‘Habitat Regulations’)¹, as amended by The Conservation of Habitat and Species (Amendment) (EU (European Union Exit)) Regulations 2019, are met. The Proposed Development is subject to a separate Habitats Regulations Assessment (HRA), which is under preparation.

9.2 Legislation, Policy and Guidance

- 9.2.1 Key policy, legislation and guidance relating to Ornithology and of relevance to this preliminary assessment comprises the following, as shown in **Table 9-1**.

¹ The Conservation of Habitats and Species Regulations. Available at: <https://www.legislation.gov.uk/ukxi/2017/1012/contents>. [Accessed November 2025].

Table 9-1: Legislation, Policy and Guidance

Type	Name	Relevance to Assessment
Legislation	European Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (1992) (the 'Habitats Directive') ²	Establishes the framework for protecting habitats and species of European importance, including those listed as Annex I and Annex II species. The ornithological assessment considers potential effects on bird species and habitats associated with European sites (i.e. SPAs) and contributes to the HRA process, where relevant.
	European Commission (EC) Directive 2009/147/EC on the Conservation of Wild Birds (2009) (the 'Birds Directive') ³	Provides protection for all wild bird species naturally occurring in the EU, with special measures for species listed in Annex I and migratory species. The ornithology assessment identifies potential effects on qualifying features of SPAs and other important bird populations, informing the HRA and ensuring compliance with the Directive's objectives.
	Wildlife and Countryside Act (1981) ⁴	Provides domestic protection for wild birds, their nests and eggs, and underpins the designation of Sites of Special Scientific Interest (SSSIs). The assessment considers the presence of protected species, compliance with legal protection, and potential effects on ornithologically important SSSIs.

² European Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora 1992. Available at: https://environment.ec.europa.eu/topics/nature-and-biodiversity/habitats-directive_en

³ European Commission Directive 2009/147/EC on the Conservation of Wild Birds 2009. Available at: <https://eur-lex.europa.eu/eli/dir/2009/147/oj/eng>

⁴ Wildlife and Countryside Act 1981. Available at <https://www.legislation.gov.uk/ukpga/1981/69/contents>

Type	Name	Relevance to Assessment
	Countryside and Rights of Way Act (2000) (the 'CRoW Act') ⁵	This Act details further measures for the management and protection of SSSIs and strengthens wildlife enforcement legislation.
	Natural Environment and Rural Communities (NERC) ⁶ Act (2006) (as amended by the Environment Act 2021)	Places a duty on public authorities to have regard to the purpose of conserving biodiversity. The ornithology assessment supports this duty by identifying potential impacts on bird species of principal importance (Section 41 species) and recommending mitigation or enhancement measures.
	Conservation of Habitats and Species Regulations 2017 ('the Habitats Regulations') as amended by the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 ⁷	Transposes the Habitats and Birds Directives into UK law following EU Exit. The ornithology assessment ensures compliance by assessing potential effects on habitats sites and qualifying bird species and contributing to the HRA process as necessary.
	Environment Act (2021) ⁸	Establishes a comprehensive legal framework for environmental governance in the UK, focusing on improving air and water quality, enhancing biodiversity, and reducing waste. Key elements of the Act include new environmental governance structures and the requirement for Biodiversity Net

⁵ Countryside and Rights of Way Act 2000. Available at:

<https://www.legislation.gov.uk/ukpga/2000/37/contents>.

⁶ Natural Environment and Rural Communities Act 2006. Available at:

<https://www.legislation.gov.uk/ukpga/2006/16/contents>

⁷ The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 Available at:

<https://www.legislation.gov.uk/uksi/2019/579/contents/made>

⁸ Environment Act 2021. Available at:

<https://www.legislation.gov.uk/ukpga/2021/30/contents>.

Type	Name	Relevance to Assessment
		Gain (BNG). The ornithology assessment contributes to biodiversity considerations and informs measures that support ecological enhancement and resilience for bird populations.
National planning policy	Overarching NPS for Energy (EN-1) (2025) ⁹	EN-1 sets out the general principles for the assessment of nationally significant energy infrastructure, including the need to protect biodiversity and avoid significant harm to designated sites and protected species, particularly in Section 4.6 (which outlines the requirements for delivery of environmental and biodiversity net gain) and Section 5.4 (which reiterates protection and assessment requirements for biological features of varying levels of importance). The ornithology assessment addresses potential effects on birds in line with these principles.
	NPS Renewable Energy Infrastructure (EN-3) (2025) ¹⁰	Provides technology-specific guidance for renewable energy projects, including the assessment of potential impacts on biodiversity (in Section 2.12). The ornithology assessment identifies potential impacts from wind turbine operation (e.g. collision risk, displacement, barrier effects) and outlines mitigation and compensation consistent with EN-3 objectives.

⁹ Overarching National Policy Statement for Energy (EN-1). Available at: <https://assets.publishing.service.gov.uk/media/695d1015f41883f4e50ed9ab/overarching-national-policy-statement-for-energy-en-1-web-accessible.pdf>.

¹⁰ National Policy Statement for Renewable Energy Infrastructure (EN-3). Available at: <https://www.gov.uk/government/publications/national-policy-statement-for-renewable-energy-infrastructure-en-3-2025>

Type	Name	Relevance to Assessment
	NPS for Electricity Networks Infrastructure (EN-5) (2025) ¹¹	Relevant to associated grid connection works (via the Bradford West Cable Route) and requires assessment of potential effects on biodiversity and protected species (in Section 2.5). The ornithology assessment includes consideration of grid connection and substation elements where relevant.
	The National Planning Policy Framework (NPPF) (updated February 2025) ¹²	Sets out the Government’s planning policies for England, requiring planning decisions to protect and enhance valued landscapes, sites of biodiversity importance and priority species. The ornithology assessment provides evidence to demonstrate how the Proposed Development accords with the NPPF in minimising adverse impacts on birds and delivering biodiversity benefits, wherever practicable.
	NPPF draft text for consultation ¹³	Section 19 details policies to influence the design and location of new development to help drive nature’s recovery and contribute to wider environmental outcomes, safeguarding the most important habitats, species and landscapes and recognising the

¹¹ National Policy Statement for Electricity Networks Infrastructure (EN-5). Available at: <https://www.gov.uk/government/publications/national-policy-statement-for-electricity-networks-infrastructure-en-5-2025>

¹² National Planning Policy Framework (2025) Plan-making and national decision-making policies.

¹³ National Planning Policy Framework (2025) Plan-making and national decision-making policies. Available at:

<https://www.gov.uk/government/consultations/national-planning-policy-framework-proposed-reforms-and-other-changes-to-the-planning-system>

Type	Name	Relevance to Assessment
		centrality of natural capital to delivering sustainable growth.
Local planning policy	Calderdale Local Plan 2018/19 – 2032/33 Written Statement (March 2023) ¹⁴	Aims to provide a framework for land use within the Borough over a 15-year time period to improve the local council’s standards and policy in regard to climate change, sustainability, land use, habitat loss, development quality and siting. Of relevance to this ornithology assessment is the council’s policy regarding renewable development (Policy CC6 Part 1) and the natural environment (Policy GN3), which outlines policies around the requirements for development to protect the natural environment as well as mitigating adverse effects to designated sites and protected species; maximising land use efficiency and implementing rigorous decommissioning strategies. The ornithology assessment recognises the environmental policy and renewable strategy outlined by Calderdale Council.
	Local Plan for the Bradford District – Core Strategy Development Plan Document, Adopted July 2017 ¹⁵	The Core Strategy forms part of the statutory Development Plan for Bradford Council and is used in determining planning applications alongside other adopted Local Plan documents. Policy EN6 requires proposals for renewable energy to include

Available at: [National Planning Policy Framework: draft text for consultation](#).

¹⁴ Calderdale Council (2023) Local Plan 2018/2019 to 2032/33. Available at: <https://calderdale-consult.objective.co.uk/kse/event/37273>. [Accessed November 2025].

¹⁵ Core Strategy Development Plan Document, City of Bradford Metropolitan District Council. Available at: <https://www.bradford.gov.uk/planning-and-building-control/planning-policy/core-strategy-dpd/?Folder=11>

Type	Name	Relevance to Assessment
		<p>full assessment of their potential environmental impacts and, where assessment shows that potential adverse impacts can be managed, suitable mitigation measures are implemented. Further policy guidance is stated in Policy SC8, which outlines the measures by which developments should adhere to protecting the South Pennine Moors SPA and their Zone of Influence (Zoi). The ornithology assessment recognises the environmental policy outlined by Bradford Council.</p>
	<p>Pendle Local Plan Fourth Edition 2021-2040 (adopted 18 December 2025)¹⁶</p>	<p>The Pendle Local Plan outlines the statutory development plan for Pendle. As part of the strategic goals (Part 2) of the plan, SP10: Natural Environment states that all development should seek to create better place for people and wildlife. Development should protect and enhance biodiversity through further development management policies (Part 3). Those relevant to this ornithology assessment include policies DM03 (Renewable heat and energy), DM05 (Ecological networks), DM06 (Green infrastructure), DM08 (South Pennine Moors) and DM13 (Environment protection). The ornithology assessment recognises these policies outlined by Pendle Borough Council.</p>

¹⁶ Pendle Borough Council – Pendle Local Plan Fourth Edition (adopted 2025). Available at:

https://www.pendle.gov.uk/info/20072/planning_policies/600/local_plan_fourth_edition

Type	Name	Relevance to Assessment
National guidance	Guidelines for Ecological Impact Assessment (EclA) in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine Version 1.3 (Chartered Institute of Ecology and Environmental Management [CIEEM], 2018, version updated 2024) ¹⁷ (the 'CIEEM EclA Guidelines')	Provides the methodological framework for assessing ecological and ornithological impacts, including evaluation of receptor importance and impact significance. The ornithology assessment follows this guidance to ensure a transparent and proportionate approach consistent with industry good practice.
	Wild birds: surveys and monitoring for onshore wind farms (Natural England, 2015) ¹⁸	Sets out good practice for survey design, timing and methods to assess impacts on birds from onshore wind developments. The ornithology assessment applies these principles in the design of baseline bird surveys.
	Recommended bird survey methods to inform impact assessment of onshore windfarms (NatureScot, 2025) ^{19, 20}	Provides recommended survey methodologies for onshore wind farm developments, widely adopted as good practice across the UK. The ornithology assessment has been designed and undertaken with reference to this guidance to ensure robust and comparable datasets.

¹⁷ CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine Version 1.3. Chartered Institute of Ecology and Environmental Management, Winchester.

¹⁸ Natural England (2015) *Wild birds: surveys and monitoring for onshore wind farms*. Available at: [Wild birds: surveys and monitoring for onshore wind farms - GOV.UK.](#)

¹⁹ NatureScot (2025) *Recommended bird survey methods to inform impact assessment of onshore wind farms*. NatureScot, Perth. Available at: <https://www.nature.scot/doc/recommended-bird-survey-methods-inform-impact-assessment-onshore-windfarms>.

²⁰ NatureScot guidance is widely recognised as representing the most authoritative and best practice guidance for the assessment of wind effects on birds and is widely applied across the UK and Ireland. The production of this assessment has therefore adhered to this best practice guidance, despite the Proposed Development's location in England.

9.3 Stakeholder Engagement and Consultation

2025 Scoping Opinion

- 9.3.1 In September 2025, a request for a Scoping Opinion was submitted alongside a Scoping Report to the Planning Inspectorate (PINS) under the EIA Regulations. The Scoping Opinion forms the primary statutory basis for defining the scope of the EIA. **Table 9-2** presents the elements of the PINS Scoping Opinion relevant to ornithology and confirms how these have been addressed within the proposed scope of assessment. This includes consideration of representations received during the scoping process, including comments from the Upper Calderdale Wildlife Network (UCWN).
- 9.3.2 Scoping Opinion comments relating to biodiversity matters beyond ornithology are addressed in **Chapter 8: Biodiversity**.

Table 9-2: Consideration of PINS Scoping Opinion

Consultee	PINS ID	Summary of Scoping Opinion	Consideration within the Proposed Scope of Assessment
PINS	3.1.1	The Scoping Report seeks to scope out assessing effects on the North Pennine Moors SPA, stating its distance of 18.85km from the Turbine Area (noting that the cable corridor and access search areas are closer). This, it states is beyond the Scottish National Heritage (now NatureScot) range guidance. Paragraph 6.3.3 of the Scoping Report however states the study area for the desk study is 20km for internationally designated sites. Noting the range of features of the North Pennine Moors SPA and that it lies within the desk study distance as applied by the Applicant, the Inspectorate does not agree to scope this matter out at this time. The	<p>Whilst the North Pennine Moors SPA lies within the 20km desk study search radius applied for internationally designated sites, this does not in itself imply ecological connectivity or a need for further assessment. The North Pennine Moors SPA is designated for breeding hen harrier (<i>Circus cyaneus</i>), merlin (<i>Falco columbarius</i>), peregrine (<i>Falco peregrinus</i>) and golden plover (<i>Pluvialis apricaria</i>). The SPA lies approximately 18.85km from the Turbine Area, 16.5km from the Bradford West Cable Corridor, 19km from the Eastern Access Route and 14.8km from the Western Access Route at the closest points. In accordance with Scottish Natural Heritage (now NatureScot) guidance on assessing connectivity with SPAs²¹, these distances are well beyond the recognised core foraging ranges of all qualifying species (hen harrier: 2km; merlin: 5km; peregrine: 2km; golden plover: 3km).</p> <p>For a functional linkage²² to exist, habitats beyond a SPA's boundary must be considered to be critical to, or necessary</p>

²¹ Scottish Natural Heritage (2016) *Assessing Connectivity with Special Protection Areas (SPAs) Guidance*. Version 3 – June 2016. SNH. Perth.

²² Functional linkage or Functionally Linked Land (FLL) describes areas of land or sea occurring outside a designated site, which is considered to be critical to, or necessary for, the ecological or behavioural functions in a relevant season of a qualifying features for which a SPA or Ramsar site has been designated. These habitats are frequently used by qualifying species and support the functionality and integrity of the designated sites for these features. The loss of FLL or

Consultee	PINS ID	Summary of Scoping Opinion	Consideration within the Proposed Scope of Assessment
		<p>Applicant’s attention is drawn to ID 2.1.2 of the Scoping Opinion relating to study areas.</p>	<p>for, the ecological or behavioural functions of a qualifying features for which a SPA or Ramsar site has been designated (as defined by Natural England²³). Given the considerable separation distances (see above), it is highly unlikely that any qualifying species from the North Pennine Moors SPA make regular or meaningful use of the Turbine Area, Bradford West Cable Corridor and Access Routes. Functional connectivity can therefore be ruled out. As such, effects relating to habitat loss and alteration, disturbance and displacement, and death/injury through collision with turbines can be scoped out.</p> <p>However, having regard to PINS’ comments and on a precautionary basis, the potential for competition arising from birds displaced by the Proposed Development relocating into the North Pennine Moors SPA is scoped into the assessment. This pathway will be considered proportionately within the PEIR/ES, recognising the lack of direct functional connectivity but acknowledging that redistribution of birds within the wider upland landscape could, in theory, give rise to indirect competitive interactions. Accordingly, the North Pennine Moors SPA is scoped into the assessment only for competition from displaced birds.</p>

disturbance/displacement of qualifying species within FLL has the potential to lead to changes in species distribution and, ultimately, prevent the conservation objectives of a SPA or Ramsar site from being met.

²³ Natural England (2021) Identification of Functionally Linked Land supporting Special Protection Areas (SPAs) waterbirds in the North West of England Plan.

Consultee	PINS ID	Summary of Scoping Opinion	Consideration within the Proposed Scope of Assessment
	3.1.2	<p>The Scoping Report seeks to not undertake survey work for those species not afforded legal protection or with priority conservation status. The Scoping Report does not explain this approach in relation to sensitive receptors within the study area for the Proposed Development. The ES should set out how sensitive receptors have been identified and how this aligns to CIEEM Ecological Impact Assessment guidelines. This should also, where possible, be agreed with relevant consultation bodies.</p>	<p>Survey work for species that are not afforded legal protection or priority conservation status have been undertaken.</p> <p>Within the Scoping Report, reference was made to the identification of ‘target species’, defined as those species of particular legislative or conservation importance or those known to be particularly vulnerable to wind farm development (e.g. collision risk). These species formed the focus of Vantage Point (VP) surveys to monitor flight activity and thus collision risk assessment due to their sensitivity to the key potential impact pathways. However, this does not mean that non-target species were excluded from survey effort. Other priority species (as defined later in Paragraph 9.4.7) and species that are not of elevated conservation concern were still recorded during other survey types (e.g. walked transect surveys) and the data collected for all species has been used to inform the baseline conditions within the study area. In line with the CIEEM EcIA Guidelines¹⁷, only features (species or assemblages) that are of sufficient ecological importance and for which likely significant effects may occur will be taken forward for detailed assessment within the Environmental Impact Assessment (EIA) (as reported in the PEIR and ES). Species that are widespread, common, or otherwise not sensitive to wind farm development will therefore be scoped out of further assessment, as no likely significant effects to these species are anticipated and as such, they are not considered material to the decision-making process.</p>

Consultee	PINS ID	Summary of Scoping Opinion	Consideration within the Proposed Scope of Assessment
			<p>This approach is described within the assessment methodology (see Section 9.4) and justified for each ornithological feature assessed in Table 9-12.</p>
	3.1.3	<p>The Scoping Report seeks to scope out operational effects of the proposed cable route. The Inspectorate is content with this, providing that it is secured that operational maintenance works are not to give rise to significant effects and that habitat will be restored following construction.</p>	<p>Operational effects of the Bradford West Cable Corridor on birds can be scoped out of the assessment on the basis that the connection would be installed entirely underground (see Section 9.7). As the cable would be buried, there would be no physical infrastructure above ground during the operation and maintenance phase that could lead to ongoing disturbance, habitat loss, or collision risk to bird species. Once reinstatement is complete, the land along the Bradford West Cable Corridor would be returned to its previous use, allowing habitats to recover and function as before. There would be no lighting, noise, or activity associated with the cable infrastructure during operation (except for infrequent maintenance), and therefore no long-term direct or indirect effects on ornithological features. As such, no further assessment of operational ornithological impacts arising from the Bradford West Cable Corridor is considered necessary.</p>
	3.1.4	<p>The Scoping Report is not clear on whether surveys are to be undertaken for the Turbine Area, cable and access search areas or focussed on the Turbine Area with cable and access search areas assessed 'where possible'. The EIA should be</p>	<p>Further detailed information and clarification has been provided in the PEIR and there will be further details in the ES regarding the spatial extent of surveys and methodologies applied to each component of the Proposed Development (see Paragraph 9.4.8 and Table 9-4).</p>

Consultee	PINS ID	Summary of Scoping Opinion	Consideration within the Proposed Scope of Assessment
		<p>based upon baseline information gathered for the whole of the order limits and any areas beyond the order limits where significant effects are considered likely for all species year round. The Applicant should seek to agree survey species and methodologies with relevant consultation bodies. The Applicant should seek to agree baseline information with relevant consultation bodies.</p>	<p>Bird surveys undertaken to date have focused on the Turbine Area and Access Routes, where the greatest potential for significant effects is expected (i.e. collision risk, displacement/disturbance, habitat loss/alteration). For the Bradford West Cable Corridor, the assessment approach comprised a desk-based review which will be supplemented by targeted walkover surveys to assess habitat suitability for protected and/or notable bird species, which are likely to take place in spring/summer 2026 (see Paragraph 9.5.45). These surveys will be coordinated with those to be undertaken for Chapter 8: Biodiversity, ensuring consistency of baseline data collection and assessment across ecological disciplines.</p> <p>As detailed in Section 9.5, a preliminary assessment of the Bradford West Cable Corridor and the remainder of the Western Access Route have been provided. This has been informed by aerial imagery alongside interpretive analysis of likely species composition from available third-party data sources. More detailed survey data and assessment of potential effects will be presented in the ES once field surveys have been completed in 2026.</p> <p>Consultation with Natural England and other relevant bodies will continue as the project progresses to ensure that survey scope, methodology, and baseline information are agreed and proportionate to the scale and potential impacts of the Proposed Development.</p>

Consultee	PINS ID	Summary of Scoping Opinion	Consideration within the Proposed Scope of Assessment
	3.1.5	<p>The Scoping Report notes that the scoping boundary has changed to exclude a small area of land in the north-east of the Turbine Area. It is not clear whether this means that this area is now outside of the order limits or whether it is an area removed from survey work. Clarity should be provided in the ES. If the latter, this should be depicted on a plan and explained.</p>	<p>The minor adjustment to the scoping boundary in the north-east of the Turbine Area noted in the Scoping Report relates solely to a refinement of the Proposed Development boundary since the commencement of surveys and does not affect the extent of survey coverage. No areas within the Turbine Area have been excluded from the bird surveys.</p> <p>All surveys have been, and will continue to be, undertaken based on the boundaries of the Proposed Development plus an appropriate buffer, ensuring that any minor refinements to the boundaries are fully captured within the survey area. This approach aims to ensure comprehensive baseline coverage and avoidance of any data gaps. Full details of study areas used during the desk study and field surveys are provided in Paragraph 9.4.8 and Table 9-4.</p>
	3.1.6	<p>The Applicant should seek to agree seasonal definitions for ornithological features with relevant consultation bodies to inform assessments.</p>	<p>This matter will be discussed further with Natural England as part of ongoing consultation. The application of rigid or arbitrary seasonal definitions has been intentionally avoided where possible, given the degree of variation in this between different species and between different years.</p> <p>Accordingly, throughout this PEIR (and to be included within the ES) a precautionary approach has been adopted, whereby certain species are considered within both breeding and non-breeding assessments. Comprehensive coverage has been given to avoid the inadvertent omission of observations of early or late breeding species. For example, observations of</p>

Consultee	PINS ID	Summary of Scoping Opinion	Consideration within the Proposed Scope of Assessment
			golden plover in February have been included in the breeding assessment, since this species is typically an early nesting species. The approach to seasonal definitions is further described in Appendix 9.1: Baseline Ornithology Report .
	3.1.7	The ES should consider and report on any potential for changes of species likely to be using the Proposed Development site as a result of construction and operation, for example as a result of changes to habitat or prey. The ES should report on any significant effects as a result.	This has been fully considered within the assessment of significant effects presented in the PEIR and will be included within the ES. Potential changes in species presence or abundance resulting from habitat alteration, prey availability, or other factors during construction and operation have also been evaluated as part of the impact assessment within this PEIR Chapter (see Section 9.9).
	3.1.8	The Scoping Report is inconsistent with its description of the habitats present within the order limits, with Chapter 6 noting that the site is mainly rotationally burned upland heath and Chapter 7 identifying it as having areas of blanket bog and also as the Turbine Area comprising 50% blanket bog. Descriptions should be consistent in articulation within the ES. The Applicant should seek to agree habitat classifications with relevant consultation bodies to inform assessments.	The most up-to-date habitat mapping and classification is referenced within the PEIR and aligns with Chapter 8: Biodiversity to ensure consistency across ecological disciplines.

Consultee	PINS ID	Summary of Scoping Opinion	Consideration within the Proposed Scope of Assessment
	3.1.9	<p>The ES should be clear that the ES is reporting on the EIA through the identification of significant effects. Matters pertaining to integrity of European sites should be assessed within the HRA. The EIA should be clear in this distinction, noting that some ornithological features will be included within the EIA and HRA. Where effects on conservation status or integrity of sites are used to inform the assessment of significant effects for EIA, this should be clearly explained and justified and where possible, the methodology agreed with relevant consultation bodies. HRA matters are not covered within this scoping report.</p>	<p>Full details of the assessment methodology used within the PEIR is provided in Section 9.4 This PEIR does not draw final conclusions on the integrity of SPAs; such conclusions will be reached through the HRA process. However, for the purposes of the PEIR, comments on the likely significant effects on SPAs is predicted, deferring final conclusions to the HRA.</p>
	3.1.10	<p>A number of mitigation measures have been identified throughout the phases of the Proposed Development to minimise effect on ornithological features using the Proposed Development site. Effort should be made to agree the effectiveness of these measures with relevant consultation bodies and provide as</p>	<p>Embedded Environmental Measures (Section 9.6) outline industry standard good-practice measures that will be applied irrespective of final impact significance and represent the minimum level of environmental protection to be secured through the outline Construction Environmental Management Plan (oCEMP), outline Operational Environmental Management Plan (oOEMP) and outline Decommissioning Environmental Management Plan (oDEMP). As the design evolves and mitigation and compensation requirements are</p>

Consultee	PINS ID	Summary of Scoping Opinion	Consideration within the Proposed Scope of Assessment
		<p>much detail as possible in the management plans which secure them.</p>	<p>refined, the Applicant will continue to consult with relevant statutory bodies (including Natural England) to agree the scope, suitability and effectiveness of proposed measures. Detailed mitigation/compensation strategies will be further developed and presented within the ES.</p>
	3.1.11	<p>The ES should ensure that all relevant designated sites should be assessed within the ES. The applicant should seek to agree a list of sites with relevant consultation bodies.</p>	<p>A full list of designated sites identified during the desk study is provided in Section 9.5, and will be agreed with Natural England during the consultation period of the PEIR.</p>
	3.1.12	<p>Public bodies have a responsibility to avoid releasing environmental information that could bring about harm to sensitive or vulnerable ecological features. Specific survey and assessment data relating to the presence and locations of species such as badgers, rare birds and plants that could be subject to disturbance, damage, persecution, or commercial exploitation resulting from publication of the information, should be provided in the ES as a confidential annex. All other assessment information should be</p>	<p>A confidential annex is provided, containing information relating to the breeding or roosting locations of legally protected, sensitive and/or vulnerable birds (i.e. Schedule 1 species under the Wildlife and Countryside Act 1981 (WCA))</p>

Consultee	PINS ID	Summary of Scoping Opinion	Consideration within the Proposed Scope of Assessment
		<p>included in an ES Chapter, as normal, with a placeholder explaining that a confidential annex has been submitted to the Inspectorate and may be made available subject to request.</p>	
Upper Calderdale Wildlife Network (UCWN)	N/A	<p>Aside from the above points collated by PINS, the UCWN additionally raised the following points to be addressed within the PEIR:</p> <ul style="list-style-type: none"> • It is noted from the Scoping Report that winter roost raptor surveys have not been carried out and that these should be conducted to demonstrate the importance of this area of moorland for winter roosting for species such as hen harrier (<i>Circus cyaneus</i>). • Request for a control site to be set up to aid future monitoring. • Raised concerns that there are no surveys that consider the effects of lighting on birds and particularly passage birds. • Concerns raised over construction activities occurring during the 	<p>Targeted hen harrier roost surveys are being carried out during winter 2025/26 at anecdotally recorded locations outside the PEIR Boundary, focusing on suitable roosting habitat to the south of the Turbine Area as described in Paragraph 9.5.55. These surveys aim to confirm the continued presence, distribution and number of roosting hen harriers that utilise this part of the moorland during the non-breeding season. VP surveys within the Turbine Area from 2022-2025 were conducted over a range of times of day (including leading up to dusk) which would have noted any important winter raptor roosts if present.</p> <p>Control sites or reference sites will be selected and surveyed closer to the construction phase, rather than at PEIR stage. This approach is intentional, as surveys of control/reference sites are most robust when undertaken concurrently with pre-construction surveys within the Proposed Development, using the same survey methods and during the same temporal windows. This ensures that any future monitoring of effects can more reliably distinguish project-related changes from natural inter-annual variability. The selection, survey and use</p>

Consultee	PINS ID	Summary of Scoping Opinion	Consideration within the Proposed Scope of Assessment
		<p>nesting bird season, particularly the commitment within the Scoping Report to avoid the 'peak nesting period' (April – May)</p> <ul style="list-style-type: none"> Concerns raised over habitat restoration and enhancement strategies 	<p>of such sites will therefore be proposed alongside the development of the mitigation and compensation package, as described in Section 9.9.</p> <p>It is recognised that artificial lighting has the potential to influence bird behaviour, including attraction, disorientation or altered movement patterns in certain contexts. At the PEIR stage, a precautionary approach has been adopted within the disturbance and displacement assessment, which considers a broad range of potential behavioural responses to construction and operation and maintenance activities, including visual and artificial light disturbance and significance conclusions have taken this into account. The Proposed Development is located within a largely dark upland landscape and as currently envisaged, lighting would be minimal, directional and used only where required for health and safety purposes. Operational lighting is not anticipated to be continuous or extensive across the Turbine Area. Nevertheless, the potential effects of construction and operational lighting, including on passage birds and nocturnally active species, will be further considered and explicitly addressed within the ES. This will include confirmation of the lighting strategy, assessment of potential light spill and skyglow, and consideration of embedded mitigation measures (e.g. low-intensity, directional, motion-activated and time-limited lighting) to reduce ecological effects.</p>

Consultee	PINS ID	Summary of Scoping Opinion	Consideration within the Proposed Scope of Assessment
			<p>Concerns were raised regarding the potential for construction activities to occur during the nesting bird season, particularly in relation to the reference within the Scoping Report. The Applicant confirms that works will be undertaken in full compliance with the Wildlife and Countryside Act 1981 (as amended), which affords protection to nesting birds at any time of year. As such, construction activities will not take place where there is a risk of damaging or destroying active nests, or disturbing Schedule 1 species whilst nesting. A full-time Ecological Clerk of Works (ECoW) will be appointed during relevant construction phases, and extensive pre-construction surveys will be undertaken to identify active nesting territories and sensitive areas (as described in Section 9.6). Appropriate exclusion zones, timing restrictions and adaptive management measures will be implemented where required. The approach is therefore not limited to avoidance of a 'peak nesting period' but instead will be responsive to the presence of nesting birds, ensuring legal compliance and minimising ecological risk throughout the construction programme.</p> <p>The Applicant is developing a comprehensive mitigation and compensation package in consultation with Natural England and other relevant stakeholders. This package will include detailed measures to avoid, reduce and, where unavoidable, compensate for collision-related mortality, disturbance and displacement, and habitat loss and alteration associated with the Proposed Development. Compensation measures will extend beyond the footprint of habitat loss and will reflect the</p>

Consultee	PINS ID	Summary of Scoping Opinion	Consideration within the Proposed Scope of Assessment
			<p>strategic ecological importance of the study area for upland breeding waders and raptors. The approach is expected to include both on-site and off-site measures, aimed at enhancing retained habitats, improving ecological resilience, and delivering habitat creation and restoration at a landscape scale. Potential compensation land is currently being identified and will be confirmed through ongoing consultation. An outline Habitat Mitigation and Compensation Strategy will be prepared and submitted as part of the ES, setting out the finalised proposals, delivery mechanisms, monitoring framework and long-term management arrangements.</p>

Further Stakeholder Engagement

- 9.3.3 An overview of other consultation (beyond the Scoping Opinion) undertaken to date for biodiversity, and how this has informed the scope of the assessment is provided in **Table 9-3** (as set out below).
- 9.3.4 In July 2023, as part of an original Town and Country Planning Act 1990 (TCPA) application approach for the Proposed Development, an EIA Scoping Report was submitted to Calderdale Council for the proposed wind farm and associated infrastructure, including the cable connection. Scoping responses relevant to ornithology were received from Calderdale Metropolitan Borough Council, Natural England, the Royal Society for the Protection of Birds (RSPB), Yorkshire Wildlife Trust and the City of Bradford Metropolitan District Council. Consultees emphasised the need to assess potential impacts on the South Pennine Moors Phase 2 SPA and South Pennine Moors SSSI, including their qualifying bird assemblages, and highlighted the requirement for robust baseline survey data, including breeding bird and VP surveys undertaken over a minimum of two breeding seasons with appropriate spatial coverage.
- 9.3.5 Consultees also advised that the assessment should consider impacts on ornithological receptors during all phases of development, including disturbance, displacement and collision risk, as well as cumulative effects. Additional recommendations included targeted surveys for sensitive species (e.g. raptors and nocturnally active species), consideration of bird movements across the wider South Pennine Moors landscape, including potential north–south movements along the Pennine chain, and the use of VP survey data to inform Collision Risk Modelling (CRM). Consultees also highlighted the requirement for the EIA to provide sufficient information to support the HRA process, including a shadow HRA.
- 9.3.6 The scope of the ornithology assessment and the survey programme undertaken for the Proposed Development have been informed by the issues raised during this scoping process. In response to consultee comments, the baseline ornithological dataset has been developed through a multi-year survey programme including breeding bird surveys, VP surveys, targeted raptor surveys and a suite of nocturnal and crepuscular surveys, supported by relevant desk study information. The results of these surveys have informed this preliminary assessment and will underpin the CRM presented within the ES and the HRA. Collectively, these surveys provide a robust evidence base to characterise bird activity within the study area and to assess the potential effects of the Proposed Development on important ornithological features.

Table 9-3: Other Engagement Undertaken

Consultee	Type and Date	Summary of Discussion	Discussion Response
Natural England	Further consultation for additional guidance in regard to survey methodologies (dated 8 May 2025 and 10 May 2025).	<p>Summary of consultation on survey methodology:</p> <ul style="list-style-type: none"> • The approach to the breeding bird transects surveys, specifically using the Brown & Shepherd (1993) survey methodology instead of the Bird Survey Guidance methodology; • Advice on 72 hours of VP watches per relevant season; • Approach to the VP surveys with regard to using 2km viewsheds instead of 1km viewsheds; and • The duration of each VP watch (i.e. continuing with 3-hour watches instead of 2-hour watches as recommended in the scoping opinion – see above). <p>Natural England requested that in addition to the Brown & Shepherd (1993) survey methodology (four repeat visits per season) that an additional two nocturnal or crepuscular visits be conducted to ensure adequate coverage for species active at this time of day (i.e. golden plover).</p> <p>Natural England recommended the full 72 hours VP survey coverage per relevant</p>	<p>The Brown and Shepherd (1993) methodology was used for the breeding bird surveys as it is the recognised standard approach for censusing upland breeding waders. This method is specifically designed for open upland habitats and involves systematic coverage to within 100 m of all parts of the study area, ensuring a high likelihood of detecting cryptic and sparsely distributed breeding species. In contrast, more general Bird Survey Guidance methodologies are not tailored to upland wader ecology and may not achieve the same level of spatial coverage or detection probability required to robustly assess these species.</p> <p>A suite of nocturnal surveys (which included the crepuscular period) has been included within the scope of the assessment (including nocturnal moorland surveys, acoustic monitoring and nocturnal woodland surveys). This includes two nocturnal survey visits that were conducted in 2025 as part of the breeding bird surveys.</p> <p>VP surveys in 2025 achieved a total watch time of 72 hours per VP in the breeding season, when breeding raptors are known to be present.</p> <p>Natural England agree that the viewsheds of the VP locations selected do indeed overlap in a way that will</p>

Consultee	Type and Date	Summary of Discussion	Discussion Response
		<p>season due to the known presence of raptors such as merlin, peregrine and hen harrier across the study area.</p>	<p>mean coverage is good for small raptors such as merlin. They also recommended to illustrate 1km viewsheds from the VP locations to identify any potential significant gaps in survey coverage for this species which will be presented in the ES.</p> <p>Although Natural England recommends 2-hour VP duration to minimise the effects of surveyor fatigue, they acknowledge that durations of 3-hours are acceptable if there are suitable rest breaks and surveyors reduce the VP duration if they are becoming fatigued. This approach was implemented across all VP surveys with a duration of 3-hours.</p>

9.4 Assessment Methodology

Scope of the Assessment

9.4.1 The methods that have been adopted to inform and undertake the assessment that is presented in this Chapter are described in this section. The scope of the approach prescribed by CIEEM's EclA Guidelines¹⁷, including an explanation of the key terminology, is described below. In summary, the guidelines advocate the following approach:

- Prediction of the activities associated with a Proposed Development that are likely to generate biophysical changes which may lead to significant effects (either adverse or beneficial) upon ornithological features and resources of importance;
- Identification of the likely Zol of the Proposed Development;
- Scoping to select the ornithological features and resources (ecological features) that are likely to fall within the potential Zol of the Proposed Development, to be considered within the EIA;
- Evaluation of ornithological features likely to be affected (and identification of Important Ornithological Features (IOFs));
- Assessment of the significance of effects on IOFs;
- Refinement of the Proposed Development to incorporate enhancements, and mitigation for significant adverse effects of IOFs; and An assessment of the significance of residual effects and the need for compensation.

9.4.2 A detailed assessment of potential effects upon any associated internationally designated sites, including the South Pennine Moors Phase 2 SPA will be undertaken as part of a separate HRA in accordance with the Habitats Regulations. The HRA will be submitted as a separate document alongside the ES. It is not the function of the Ornithology Chapter of the PEIR or ES to duplicate this assessment; rather, the ES will summarise and reference the key findings of the HRA where relevant to the EIA process, ensuring cross-referencing between the two impact assessment regimes for clarity and completeness.

Determining the Zone of Influence

9.4.3 The Zol is defined as '*the area over which features may be affected by biophysical changes as a result of the proposed project and associated activities*'¹⁷. To determine the potential Zol, an assessment of the spatial and temporal extent of biophysical changes likely to be generated by the Proposed Development with the potential to lead to effects upon ornithological features is required.

- 9.4.4 The Zol for ornithological receptors is not defined by a single fixed buffer around the Proposed Development. This is because the spatial extent over which effects may occur varies substantially between species and between impact pathways (e.g. habitat loss/alteration, disturbance/displacement, collision risk). Applying a single arbitrary Zol would therefore not be ecologically meaningful and could either overestimate or underestimate potential effects.
- 9.4.5 Instead, the assessment adopts a receptor and impact specific approach. For each species and each impact pathway, the Zol is defined on the basis of ecological characteristics (e.g. territory size, foraging range, disturbance sensitivity, flight behaviour), published guidance^{18,19,21} and professional judgement. This ensures that the spatial extent of assessment reflects the realistic scale at which effects may occur for that receptor, rather than relying on a generic distance threshold.
- 9.4.6 The Zol likely extends beyond the Proposed Development boundary due to ecological and hydrological links between the Proposed Development and areas that fall outside its boundaries, especially when internationally designated sites (i.e. SPAs and Ramsar sites) and their Functionally Linked Land (FLL)²² are taken into consideration.

Priority species

- 9.4.7 For the purposes of this report, priority species are based on those included within the Bird Survey Guidelines for Assessing Ecological Impacts (2025) and species which could form qualifying features of relevant designated sites. These include:
- Qualifying features of relevant designated sites (i.e. South Pennine Moors Phase 2 SPA and South Pennine Moors SSSI);
 - WCA 1981 Schedule 1 species;
 - EC Birds Directive (2009/147/EC) Annex 1 species;
 - Species listed under Section 41 of the NERC Act as Species of Principal Importance; and
 - Birds of Conservation Concern (BoCC) Red and Amber list species^{24,25}.

²⁴ Stanbury, A.J., Eaton, M.A., Aebischer, N.J., Balmer, D., Brown, A.F., Douse, A., Lindley, P., McCulloch, N., Noble, D.G. & Win, I. (2021) The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain. *British Birds*, **114**, 747.

²⁵ Stanbury, A.J., Burns, F., Aebischer, N.J., Baker, H., Balmer, D., Brown, A.F., Dunn, T., Lindley, P., Murphy, M., Noble, D.G., Owens, R. & Quinn, L. (2024) The status of the UK's breeding seabirds. *British Birds*, **117**, 471–487.

Study Area

9.4.8 Study areas for this assessment were defined to reflect standard good practice guidance as described within Natural England's (2015)¹⁸ standing advice for assessing the impacts of wind farms on wild birds and NatureScot (2025)¹⁹ guidance on recommended bird survey methods to inform impact assessment of onshore wind farms, as well as other necessary species-specific guidance. Study areas are summarised below and in **Table 9-4** and shown in **Appendix 9-1: Baseline Ornithology Report**.

9.4.9 All of the Turbine Area, except a small area to the south around Holme Ends and a small area to the west, falls within the South Pennine Moors Phase 2 SPA and South Pennine Moors SSSI, which are designated for breeding merlin and golden plover and additionally for their breeding bird assemblage including but not limited to short-eared owl (*Asio flammeus*), dunlin (*Calidris alpina*), curlew (*Numenius arquata*), redshank (*Tringa totanus*), twite (*Linaria flavirostris*) and lapwing (*Vanellus vanellus*) (see the **Section 9.5** for full list). The study area and thus the baseline assessment have taken this into consideration, with surveys targeting these qualifying species where necessary to inform the assessment of the Proposed Development.

Desk study areas

9.4.10 The desk study area for the Turbine Area was defined to capture ornithological features at appropriate spatial scales relevant to potential effects associated with the Proposed Development. This search area was selected based on knowledge of core foraging ranges for sensitive bird species, which are typically up to 20km²¹, and included search areas of:

- Up to 20km for internationally designated sites of ornithological interest;
- Up to 10km for nationally designated sites of ornithological interest; and
- Up to 2km for priority species records and non-statutory designated sites of ornithological interest.

9.4.11 For the Bradford West Cable Corridor and the Access Routes, the desk study area was defined more narrowly to reflect the temporary and less extensive nature of potential effects associated with underground cabling works and construction, and use of the access. The following buffers were therefore applied:

- Up to 2km for both internationally and nationally designated sites; and
- Up to 2km for records of priority species and non-statutory designated sites of ornithological interest.

Field survey study area

9.4.12 The study areas for field surveys evolved throughout the 2022 – 2025 survey period, reflecting changes in project design and access availability (further details are provided in **Appendix 9.1**). A summary of survey coverage is provided below in **Table 9-4**.

Table 9-4: Study Areas for the Preliminary Environmental Assessment for Ornithology

Survey / Data Source	Study Area Extent	Spatial Coverage / Notes
Desk study – Turbine Area	Up to 20km (internationally designated sites)	SPAs and Ramsar sites
	Up to 10km (nationally designated sites)	SSSIs and other nationally designated ornithological sites
	Up to 2km (non-statutory designated sites and priority species records)	Non-statutory designated sites of ornithological importance and records of priority bird species
Desk study – Bradford West Cable Corridor, Eastern Access Route ²⁶ and Western Access Route	Up to 2km (internationally and nationally designated sites)	Reduced extent reflecting localised and temporary nature of effects
	Up to 2km (non-statutory designated sites and priority species records)	As above
VP surveys (2022 – 2025)	Turbine Area + 500 m buffer	Coverage consistent with good practice guidance
Breeding bird transects (2022 and 2023)	Turbine Area only	Standard breeding bird transect coverage

²⁶ The parts of the 'Eastern Access Route' that were surveyed during the transect surveys in 2025 were based on provisional 'option' designs that extended across the moorland towards Worley Moor Reservoir. The Eastern Access Route has since been updated to follow Hebden Bridge and Cold Edge Roads. Therefore, the area surveyed now falls outside of the PEIR Boundary and thus the location of birds recorded in this area has been referred to as falling within the wider study area and will be assessed on this basis.

Survey / Data Source	Study Area Extent	Spatial Coverage / Notes
Breeding bird transects (2024 and 2025)	Turbine Area + 500m buffer	Extended to include buffer, and in 2025 the Access Routes plus 500m buffer
Non-breeding bird transects (2022 – 2022/23)	Turbine Area only	Winter and passage period coverage, broadly considered to be October to February
Non-breeding bird transects (2023/24)	Turbine Area + 500m buffer	Expanded to include buffer
Breeding raptor surveys (2023 – 2025)	From Turbine Area boundary to up to 2km	Coverage consistent with good practice guidance for wide-ranging raptors
Nocturnal woodland surveys (2023)	Turbine Area + up to 1km buffer	Targeted all woodlands within and adjacent to the Turbine Area
Nocturnal transect surveys (2024 and 2025)	Turbine Area only	Focused on nocturnal species within Turbine Area
Acoustic monitoring (2024)	Turbine Area only	Passive acoustic monitoring detectors deployed within Turbine Area

Approach to the Collection of Baseline Data

9.4.13 Baseline data to inform the assessment was collected using the following sources of data, as well as by undertaking project specific surveys. Further details of the methodologies of such assessments are provided in **Appendix 9-1**.

Desk Study

9.4.14 In accordance with good practice guidance^{17,18,19}, a desk study was undertaken to identify designated sites and specially protected and notable bird species relevant to the Proposed Development. The desk study aimed to provide a broad overview of potential ornithological constraints to be established and guide the identification of target bird species for subsequent field surveys during the scoping process.

9.4.15 The data sources that were consulted as part of this desk study are outlined in **Table 9-5**.

Table 9-5: Data Sources for the Desk Study

Information Obtained	Available From
Protected and noteworthy species records	West Yorkshire Ecology Service Lancashire Environmental Record Network North & East Yorkshire Ecological Data Centre
Designated site location and citations	Natural England Website (https://designatedsites.naturalengland.org.uk/)
	Joint Nature Conservation Committee (JNCC) Website (https://jncc.gov.uk/)
	West Yorkshire Ecology Service Lancashire Environmental Record Network North & East Yorkshire Ecological Data Centre
Designations and legal protection of noteworthy species	JNCC Website

9.4.16 Information was obtained from the British Trust for Ornithology (BTO) Bird Ringing Scheme and Nest Recording Scheme of the Walshaw Moor Estate (which the Turbine Area falls within) between 2012 and 2023. Undertaken by a BTO bird ringer of 40 years and a Natural England Schedule 1 Rare Breeding Bird nest disturbance licence holder of 38 years, the monitoring focuses on the distribution and breeding success of birds of prey, particularly merlin and short-eared owl. This information was used to supplement the breeding assessment for the study area, particularly for qualifying species of the South Pennine Moors Phase 2 SPA.

Field Surveys

9.4.17 Detailed ornithological field surveys of the study area were undertaken between 2022 and 2025 to identify bird populations, and to gather supporting data to enable detailed assessment. The scope of field surveys has been refined over time, especially to take into account comments and advice from relevant stakeholders during the iterative scoping process for the Proposed Development, as detailed in **Table 9-2**.

9.4.18 The survey approach adopted was based on good practice guidance and professional judgement, in reference to known bird-habitat associations and good practice survey methods for priority species. The geographical scope of the field surveys was determined in reference to CIEEM¹⁷, Natural England¹⁸ and NatureScot¹⁹ guidance.

9.4.19 Full details of the approach, methodologies and results of the desk and field surveys are presented in **Appendix 9-1** and summarised in **Table 9-6**. Full survey details and raw bird survey data are provided in **Appendix 9-2**.

Table 9-6: Overview of Field Survey Methods

Survey Type	Guidance	Brief Overview of Methods
VP surveys	Natural England (2015) ¹⁸ ; NatureScot (2025) ¹⁹ ; CIEEM (2023) ¹⁷	Twelve VP locations established to achieve coverage of the Turbine Area. VP surveys were conducted between July 2022 and July 2025 across breeding and non-breeding seasons (target 72 hr per VP breeding; 36 hr non-breeding – Table 9-7). Continuous scans of 180° viewsheds recorded for target species all bird flight activity, species, numbers, flight heights, and behaviour. Overlapping viewsheds were permitted to maximise detectability of small raptors (e.g. merlin).
Breeding and non-breeding transect surveys	Brown & Shepherd (1993); Bird Survey & Assessment Steering Group (2025; Gilbert <i>et al.</i> (1998) ²⁷	Walked transects broadly following Common Bird Census (CBC) principles and Brown & Shepherd (1993) survey methodologies for censusing uplands breeding waders. Surveyors walked pre-determined routes passing within 100m off all accessible parts of the study area, mapping observations using BTO species codes and behaviour notations. Five visits per breeding season in 2022, 2024 and 2025 (two in 2023 due to access limitations) with an additional three visits to parts of the Access Routes in 2025. Regular winter visits in 2022, 2022/23 and 2023/24. Routes avoided extreme weather; optical aids were used for identification.
Breeding raptor surveys	Hardey <i>et al.</i> (2013) ²⁸ ; Gilbert <i>et al.</i> (1998) ²⁷	24 VP locations selected up to 2km from Turbine Area to identify nesting raptors. Each VP watched for a minimum of 1 hr per survey visit. Evidence of breeding activity recorded using BTO codes and behaviour notation. Limited 2023 data and only April and July in

²⁷ Gilbert, G., Gibbons, D.W. & Evans J. (1998) *Bird monitoring methods. A manual of techniques for key UK species*. RSPB, Sandy, Bedfordshire.

²⁸ Hardey, J., Crick, H.Q.P., Wernham, C.V., Riley, H., Etheridge, B. & Thompson (2013) *Raptors. A field Guide for Surveys and Monitoring*. The Stationary Office, Edinburgh.

Survey Type	Guidance	Brief Overview of Methods
		2024 due to access constraints; full coverage achieved in 2025.
Nocturnal woodland surveys	Hardey et al. (2013) ²⁸	Crepuscular surveys in April 2023 covering all woodland parcels within 1km of the Turbine Area. Survey between dusk and two hours after dusk using visual and auditory detection to record crepuscular breeding species. 17 woodlands (0.2 – 35ha) surveyed.
Nocturnal transect surveys	NatureScot (2025) ¹⁹	Night-time transects (February – July 2024; June – July 2025) to record crepuscular species with a particular focus on wader activity (i.e. golden plover) across moorland and pasture. Routes followed roads/tracks with fixed stopping points to reduce disturbance. Thermal imaging and night-vision equipment used to record activity. One visit per month (visit in May 2024 missed due to access restrictions).
Acoustic monitoring	Bird Survey & Assessment Steering Group (2025)	Passive recorders with omnidirectional microphones deployed at 10 locations (February – June 2024), primarily at VP sites and suitable wader habitat. Devices recorded night-time activity for at least 10 days per deployment. Data analysed using Wilder Sensing software to quantify species presence and nocturnal activity rates.

9.4.20 VP surveys were undertaken between July 2022 and July 2025, covering both breeding and non-breeding seasons. In accordance with guidance provided by Natural England, the survey programme aimed to achieve a total of 72 hours of watch time per VP during the breeding season in 2025 and 36 hours per VP during the non-breeding season over multiple years. A summary of total survey effort is presented in **Table 9-7**. Where access restrictions or other logistical constraints affected survey delivery, any resulting shortfalls in coverage is discussed in **Appendix 9-1: Baseline Ornithology Report** and will be taken into account within the assessment in terms of limitations.

Table 9-7: Summary of Vantage Point Survey Effort

VP	Hours of VP Survey Effort							
	Breeding 2022	Non-breeding 2022/23	Breeding 2023	Non-breeding 2023/24	Breeding 2024	Non-breeding 2024/25	Breeding 2025	Total
1	-	18	9	33	33	37	72	202
2	-	18	9	28	38	42	72	207
3	3	18	12	33	44	38	72	220
4	3	21	9	27	39	38	72	209
5	-	18	9	27	30	45	72	201
6	3	18	12	29	30	36	72	200
7	3	18	12	33	42	33	72	213
8	-	18	9	37	39	30	72	205
9	-	18	15	32	33	30	72	200
10	3	21	15	29	27	36	72	203
11	-	18	18	36	47	30	72	221
12	-	18	18	27	44	32	72	211

Assessment Approach

Potential Likely Significant Effects

9.4.21 As per NatureScot (2025) guidance¹⁹, wind farms and their associated infrastructure (e.g. access roads, cable corridor routes and substations) present the following potential risks to ornithological features:^{29,30,31}

²⁹ Drewitt, A.L. & Langston, R.H.W. (2006) Assessing the impacts of wind farms on birds. *IBIS*, **148**, 29-42.

³⁰ Drewitt, A.L. & Langston, R.H.W. (2008) Collision effects of wind-power generators and other obstacles on birds. *Annals of the New York Academy of Sciences*, **1134**(1), 233-266.

³¹ Band, W. (2024) Using a collision risk model to assess bird collision risks for onshore wind farms. NatureScot Commissioned Research Report No. 909. Perth.

- Direct habitat loss and alteration: Through construction and (generally to a lesser extent as land take is relatively restricted by comparison) operational maintenance and decommissioning of wind farm infrastructure;
- Disturbance and displacement: The construction, operation and maintenance and decommissioning stages of the wind farm have the potential to cause disturbance of birds using habitats within/near to the wind farm. This may lead to birds avoiding the wind farm and its surrounding area (displacement). Displacement may also include barrier effects, in which birds are deterred from using normal routes to feeding or roosting grounds; and
- Death/injury: Through collision or interaction with turbine blades and other infrastructure as well as through construction activities and (generally to a lesser extent) operational, maintenance and decommissioning activities.

9.4.22 For each of these risks, detailed knowledge of bird distribution, abundance and flight activity within and adjacent to the PEIR Boundary gained from the desk and field assessments will be used to predict the potential effects of the Proposed Development on birds. The likely significance of those effects will be assessed with regard to the construction, operation and maintenance and decommissioning phases and cumulatively in consideration with other projects.

Collision Risk Modelling

9.4.23 A qualitative assessment of collision risk for 'target species'³² is presented within this Chapter to inform the preliminary assessment of potential effects on target bird species. The qualitative assessment is based on a review of flight activity data collected to date, focusing on species of conservation concern recorded flying within the Wind Farm Area (WFA)³³ and within height bands considered to be at risk of collision with turbine blades. The outcomes provide an indicative understanding of potential collision risk, acknowledging that, at this stage, only provisional or non-conclusive assessments can be made. A detailed quantitative CRM analysis will be undertaken and reported within the ES, once the candidate turbine specifications (hub height, blade radius, rotor diameter and operational parameters) are finalised. The methodology that will be applied for the CRM is

³² Target species are defined as priority species that are considered to be sensitive to collision-related wind farm impacts. In accordance with available guidance, this includes priority species of waterfowl, raptor, owl, grouse, wader and gull.

³³ The Wind Farm Area (WFA) refers to the geographic area encompassing the turbine layout within which birds may be at risk of colliding with operational wind turbines. This area typically includes the footprint of all proposed turbine locations plus a buffer zone that accounts for the rotor sweep (the area swept by turbine blades) and potential flight paths of birds through or near the turbines.

outlined below for reference and to ensure transparency of approach for the assessment that will be presented in the ES.

9.4.24 Ornithological VP survey data relating to species at potential significant risk or sensitivity of collision with proposed turbines (i.e., ‘target species’) will be analysed using the NatureScot Collision Risk Model. This will be undertaken in accordance with the following good practice guidance:

- Recommended bird survey methods to inform impact assessment of onshore wind farms (NatureScot, 2025)¹⁹;
- Guidance on using an updated Collision Risk Model to assess bird collision risk at onshore wind farms (NatureScot, 2024)³⁴;
- Using a collision risk model to assess bird collision risks for onshore wind farms (Band, 2024)³¹;
- Wind farms and birds: Calculating a theoretical collision risk assuming no avoiding action (Band, 2000)³⁵;
- Developing field and analytical methods to assess avian collision risk at wind farms (Band et al., 2007)³⁶; and
- Use of Avoidance Rates in the NatureScot Wind Farm Collision Risk Model (NatureScot, 2025)³⁷.

9.4.25 There are two published models for calculating collision risk. These models are appropriate for different scenarios, depending on how the target species are using the WFA:

³⁴ NatureScot (2024) *Guidance on using an updated Collision Risk Model to assess bird collision risk at onshore wind farms*. NatureScot, Perth. Available at: <https://www.nature.scot/doc/guidance-using-updated-collision-risk-model-assess-bird-collision-risk-onshore-wind-farms>

³⁵ Band, W. (2000) *Windfarms and birds – calculating a theoretical collision risk assuming no avoiding action*. Scottish Natural Heritage (now NatureScot) Guidance Note. Available at: <https://www.nature.scot/doc/wind-farm-impacts-birds-calculating-theoretical-collision-risk-assuming-no-avoiding-action>

³⁶ Band, W., Madders, M. & Whitfield, D.P. (2007) *Developing field and analytical methods to assess avian collision risk at windfarms*. In: De Lucas, M., Janss, G. & Ferrer, M (eds). *Birds and Wind Power*. Servicios Informativos Ambientales/Quercus, Madrid Spain.

³⁷ NatureScot (2025) *Wind farm impacts on birds – Use of Avoidance Rates in the NatureScot Wind Farm Collision Risk Model*. NatureScot, Perth. Available at: <https://www.nature.scot/doc/wind-farm-impacts-birds-use-avoidance-rates-naturescot-wind-farm-collision-risk-model>.

- The 'Airspace' Model applies where birds are typically recorded within the airspace of the WFA. For example, birds with breeding territories or observed foraging within the WFA; and
- The 'Fly Through' Model applies where birds are typically recorded using regular commuting routes across the WFA.

9.4.26 Based on the flight activity recorded during the VP surveys, the most appropriate model will be selected for each target species.

9.4.27 The results of the CRM will be used to estimate the number of target species likely to be impacted, applying those impacts on a geographical scale along with their potential relationship and significance to designated sites, especially the South Pennine Moors Phase 2 SPA and South Pennine Moors SSSI.

Determination of Significance

9.4.28 The assessment of likely significant effects from the Proposed Development on ornithological features will comprise the following steps:

- Determine the importance of ornithological features affected;
- Assess impacts potentially affecting important features;
- Characterise the impacts e.g. the nature of effect and impact magnitude;
- Identify cumulative impacts; and then
- Identify likely significant effects of impacts in the absence of additional mitigation (but including mitigation that is embedded into the Proposed Development).

Assessment of the Importance of Ornithological Features

9.4.29 The baseline importance and conservation status of ornithological features identified within the Zol will be determined to identify those with sufficient importance and vulnerability for effects from the Proposed Development to be taken forward for consideration as part of the assessment of likely significant effects. In line with CIEEM EclA Guidelines¹⁷, the following geographic scale of reference to determine the importance of ornithological features will be used:

- International importance;
- National importance (i.e. important in a British context);
- Regional importance (i.e. important in the context of West Yorkshire/Lancashire); and

- Local importance (i.e. locally important populations/assemblages of bird species and/or protected and/or priority species/habitats).

9.4.30 Details of definitions for feature value and sensitivity with regard to CIEEM’s EclA Guidelines are shown in **Table 9-8**.

Table 9-8: Defining Value/Sensitivity of Ornithological Features

Value/Sensitivity of Ornithological Feature	Example Criteria
International	<ul style="list-style-type: none"> • An internationally designated site or candidate/proposed site (SPA, potential SPA and/or Ramsar site). • Land that is functionally linked to an internationally designated site of ornithological importance to the extent that it essential to maintaining the coherence of the designated site (FLL). • Sustainable population of an internationally important species or site supporting such species (or supplying a critical element of their habitat requirement) e.g. the International Union for the Conservation of Nature (IUCN) Red List species that is listed as critically endangered, endangered or vulnerable; species listed in Annex IV of the Habitats Directive; or sites that support 1% or more of a biogeographic population of a species.
National	<ul style="list-style-type: none"> • A nationally designated site of ornithological importance (i.e. SSSI, National Nature Reserve). • Resident or regularly occurring populations of birds assessed to be important at the national level (e.g. a site that supports ≥1% of the national population), including species listed in Annex 1 and/or referred to in Article 4(2) of the Birds Directive, species protected under the WCA 1981 and the NERC Act 2006 and/or species included on the BoCC Red List.
Regional	<ul style="list-style-type: none"> • Resident or regularly occurring populations of birds assessed to be important at the regional (county) level (e.g. a site that supports ≥1% of the county population), including species listed under Annex 1 and/or referred to in Article 4(2) of the Birds Directive, species protected under the WCA 1981 and the NERC Act 2006 and/or species included on the BoCC Red or Amber List.
Local	<ul style="list-style-type: none"> • Low importance and low rarity, local scale.

Value/Sensitivity of Ornithological Feature	Example Criteria
	<ul style="list-style-type: none"> Resident or regularly occurring populations of birds assessed to be important at the local level, including species listed in Annex 1 and/or referred to in Article 4(2) of the Birds Directive, species protected under the WCA 1981 and the NERC Act 2006 and/or species included on the BoCC Red or Amber List, or populations of species that are assessed as uncommon in the local area.

9.4.31 Where the importance is considered less than ‘Local’ it is considered ‘Negligible’ in the context of the Proposed Development and will be ‘scoped out’ of the detailed assessment of effects, since effects on these features would be not significant in the context of the local population statuses of these species or species assemblages. Therefore, any feature which is assessed as being of ‘Local’ importance or higher will be brought forward for assessment of effects from the Proposed Development, unless it can be proven without any reasonable scientific doubt that impacts would be negligible.

9.4.32 The importance of an ornithological feature (using the geographical scale of importance detailed above) can be assessed based on the following factors described below.

Conservation Status

9.4.33 The assessment of the importance of the bird population will take into consideration the conservation statuses of the species recorded. Species afforded special statutory protection or included on lists of species of conservation interest will be evaluated. These include the priority species described in Paragraph 9.4.7.

Species Abundance

9.4.34 The assessment of the importance of bird populations will take into consideration their sizes relative to international, national, and regional population estimates for the species in question.

9.4.35 International 1% population thresholds (i.e. the size at which a population is assessed as being of international importance, as it comprises over 1% of the international population for a given species) will be obtained from the IUCN and Wetlands International³⁸.

³⁸ As detailed by Wetlands International. Available at: [Waterbird Population Estimates \(wetlands.org\)](http://www.wetlands.org).

9.4.36 National 1% population thresholds (i.e. the size at which a population is assessed as being of national importance, as it comprises over 1% of the national population for a given species) will be calculated from the national population estimates detailed by Woodward et al. (2020)³⁹.

9.4.37 The assessment of regional or local importance will be based on professional judgement and in reference to county population data detailed within the relevant county bird report⁴⁰.

Species Diversity

9.4.38 The assessment of the importance of the populations will take into consideration the size of ornithological species assemblages (i.e. the number of species) recorded during the breeding and non-breeding seasons.

Relevant Designated Sites with Features of Ornithological Interest

9.4.39 The importance of the bird populations will be assessed in the context of the relevant designated sites for features of ornithological interest within the Zol of the Proposed Development (e.g. the South Pennine Moors Phase 2 SPA and South Pennine Moors SSSI). Specifically, where species recorded during field surveys are deemed to potentially belong to populations of the SPA (in reference to SNH [2016] guidance²¹), if the populations of the species recorded within/in close proximity to the Proposed Development exceeded 1% of the cited population estimates for those species for the SPA, the populations recorded will be assessed as being potentially significant in the context of the SPA. As such, any adverse effects on those populations could potentially result in effects on ornithological features of international and/or national importance and therefore undermine the integrity of such designated sites.

Identification of Important Ornithological Features

9.4.40 The methodology for assessment will follow a precautionary screening approach with regard to the identification of IOFs. For the ornithology assessment, an IOF will be identified as a species occurring within the Zol of the Proposed Development upon which likely significant effects are anticipated and assessed. In accordance with CIEEM's EclA Guidelines¹⁷, an IOF is a feature which is '*both of sufficient value to be material in decision making and likely to be affected significantly*'. For this assessment, IOFs will be identified as receptors with a value of local importance or greater, which may be subject to likely significant effects from the Proposed

³⁹ Woodward, I., Aebischer, N., Burnell, D., Eaton, M., Frost, T., Hall, C., Stroud, S. & Noble, D. (2020) APEP 4 Population Estimates of birds in Great Britain and the United Kingdom. *British Birds*, **113**, British Trust for Ornithology (BTO).

⁴⁰ Yorkshire Naturalists Union (2011) *Yorkshire Bird Report: 2010*. Yorkshire Naturalists Union Birds Section.

Development, either directly or indirectly. It also includes those species subject to detailed CRM.

Characterising the Impact

Nature of Effect

9.4.41 The assessment process includes a description regarding the nature of the effect. Nature of effect is defined as ‘*the influence an effect has on a feature and across which temporal scale*’¹⁷. This term provides additional information about how features would be influenced by an impact from an effect with assessment descriptors. Details of assessment descriptors are included in **Table 9-9**.

Table 9-9: Nature of Effect

Term	Nature of Effect Descriptors
Adverse	An effect which has the potential to decrease feature value or status relative to baseline conditions.
Beneficial	An effect which has the potential to increase feature value or status relative to baseline conditions.
Short-term	Effects that persist only for a short time, e.g. during the construction phase only; includes reversible effects.
Medium-term	Effects that may persist until additional mitigation measures have been implemented and become effective.
Long-term	Effects that persist for a much longer time, e.g. for the duration of the operation and maintenance phase (essentially until the development ceases or is removed/reinstated); includes effects which are permanent (irreversible), or which may decline over longer timescales.
Temporary	A reversible effect where recovery is possible and for which effects would persist only for a short or medium-term.
Frequent	Refers to a recurring effect that occurs repeatedly; in some cases, a lower level of impact may occur with sufficient frequency to reduce the ability of a feature to recover effectively.
Direct	An effect directly attributable to a defined action of the Proposed Development such as the physical loss of a habitat or the immediate mortality of an individual of a particular species.
Indirect	An effect attributable to an action which affects ecological resources through effects on an intermediary ecosystem, process or feature, e.g. a loss of food resources for an

Term	Nature of Effect Descriptors
	ornithological species downstream of a site due to fish-kill by polluted runoff entering a river.
Cumulative	Collective effects of changes that may be insignificant individually but in combination, often over time, have the potential to be significant (especially with other projects in the vicinity).
Residual	After assessing the impacts of the proposal all attempts should be made to avoid and mitigate ecological impacts. Once measures to avoid and mitigate ornithological impacts have been finalised residual effects are identified.

Impact Magnitude

9.4.42 The impact magnitude from the Proposed Development’s effects refers to the size, amount, intensity and volume. Definitions for each of the categories are detailed in **Table 9-10**.

Table 9-10: Definition of Impact Magnitude

Impact Magnitude	Summary
Large	<ul style="list-style-type: none"> Any impact which significantly undermines or improves the favourable conservation status of the qualifying interests of any internationally or nationally designated conservation site. An impact resulting in the total loss of sensitive characteristics. Total/near total loss or change of a bird population due to mortality or displacement. Total/near total loss or change of productivity in a bird population due to disturbance. Guide: >80% of feature extent or population change.
Medium	<ul style="list-style-type: none"> An impact which, by its character, scale, duration, or intensity significantly alters most of a sensitive aspect of the environment. Major change in the status or productivity of a bird population due to mortality, displacement or disturbance. Guide: 21-80% of feature extent or population change.
Small	<ul style="list-style-type: none"> An impact that alters the character of the environment or causes noticeable changes without affecting its sensitivities or is consistent with existing and emerging trends. Partial but discernible change in the status or productivity of a bird population due to mortality, displacement or disturbance.

Impact Magnitude	Summary
	<ul style="list-style-type: none"> • Guide: 1-20% of feature extent or population change.
Negligible	<ul style="list-style-type: none"> • An impact that can cause noticeable changes in the character of the environment without significant consequences. • No or very slight change in the status or productivity of a bird population due to mortality, displacement, or disturbance. Change barely discernible, approximating to a 'no-change' situation. • Guide: <1% of feature extent or population change.

Significance of Effects

- 9.4.43 Following the classification of the identified features and effects based on the factors described above, a clear statement will be made as to whether the effect is 'significant' or 'not significant' in EIA terms. In accordance with CIEEM's EclA Guidelines¹⁷, the significance of an effect on an ornithological feature will be determined by consideration of the value/sensitivity of the ornithological feature, and the likely impact magnitude. The significance will be presented in relation to the geographic scale attributed to the species/species assemblage or designated site.
- 9.4.44 A significant effect is defined as '*an effect that either supports or undermines biodiversity conservation objectives for the ecological feature or for biodiversity in general*'¹⁷. The assessment will consider whether an effect has the potential to affect the conservation status of a species or species assemblage, or the integrity of a designated site.
- 9.4.45 The conservation status of a species or species assemblage is defined as '*the sum of the influences acting on it which may affect its long-term distribution and abundance, within the geographical area of interest*'¹⁷. Conservation status is considered to be favourable under the following circumstances¹⁷:
- Population dynamics indicate that the species can maintain itself on a long-term basis as a viable component of its habitats;
 - The natural range of the species is not being reduced, nor is it likely to be reduced for the foreseeable future; and
 - There is (and probably will continue to be) a sufficiently large habitat to maintain its population on a long-term basis.

9.4.46 Within this PEIR (and the subsequent ES), the significance of an effect will be determined through a balanced consideration of the factors that characterise the effect, including the nature of the effect, the impact magnitude and the value/sensitivity of the relevant IOF.

9.4.47 For certain features, and where appropriate, a quantitative reference of a 1% change in feature extent or population may be used to help contextualise impact magnitude (as defined in **Table 9-10**) and thus the significance of an effect. However, this threshold is not applied in isolation, and a change of this scale will not automatically be considered significant. The final determination of significance will be based on professional judgement, informed by the full analysis of the effect-characterising factors set out above.

Mitigation Hierarchy

9.4.48 In accordance with CIEEM's EclA Guidelines¹⁷, a sequential process will be adopted to avoid, mitigate and compensate adverse ornithological impacts and effects, otherwise known as the 'mitigation hierarchy'. As part of the Proposed Development, avoidance, mitigation, offsetting (or compensation), and enhancement measures will be identified as part of the assessment process. These principles underpin any EclA and are adapted from CIEEM as follows:

- Avoidance: Seek options that avoid harm to ornithological features (for example, siting turbines away from established nesting sites);
- Mitigation: Adverse effects should be avoided or minimised through mitigation measures, either through the design of the Proposed Development or subsequent measures that can be guaranteed – for example, through a Requirement in the Development Consent Order, if consented;
- Offsetting: Where there are significant residual adverse ornithological effects despite the mitigation proposed, these should be offset by appropriate offsetting measures; and
- Enhancement: Seek to provide benefits for biodiversity over and above requirements for avoidance, mitigation, or offsetting.

9.4.49 Wherever practicable, strategies of avoidance would be implemented to minimise any impacts to ornithological features. If avoidance is not practicable, mitigation and offsetting measures would be required.

Cumulative and In-Combination Effects

9.4.50 Cumulative effects will be assessed in line with the methodology set out in **Chapter 3: EIA Methodology**, which accords with the PINS's Advice on Cumulative Effects Assessment. A long list of existing, consented, and Proposed Developments have

been issued to the relevant local planning authorities prior to undertaking the assessment. The certainty of these developments will be determined using the tiered approach recommended by PINS. For each technical aspect, the potential Zol of the Proposed Development during construction, operation and maintenance, and decommissioning will be identified. The outcomes of the cumulative effects assessment will be reported within the ES.

Limitations and Assumptions

- 9.4.51 The Preliminary Environmental Assessment upon ornithological features presented within this Chapter has not been constrained and has been undertaken in accordance with good practice guidance^{17,18,19}. The Preliminary Environmental Assessment is based on the best available information at the time of writing and incorporates a precautionary approach where appropriate.
- 9.4.52 Any limitations associated with the collection of baseline ornithological data, including survey effort, temporal or spatial gaps, restricted access, or environmental factors influencing detection rates, are fully described in **Appendix 9.1: Baseline Ornithology Report**. These limitations have been reviewed and their implications considered when interpreting the baseline and applying professional judgement in the preliminary assessment.
- 9.4.53 Full ornithological survey coverage of the Western Access Route and the Bradford West Cable Corridor was not possible during the 2022 – 2025 seasons due to access restrictions and project programming. These areas will be subject to dedicated survey effort during 2026, as set out in Paragraph 9.5.53.
- 9.4.54 For the purposes of this Chapter, a precautionary assumptions-based approach has been applied to these un-surveyed areas. Aerial imagery, desk study datasets, and ecological judgement have been used to identify which species are likely to occur and how they may interact with the Proposed Development. Impacts associated with the Bradford West Cable Corridor are expected to be limited due to its smaller scale, temporary nature, and its lack of suitability for many of the key upland SPA/SSSI features. Nonetheless, this Chapter adopts a precautionary and preliminary view of potential effects in the absence of confirmed survey data.
- 9.4.55 This Chapter includes a qualitative preliminary assessment of collision risk based on VP flight activity data collected between 2022 and 2025. A full quantitative CRM assessment will be completed for the ES following design finalisation and once the candidate turbine specifications, including hub height, rotor diameter, and operational parameters, are confirmed. As a result, the assessment of effects upon collision-related impacts presented at this stage is precautionary and preliminary.

9.4.56 Despite the limitations and assumptions outlined above, the preliminary assessment presented in this PEIR is considered to be robust. This confidence is supported by:

- A comprehensive multi-year dataset covering all key seasons for all relevant species groups;
- Multi-method baseline data collection;
- Use of conservative, worst-case assumptions where uncertainties exist; and
- A precautionary approach to evaluating significance, particularly for SPA/SSSI qualifying features; and

9.4.57 Accordingly, while areas of uncertainty remain, typical of assessments produced at PEIR stage, none are considered to compromise the reliability of the preliminary conclusions reached. The preliminary assessment provides a robust and proportionate basis for provisionally identifying likely significant effects, determining the scope of the ES, and informing ongoing design development and consultation with statutory bodies.

9.5 Baseline Conditions

Overview

9.5.1 The description of the baseline conditions within the PEIR Boundary is separated out in the sections into the components of the Proposed Development (e.g. Turbine Area, Access Routes and the Bradford West Cable Corridor), where relevant.

9.5.2 The majority of the study area lies within the South Pennine Moors Phase 2 SPA and South Pennine Moors SSSI, both designated for their internationally and nationally important assemblages of breeding moorland and moorland-fringe birds. The study area encompasses extensive areas of blanket bog, heather moorland, acid grassland, small patches of woodland and upland flushes interspersed with reservoirs and a network of ditches/rivers. The area supports key qualifying species such as merlin and golden plover, along with important populations of curlew, lapwing, short-eared owl, dunlin and a diverse assemblage of raptors, waders, and upland passerines characteristic of the South Pennines.

9.5.3 The baseline information of the study area is summarised below. Full baseline data, detailed species accounts and mapping are provided in **Appendix 9.1: Baseline Ornithology Report** and **Appendix 9.2: Ornithology Data Document** which support this PEIR Chapter.

Existing Baseline

It is recommended that this section of the Chapter is read in conjunction with **Appendix 9.1: Baseline Ornithology Report** for detailed information as well as the visualisation of designated sites.

Designated Sites

- 9.5.4 Outlined below are the internationally and nationally designated sites of ornithological interest located within 20km and 10km of the Turbine Area, respectively, and 2km of the Access Routes and the Bradford West Cable Corridor. Details of the designated sites and their qualifying species are provided along with a general description of the integral habitats that support these species. Designated sites are shown in **Figure 9** within **Appendix 9.1: Baseline Ornithology Report**.

South Pennine Moors Phase 2 SPA

- 9.5.5 The Turbine Area, Access Routes and the Bradford West Cable Corridor are largely located within the South Pennine Moors Phase 2 SPA. Approximately 10.72% of the SPA falls within the PEIR boundary. The designated site (Phase 1 and 2) includes the major moorland blocks of the South Pennines from Ilkley in the north to Leek and Matlock in the south.
- 9.5.6 The South Pennine Moors Phase 2 SPA includes two discrete blocks of moorland, one south of Ilkley and another (of which the majority of the Turbine Area falls within) on the watershed between Bradford and Burnley and stretching to Marsden at the northern edge of the Peak District. It covers extensive tracts of semi-natural moorland habitats including upland heath and blanket mire.
- 9.5.7 The South Pennine Moors Phase 2 SPA is an upland of international importance, providing habitat for an important assemblage of moorland and moorland fringe birds. The principal habitats supporting the assemblage of birds are blanket bogs, European dry heaths, acid grassland, Northern Atlantic wet heaths and dense bracken beds.
- 9.5.8 The South Pennine Moors Phase 2 SPA qualifies under Article 4.1 of the EC Birds Directive (79/409) by supporting nationally important breeding populations of two Annex 1 bird species; namely merlin and golden plover. Upon designation in June 1997, the SPA supported 28 pairs of merlin (4.3% of the British population) and 292 pairs of golden plover (1.2% of the British population). The density of breeding golden plover is high compared to other regional populations in northern England and Scotland.
- 9.5.9 The South Pennine Moors Phase 2 SPA additionally qualifies under Article 4.2 of the EC Birds Directive (79/409) by supporting, in summer, a diverse assemblage of breeding migratory birds of moorland and moorland fringe habitats including golden

plover, lapwing, dunlin, snipe (*Gallinago gallinago*), curlew, redshank, common sandpiper (*Actitis hypoleucos*), short-eared owl, whinchat (*Saxicola rubetra*), wheatear (*Oenanthe oenanthe*), ring ouzel (*Turdus torquatus*) and twite.

9.5.10 The South Pennine Moors Phase 2 SPA support the southernmost assemblage of breeding merlin, golden plover, dunlin, short-eared owl and twite in the world. Therefore the SPA has an important role in maintaining the breeding range of these species.

South Pennine Moors SSSI

9.5.11 The South Pennine Moors SSSI predominantly covers a similar area (approximately 10.72% of the SSSI falls within the PEIR boundary) as the South Pennine Moors Phase 2 SPA. The Turbine Area, Access Routes and the Bradford West Cable Corridor are located within the South Pennine Moors SSSI. Similarly to the SPA, the citation states that the mosaic of habitats supports a moorland breeding bird assemblage which is of regional and national importance.

9.5.12 The moorlands support nationally important numbers of golden plover, curlew, merlin and twite. Important features of the SSSI include:

- The blanket bogs, which are the main breeding grounds for golden plover and dunlin, which need relatively short vegetation to nest in and access to wet areas to feed, a combination provided by the blanket mires;
- The deeper cover provided by the heather provides nest sites for merlin and red grouse (*Lagopus lagopus scotica*) with golden plover also known to nest on recently burnt or cut heather;
- Wet acid grassland and semi-improved areas are used by nesting curlew (0.8% of the British breeding population), lapwing and, in the wettest areas, by snipe and redshank;
- Twite on the South Pennine Moors SSSI represent 1% of the British breeding population, where they use all the moorland habitats at different stages of their life cycle including heather for nesting and the grassy areas throughout the moorlands, moorland edges, semi-improved pastures and burnt/cut Molinia grassland for feeding;
- Peregrine nest on suitable crags and disused quarries and short-eared owl nest (three pairs at designation) in moorland;
- The moors support breeding wheatear, whinchat, ring ouzel and stonechat (*Saxicola torquate*);

- Large reservoirs within and adjacent to the South Pennine Moors SSSI provide feeding areas for moorland nesting dunlin as well as nesting habitat for common sandpiper, grey wagtail (*Motacilla cinerea*), little ringed plover (*Charadrius dubius*) and shelduck (*Tadorna tadorna*); and
- The watercourses draining the reservoirs and the moors support small numbers of dipper (*Cinclus cinclus*).

North Pennine Moors SPA

- 9.5.13 The North Pennine Moors SPA is located 18.85km north of the Turbine Area and beyond the study areas for the Bradford West Cable Corridor (16.5km at its closest point), Eastern (19km at its closest point) and Western (14.8km at its closest point) Access Routes.
- 9.5.14 The North Pennine Moors SPA includes parts of the Pennine moorland massif between the Tyne Gap (Hexham) and the Ribble-Aire corridor (Skipton). It encompasses extensive tracts of semi-natural moorland habitats including upland heath and blanket bog.
- 9.5.15 The site qualifies under Article 4.1 of the Directive (79/409/EEC) as it is used regularly by 1% or more of the British populations of the following species listed in Annex 1:
- Hen harrier (*Circus cyaneus*): 11 breeding pairs (2.3% of the British population);
 - Merlin: 136 breeding pairs (10.5% of the British population);
 - Peregrine: 15 breeding pairs (1.3% of the British population); and
 - Golden plover: 1,400 breeding pairs (6.2% of the British population).

Other designated sites

- 9.5.16 In addition to the above sites, a number of other statutory and non-statutory designated sites with ornithological interest occur within the wider study area. These sites support habitats and bird assemblages of conservation interest.
- 9.5.17 The Upper Ball Grove Lodge Local Nature Reserve (LNR) lies 1.5km west of the Western Access Route on the eastern edge of Colne in Lancashire. It comprises a lake and seven hectares of community woodland. The Old Mill Lodge supports many species of foraging and wintering birds including waterfowl and gulls as well as occasional waders.
- 9.5.18 Ogden Water LNR and Ogden Reservoir Local Wildlife Site (LWS) lie 1km and 1.7km south of the Bradford West Cable Corridor respectively. Ogden Water comprises a large reservoir surrounded by mixed coniferous and broadleaf

woodland. Habitats include the reservoir upland streams, woodland (including coniferous plantation), upland oak woodland and wet woodland, heather moorland, blanket bog and acid grassland. The site supports a good selection of birds with some rarities turning up occasionally. Twite, curlew, oystercatcher (*Haematopus ostralegus*), short-eared owl and skylark (*Alauda arvensis*) breed on the moorland with breeding waterbirds such as kingfisher (*Alcedo atthis*), grey heron (*Ardea cinerea*), Canada geese (*Branta canadensis*) also present. Other birds seen throughout the year include tufted ducks (*Aythya fuligula*), dippers, and great crested grebes (*Podiceps cristatus*). Summer brings swallows (*Hirundo rustica*), house martins (*Delichon urbicum*) and swifts (*Apus apus*), with autumn bringing common crossbills (*Loxia curvirostra*) and tawny owls (*Strix aluco*), with large numbers of thrushes in winter.

Breeding Birds

- 9.5.19 A total of 108 bird species were recorded during the field surveys undertaken in the breeding seasons between 2022 and 2025. Of those 108 species, 86 were considered to be possible, probable or confirmed breeding within the study area, representing a diverse assemblage and reflecting the ecological richness and structural diversity of the South Pennines uplands.
- 9.5.20 70 species recorded during the survey period are considered to be priority species as described in Paragraph 9.4.7 above, including:
- 12 species listed under the designation of the South Pennine Moors Phase 2 SPA;
 - 18 species listed under the designation of the South Pennines Moors SSSI;
 - Eight EC Birds Directive Annex 1 species;
 - 16 WCA 1981 Schedule 1 species;
 - 20 NERC Act 2006 S41 Species of Principal Importance;
 - 28 BoCC Red list species; and
 - 32 BoCC Amber list species.
- 9.5.21 The breeding bird assemblage recorded across the study area between 2022 and 2025 represents a diverse and important upland community, characteristic of the South Pennine uplands. The range of habitats present, including extensive heather moorland, blanket bog, acid and wet grassland, Juncus flushes, reservoir margins, rocky crags and outcrops, woodlands and moorland fringe farmland supports a broad spectrum of upland and fringe breeding species. This diversity reflects both the structural heterogeneity created by active moorland management and the

ecological continuity of the landscape within the South Pennine Moors Phase 2 SPA and South Pennine Moors SSSI.

- 9.5.22 Sensitive nesting areas of selected species (i.e. those that form part of the designation of the South Pennine Moors Phase 2 SPA and South Pennine Moors SSSI) are included within **Figure 10-24** within **Appendix 9.1: Baseline Ornithology Report**.

Habitat Context and Assemblage Structure

- 9.5.23 The heather-dominated moorland plateaus and slopes form the ecological core of the study area, providing breeding habitat for upland waders, grouse and raptors. Blanket bogs and wet heaths support breeding golden plover, curlew, and occasional dunlin, while heather mosaics and acid grasslands are used by lapwing, snipe, curlew and redshank along the moorland fringe. These open habitats also sustain large numbers of meadow pipit (*Anthus pratensis*) and skylark, underpinning the prey base for merlin which breed on the heather dominated slopes.
- 9.5.24 Reservoir margins (including the Walshaw Dean, Widdop, and Warley Moor Reservoirs) and watercourses, provide breeding habitat for common sandpiper and a small assemblage of waterfowl such as mallard (*Anas platyrhynchos*), greylag goose (*Anser anser*) and goosander (*Mergus merganser*), while stony drawdown zones at reservoir edges support expanding populations of little ringed plover. Woodlands, notably The Plantation within the south of the Turbine Area and Hardcastle Crag within the wider study area to the south, host woodland and edge species such as redstart (*Phoenicurus Phoenicurus*), song thrush (*Turdus philomelos*), and willow warbler (*Phylloscopus trochilus*), alongside raptors and owls. The cloughs, tors and gritstone edges, and their associated rock litter and dry-stone walls are characterised by breeding ring ouzel, whinchat and wheatear.
- 9.5.25 The moorland fringe and pastoral farmland at lower elevations, particularly around Holme Ends support a contrasting assemblage of wet grassland and farmland-associated species, including lapwing, redshank, oystercatcher, snipe, reed bunting (*Emberiza schoeniclus*), grasshopper warbler (*Locustella naevia*) and barn owl (*Tyto alba*), alongside small populations of linnet (*Linaria cannabina*) and house sparrow (*Passer domesticus*). This area additionally supports foraging golden plover during nocturnal periods. The integration of these upland and lowland edge habitats creates strong ecological gradients, supporting species with overlapping habitat requirements and allowing for high breeding densities.

Raptors and Owls

- 9.5.26 The study area supports a diverse raptor assemblage with 10 breeding species, encompassing both South Pennine Moors Phase 2 SPA and South Pennine Moors

SSSI features and non-designated species. Merlin (three to five pairs) breed regularly across the Turbine Area and surrounding moorlands, showing long-term site fidelity to heather-dominated slopes with abundant prey. Peregrine and kestrel nest on crags and rocky outcrops. Occasional breeding by hen harrier and marsh harrier (*Circus aeruginosus*), an unusual breeding species for an upland area, further underscores the area's ecological value and suitability for raptor species. Woodland and plantation habitats also support buzzard (*Buteo buteo*), sparrowhawk (*Accipiter nisus*), red kite (*Milvus milvus*) and potentially goshawk (*Accipiter gentilis*) which hunt widely across the moorland fringe.

- 9.5.27 All five UK owl species breed within the study area, an unusually complete assemblage for an upland area. Their distribution reflects the range of available habitats: short-eared owls on grass-dominated moorland margins adjacent to reservoirs; barn and little owls (*Athene noctua*) using buildings and pasture edges; and long-eared (*Asio otus*) and tawny owls (*Strix aluco*) confined to plantation and mixed woodland blocks. The coexistence of all five species demonstrates the structural diversity and prey availability within the study area.

Influence of Land Management

- 9.5.28 The surveys highlight that the Walshaw Moor Estate's active moorland management regime, comprising rotational heather burning/cutting, low intensity grazing and predator control, is central to maintaining this ecological diversity. These practices sustain a heterogeneous vegetation structure, creating a fine-scale mosaic of heather, grass, bog, and woodland habitats suitable for a wide range of species. Similar positive relationships between managed grouse moorland and high densities of breeding waders and red grouse have been demonstrated in other parts of the Pennines^{41,42}.
- 9.5.29 Predator control appears to play a particularly important role. The low density of corvids recorded during the surveys provides evidence of effective control across the Walsham Moor Estate. Studies such as Fletcher *et al.* (2010)⁴³ and Baines

⁴¹ Pearce-Higgins, J.W. & Grant, M.C. (2006) Relationships between bird abundance and the composition and structure of moorland vegetation. *Bird Study*, **53**, 112 – 125.

⁴² Tharme, A.P., Green, R.E., Baines, D., Bainbridge, I.P. & O'Brien, M. (2001) The effect of management for red grouse shooting on the population density of breeding birds on heather-dominated moorland. *Journal of Applied Ecology*, **38**, 439 – 457.

⁴³ Fletcher, K., Aebischer, N.J., Baines, D., Foster, R. & Hoodless, A.N (2010) Changes in breeding success and abundance of ground-nesting moorland birds in relation to the experimental deployment of legal predator control. *Journal of Applied Ecology*, **47**, 263 – 272.

(2025)⁴⁴ show that targeted control of generalist predators such as foxes and crows can lead to substantial increases in breeding success for ground-nesting species, including lapwing, curlew and golden plover. The robust breeding numbers recorded across the study area support these findings, highlighting that predator management remains a key driver of upland bird productivity.

- 9.5.30 The rotational burning/cutting and low-density grazing regime have produced a high degree of vegetation heterogeneity, maintaining an interspersion of heather age classes, bare ground and grassy openings. This structural diversity benefits both waders and raptors: species such as golden plover prefer short open heather mosaics⁴¹, while others such as curlew and snipe rely on taller swards and wetter flushes for nesting and chick concealment. The densities observed within the study area are consistent with those recorded by Tharme *et al.* (2001)⁴², who found significantly higher breeding densities of golden plover, lapwing and curlew on managed moors compared with unmanaged sites. Nonetheless, Douglas *et al.* (2017)⁴⁵ caution that rotational burning and draining may have negative effects including through the removal of scrub and trees and the drying of peat.
- 9.5.31 The study area experiences recreational disturbance that is primarily confined to the well-defined footpaths along the Pennine Way, with limited evidence of widespread access the surrounding moorland. This contrasts with other heavily visited upland areas, where excessive visitor pressure has been shown to reduce breeding success and territory occupancy among waders⁴⁶. The concentration of access along defined routes reduces the extent of disturbance within the wider habitat and is likely to support higher breeding densities and successful nesting outcomes, particularly for sensitive ground-nesting species.

Summary

- 9.5.32 The combination of diverse habitat types, effective predator control, limited disturbance and well-managed vegetation structure has resulted in an area that supports one of the most complete upland bird assemblages in the South Pennines. Populations of SPA/SSSI species remain stable, while a wide range of raptors, waders, owl and passerines also breed successfully. The results confirm that the study area represents a high-quality upland ecosystem, supporting extensive,

⁴⁴ Baines, D. (2025) Ten years on from a predator removal experiment in the English uplands: Changes in numbers of ground-nesting bird and predators. *Journal of Nature Conservation*, **84**, 126788.

⁴⁵ Douglas, D., Beresford, A., Selvidge, J., Garnett, S., Buchanan, G., Gullett, P. & Grant, M. (2017) Changes in upland bird abundances show associations with moorland management. *Bird Study*, **64**, 1 -13.

⁴⁶ Pearce-Higgins, J.W., Finney, S.K., Yalden, D.W. & Langston, R.H.W. (2007) Testing the effects of recreational disturbance on two upland breeding waders. *Ibis*, **149**, 45 – 55.

structurally diverse habitats that collectively sustain both specialist moorland species and the broader bird community characteristic of upland England.

Non-breeding Birds

- 9.5.33 The non-breeding bird surveys undertaken between 2022 and 2024 recorded a total of 86 species. The assemblage reflects a diverse but characteristic mix of upland and moorland birds associated with the South Pennine landscape, including waders, waterfowl, raptors, and passerines. The findings highlight the study area's continued importance as both a wintering refuge and migration corridor, supporting a variety of species that utilise its extensive open moorland, pasture, and woodland habitats.
- 9.5.34 Of the 86 species recorded, 53 are considered to be priority species as described in Paragraph 9.4.7 (note that some species can be included on more than one list), including:
- Nine EC Birds Directive Annex 1 species;
 - 15 NERC Act (2006) S41 Species of Principal Importance;
 - 21 BoCC Red list species; and
 - 28 BoCC Amber list species.
- 9.5.35 During autumn and spring passage, the study area forms part of a wider migratory network across the South Pennines, with notable movements of pink-footed goose (*Anas brachyrhynchus*), golden plover, lapwing, and curlew. Large flocks were observed using the study area as a temporary stopover site, resting and feeding before continuing migration or dispersing to breeding grounds within the surrounding uplands. Additional records of whooper swan (*Cygnus cygnus*), fieldfare (*Turdus pilaris*), redwing (*Turdus iliacus*) and smaller passage migrants, such as ring ouzel, twite, and wheatear further demonstrate the functional role of the landscape in supporting birds during seasonal transitions. The PEIR Boundary's open moorland, gentle slopes, and network of reservoirs and valleys provide the key habitat features that facilitate passage activity through the Pennine corridor.
- 9.5.36 During the wintering period, the study area supported a stable and abundant assemblage of upland species typical of managed moorland systems. The extensive heather-dominated moorland supported large populations of red grouse and meadow pipit, while reservoir margins, pasture and acid grassland supported greylag goose, mallard, oystercatcher, snipe, lapwing and redshank. The study area was also notable in supporting a diverse wintering raptor assemblage, with regular activity from hen harrier, merlin, short-eared owl and peregrine, consistent with known roosting and foraging patterns within the South Pennines. The study

area is known for supporting a regular winter roost of hen harrier to the south of the Turbine Area, with four to six individuals typically recorded in most winters and occasional counts reaching up to 11 birds (according to anecdotal information from land managers associated with the Walshaw Moor Estate). This represents one of the most significant winter roosts in England and reflects the importance of the managed moorland habitat for this species. The occurrence of multiple hen harriers, merlin, peregrine, short-eared owl and barn owl within the study area and surrounding moors underscores the favourable foraging conditions and low disturbance offered by this landscape.

- 9.5.37 The variety of habitats within the study area contributes directly to this diversity. The blanket bog and heather moorland plateaus support wintering golden plover, dunlin, and meadow pipit; the moorland fringe and *Juncus* flushes provide foraging areas for curlew, snipe, lapwing and oystercatcher; while small areas of woodland support winter thrushes and other passerines. The reservoirs and watercourses systems add further habitat heterogeneity, supporting species such as dipper, grey wagtail, redshank and goosander. This habitat mosaic, combined with effective predator control, rotational cutting/burning and grazing management, creates structurally diverse conditions that sustain a high abundance of birdlife throughout the year.
- 9.5.38 Overall, the non-breeding bird assemblage recorded between 2022 and 2024 demonstrates that the study area forms a high-quality upland habitat complex. It supports key populations of upland waders and raptors during migration and winter and contributes to the broader ecological connectivity of the South Pennines SPA and SSSI.

Flight Activity

- 9.5.39 VP surveys undertaken between 2022 and 2025 recorded 33 target species across the Turbine Area. The recorded assemblage represents a typical upland bird community of the South Pennine Moors, encompassing waders, waterfowl, gulls, raptors, and upland specialists.
- 9.5.40 The airspace within the Turbine Area supported high levels of flight activity from a wide variety of target species with particularly high flight activity from common gull (*Larus fuscus*), curlew, greylag goose, golden plover, hen harrier, kestrel, lapwing, lesser black-backed gull (*Larus fuscus*), mallard, merlin, marsh harrier, oystercatcher, peregrine, pink-footed goose, red grouse, red kite, short-eared owl, snipe and whooper swan.
- 9.5.41 Overall, the highest levels of flight activity were recorded from waders, notably curlew, golden plover, and lapwing, which were observed frequently commuting across the moorland plateau and associated slopes. These species exhibited the greatest proportion of flight activity within the potential collision risk height (CRH) of

the proposed turbines. Elevated levels of flight activity at this height were also recorded for waterfowl, including pink-footed goose, whooper swan and greylag goose, and for gulls such as common gull and lesser black-backed gull.

- 9.5.42 Among raptors, kestrel and peregrine were most frequently observed flying at potential CRH, while hen harrier, merlin, and marsh harrier were recorded more intermittently, typically engaged in foraging or territorial flights over moorland and rough grassland. Low-flying species including barn owl, short-eared owl, and red grouse were recorded extensively but primarily below potential CRH, reflecting their ground-associated behaviour and habitat use.
- 9.5.43 The overall pattern of flight activity demonstrates clear spatial and behavioural differentiation among species, with waders and waterfowl primarily commuting between moorland and pasture areas, and raptors exhibiting foraging and territorial flights over moorland plateaus and cloughs.
- 9.5.44 Spatial mapping of recorded flight activity for 20 target species with the highest levels of recorded flight time at potential CRH is presented in **Appendix 9.1: Baseline Ornithology Report**.

Bradford West Cable Corridor

- 9.5.45 The Bradford West Cable Corridor adjoins the Turbine Area to the east.. This western section lies within and directly adjacent to the South Pennine Moor Phase 2 SPA and South Pennine Moors SSSI and is characterised by open upland moorland dominated by blanket bog or heathland. Beyond this, the Bradford West Cable Corridor continues eastwards, forming the majority of its length, towards the Bradford West Substation, passing north of Denholme through a landscape dominated by lowland farmland comprising arable fields, improved pasture and scattered farmsteads.
- 9.5.46 East of the South Pennine Moor Phase 2 SPA / South Pennine Moors SSSI boundary, the Bradford West Cable Corridor transitions from open moorland into a predominantly lowland agricultural landscape. This central and eastern section is characterised by a mosaic of pasture, arable fields, hedgerows, copses and linear woodland strips. As such, the ornithological baseline along most of the corridor differs markedly from that of the Turbine Area, supporting a typical farmland and woodland bird assemblage.
- 9.5.47 Species likely to characterise this part of the corridor include widespread farmland passerines such as skylark, meadow pipit, linnet, yellowhammer (*Emberiza citrinella*), house sparrow, starling (*Sturnus vulgaris*) and reed bunting, alongside common woodland and edge-associated species, including robin (*Erithacus rubecula*), blackbird (*Turdus merula*), song thrush, wren (*Troglodytes troglodytes*),

great tit (*Parus major*), blue tit (*Cyanistes caeruleus*) and chiffchaff (*Phylloscopus collybita*). Raptors such as kestrel, buzzard and red kite are also likely to be regularly recorded foraging over farmland fields, while barn owl may hunt along grass margins and field boundaries. Reservoirs, ponds and small watercourses within the landscape may support mallard, moorhen (*Gallinula chloropus*) and grey wagtail. However, some enclosed pasture fields may support foraging golden plover, especially in fields with dense earthworm populations.

- 9.5.48 Although the majority of the Bradford West Cable Corridor lies outside upland breeding habitats, the western section nearer the Turbine Area, including the stretch adjoining Hill House Edge Lane, retains ecological connectivity with the adjacent moorland. This transitional zone may therefore support occasional breeding or foraging activity from moorland-associated species, including curlew, lapwing, snipe, merlin, short-eared owl and golden plover, particularly where rough grassland, rush pasture or wet flushes persist. Such use is expected to be low-density and peripheral relative to the Turbine Area.
- 9.5.49 Overall, the ornithological baseline of the Bradford West Cable Corridor is anticipated to be best described as a gradient from high-value upland habitats at its western end, supporting occasional use by SPA/SSSI species, to a predominantly lowland farmland and edge-woodland assemblage along the majority of its length towards the Bradford West Substation.

Western Access Route

- 9.5.50 The Western Access Route extends north from the Turbine Area across open moorland within the South Pennine Moors Phase 2 SPA and South Pennine Moors SSSI, reaching the Watersheddles Reservoir complex. This northern upland section is characterised by blanket bog, wet and dry heath, *Juncus* flushes and acid grassland. These habitats support an upland assemblage typical of the SPA/SSSI, including breeding curlew, lapwing, snipe, red grouse, golden plover and short-eared owl. This area was surveyed during the 2025 transect surveys and confirmed the presence of widespread moorland breeding waders and raptors using both the open plateau and moorland fringe habitats.
- 9.5.51 From the Watersheddles area, the Western Access Route broadly follows the alignment of Two Laws Road / Lancashire Moor Road westwards before turning north near Ratten Clough Bridge across upland grassland to connect with the A6068 Keighley Road. This section, which falls outside the 2022–2025 ornithological survey coverage, comprises a mixture of improved and semi-improved grazing land, moorland edge, small enclosures and patches of rough grassland and lowland fen priority habitat. Although this land lies outside the SPA boundary, the moorland edge lies just to the east, and the wider landscape remains suitable for several species associated with FLL²².

9.5.52 Based on habitat characteristics, this un-surveyed northern section has the potential to support moorland edge and lowland fringe species, including breeding lapwing, curlew, snipe and redshank, although the extents and quality of these habitats are to be confirmed. Some areas may consist of low-quality improved pasture of limited ornithological value. However, the proximity to open moorland suggests that occasional use by SPA/SSSI assemblage species remains plausible. The presence of foraging raptors such as kestrel, buzzard and potentially short-eared owl is also likely, consistent with similar habitats elsewhere in the study area.

Further Data Collection

9.5.53 To supplement the baseline dataset already collected, additional survey work and further analysis of existing information are proposed following submission of this PEIR. These works will ensure that the ornithological baseline is comprehensive for the ES. Planned further data collection includes additional non-breeding bird surveys and targeted hen harrier roost surveys during the 2025/26 non-breeding season as well as habitat walkover surveys along the Bradford West Cable Corridor and the remainder of the Western Access Route in 2026.

9.5.54 **Additional non-breeding bird surveys:** The proposed non-breeding bird surveys will provide supplementary information to support the existing VP and transect data collected between 2022 and 2025 within the Turbine Area. Non-breeding bird transects will be undertaken following the same methodology described in **Appendix 9.1: Baseline Ornithology Report**, ensuring methodological consistency with previous survey years. Four survey visits are proposed, providing appropriate temporal coverage across the non-breeding period and encompassing suitable habitats within both the Turbine Area and associated study area.

9.5.55 **Targeted hen harrier roost surveys:** Targeted hen harrier roost surveys are being carried out during winter 2025/26 with completion expected in March 2026. The surveys are taking place at locations outside the PEIR Boundary, focusing on suitable roosting habitat to the south of the Turbine Area. Surveys will follow good practice guidelines²⁸ for wintering hen harrier roost watches, with four visits undertaken from two VP overlooking known roosting areas. These surveys aim to confirm the continued presence, distribution and number of roosting hen harriers that utilise this part of the moorland during the non-breeding season.

9.5.56 **Habitat walkover surveys:** along the Bradford West Cable Corridor and the remainder of the Western Access Route (where not surveyed during field studies in 2025): These surveys will take place in spring 2026 and will verify habitat types, assess suitability for bird species and identify any ornithological sensitivities not apparent from remote / desktop assessment. Information gathered will inform the extent and nature of suitable habitats present along the corridor and will support the desk-based ornithological assessment presented within the ES.

Future Ornithology Conditions

Collection of Predicted Data

9.5.57 Predicted data for the future ornithological baseline without the Proposed Development has been informed through cited guidance, literature, local knowledge and professional judgement to inform conclusions on future ornithological population predictions, climate conditions, habitat succession, land management and land use changes. A summary of the important documents used throughout the PEIR to inform the future ornithological baseline are as follows:

- UK Climate Projections (UKCP18)⁴⁷; and
- Climate change and the UK's Birds (Pearce-Higgins, 2021)⁴⁸.

Future Baseline

Continuation of Existing Land Management

9.5.58 In the absence of the Proposed Development, the study areas would be expected to remain under current land-use regimes into the future, dominated by intensively managed grouse moor and, to a lesser extent, pastoral grazing. Management activities, including rotational heather burning/cutting, predator control, drainage management, and regulated grazing, would therefore be anticipated to continue broadly unchanged.

9.5.59 Assuming this, habitat composition, structure and extent across the Turbine Area and wider study area would be expected to remain comparable to present conditions, with only minor fluctuations likely due to natural vegetation cycles, site-specific management decisions, and small-scale successional processes. As a result, the bird assemblage, particularly breeding waders, ground-nesting raptors and upland passerines that characterise the South Pennine Moors Phase 2 SPA and South Pennine Moors SSSI, would likely persist at broadly similar levels of abundance and distribution to those described within the existing baseline (see above).

9.5.60 The only notable exception would be habitats outside the core managed moorland, such as unmanaged grassland, isolated scrub patches or moorland fringe areas. In the continued absence of targeted management, such habitats may experience gradual natural succession, potentially giving rise to increased scrub coverage or,

⁴⁷ Met Office. (2022) UKCP18 Key results (Excel spreadsheet). Retrieved from <https://www.metoffice.gov.uk/research/approach/collaboration/ukcp/summaries/index>

⁴⁸ Pearce-Higgins, J.W. (2021) Climate Change and the UK's Birds. British Trust for Ornithology Report, Thetford, Norfolk.

in the longer term, early-stage woodland. However, these changes would occur slowly and would not be expected to materially alter the baseline assemblage in the short to medium-term.

Influence of Climate Change on the Future Baseline

- 9.5.61 Long-term climatic projections for Yorkshire and Humber indicate⁴⁷ that warmer, wetter winters, hotter drier summers, and increased frequency of extreme weather events (e.g. heavy rainfall, prolonged drought, heatwaves and wildfire conditions) are likely to become more pronounced over coming decades. These macro-scale climatic changes, when combined with other pressures such as altered land management, changes in predator communities, increased urbanisation, and shifts in vegetation dynamics, have the potential to affect upland ecosystems and the bird species they support.
- 9.5.62 Climate-driven changes to rainfall patterns may alter hydrological regimes on blanket bog and heath, potentially affecting water availability and soil moisture. Such changes can drive long-term modifications to vegetation composition and invertebrate communities, including reductions in craneflies and other soil invertebrates that form key food sources for many upland breeding species^{49,50,51}.
- 9.5.63 Upland bird species are recognised as among the most vulnerable to climate change. Thirteen of 28 assessed upland species in Pearce-Higgins (2021)⁴⁸ are already in decline, with strong evidence linking reductions in species such as golden plover, dunlin, curlew, ring ouzel and red grouse to climate-related variation in temperature and moisture availability. Multiple studies have demonstrated that hot, dry summers reduce invertebrate abundance, affecting chick survival in waders and other ground-nesters, while intense spring rainfall events can cause high chick mortality in species such as red grouse.
- 9.5.64 Further climate-related pressures include:
- Increased frequency of extreme weather events, reducing population resilience and causing periodic breeding failures;

⁴⁹ Beale, C.M. Dodd, S. & Pearce-Higgins, J.W. (2006) Wader recruitment indices suggest nesting success is temperature-dependent in Dunlin *Calidris alpina*. *IBS*, **148**, 405-410.

⁵⁰ Pearce-Higgins, J.W., Dennis, P., Whittingham, M.J. & Yalden, D.W. (2010) Impacts of climate on prey abundance account for fluctuations in a population of a northern wader at the southern edge of its range. *Global Change Biology*, **16**, 12-23.

⁵¹ Fletcher, K., Howarth, D., Kirby, A., Dunn, R. & Smith, A. (2013) Effect of climate change on breeding phenology, clutch size and chick survival of an upland bird. *IBS*, **155**, 456-463.

- Shifts in breeding phenology, driven by altered temperature and rainfall patterns;
- Impacts on migratory species, through deteriorating habitat quality along migration routes and changes in prevailing winds;
- Increased prevalence of parasites and disease⁵², associated with warming temperatures; and
- Greater risk of invasive non-native species establishment, with potential negative consequences for upland bird habitats.

9.5.65 Pearce-Higgins (2021)⁴⁸ identifies several key breeding species recorded within the study area as at high risk from climate-related decline, including golden plover, curlew, dunlin, lapwing, hen harrier, short-eared owl, red grouse, ring ouzel, snipe, whinchat, peregrine and dipper. Merlin is assessed as at medium risk. In contrast, most non-breeding species are expected to be less sensitive to climate change, with some potentially benefitting from milder winter conditions (e.g. snipe).

9.5.66 Taken together, these climate-related pressures may lead to long-term reductions in the extent, quality and suitability of upland habitats for the South Pennine Moor Phase 2 SPA and South Pennine Moors SSSI breeding bird assemblage. Although short-term changes to baseline conditions are unlikely to be significant, the longer-term trajectory for upland bird populations in the South Pennines is one of increasing vulnerability and potential decline under future climate scenarios.

9.5.67 In conclusion, while the current land-use regime is likely to maintain a broadly stable baseline in the short-term, the long-term future baseline is less certain due to climate-driven pressures. Upland breeding birds appear to be among the most sensitive bird groups to future climatic changes, and many of the species of highest conservation concern within the study area are at heightened risk under forecast climate scenarios.

9.6 Environmental Measures

9.6.1 This section describes details of the ornithological environmental measures which have been included within the design of the Proposed Development. These measures are an inherent part of the design of the Proposed Development and have been included to benefit ornithology and achieve positive effects where possible, as well as avoid, reduce or compensate for the adverse environmental effects of the Proposed Development.

⁵² Pearce-Higgins, J.W. & Green, R. (2014) *Birds and climate change: impacts and conservation responses*. Cambridge University Press, Cambridge.

- 9.6.2 The mitigation hierarchy will be applied to ornithology to ensure that the design of the Proposed Development first seeks to avoid 'significant effects', to mitigate where it is unavoidable, and, as a last resort, to compensate for residual effects that remain after avoidance and mitigation measures are implemented. The avoidance of likely significant effects is being considered through the design process and potential mitigation measures associated with notable and legally protected bird species will also be actively considered and incorporated as appropriate. These measures include determining the extent and distribution of suitable habitats required within the Proposed Development to account for the likely effects on legally protected and other notable species, the types of habitats that they may require and how these can be incorporated within the design. As more information becomes available from the ongoing field survey programme and as the development design and construction phase plans develop, mitigation plans will evolve.
- 9.6.3 Specific environmental measures relevant to ornithology will be identified and will be considered as part of the assessments (i.e. the assessments of likely significant effects have been undertaken with the inclusion of the environmental measures, as these measures will form part of the Proposed Development). At this stage of the project, the environmental measures that will be implemented and included within the Proposed Development are set out below.

Design

- 9.6.4 The design of the Proposed Development, will wherever practicable, reduce and minimise the need for extensive works to be conducted. For example, the design of the wind turbines would be as such so that they are primarily assembled prior to their delivery to the Turbine Area, helping to reduce construction activities that may induce disturbance and displacement effects on bird species.
- 9.6.5 As part of the design of the Proposed Development, the turbine layout has been adapted to reduce impacts, where practicable, on the most sensitive aspects of the South Pennine Moors Phase 2 SPA and the South Pennine Moors SSSI. Data from the BTO Nest Recording Scheme and Bird Ringing Scheme undertaken within and adjacent to the Proposed Development, together with project specific VP surveys, breeding bird surveys and raptor surveys, have been used to inform a constraints-led design approach where practicable.
- 9.6.6 Identified nest locations and regularly used breeding territories for species exhibiting strong site fidelity (such as merlin, short-eared owl and barn owl, for example) have been incorporated into the design; informing turbine and infrastructure placement. This is to ensure that turbines, tracks and associated infrastructure are located outside areas of highest breeding sensitivity to these site faithful species, wherever practicable.

9.6.7 The design will continue to evolve as additional survey information, assessments and consultations are undertaken, with further refinement of buffers and infrastructure placement undertaken, where necessary, to respond to confirmed nest locations and territory use identified during subsequent survey seasons and pre-construction checks.

Construction

9.6.8 Construction of the Proposed Development will be required to comply with relevant legislation, standards and guidance, including:

- Environmental Protection Act (1990);
- The Environmental Permitting Regulations (2016);
- The Environmental Noise (England) Regulations (2006); and
- The Air Quality Standards Regulations (2010).

9.6.9 Good practice construction measures would be adopted to reduce construction impacts on IOFs. These would be detailed within a Bird Protection Plan (BPP) included and secured through an outline Construction Environmental Management Plan (oCEMP) as part of the Development Consent Order (DCO) Application. The BPP would be based upon standards set out within the British Standards Institution (BSI) Standards Publication on Biodiversity – code of practice for planning and development⁵³. A finalised version of the BPP would then be prepared in tandem with the full CEMP prior to commencement of works.

9.6.10 The oCEMP would include measures to reduce working areas to avoid unnecessary habitat removal/alteration and disturbance, and measures to avoid/minimise the generation of additional noise, dust, light spill, vibration and pollution. In general, the oCEMP would be proportionate and tailored to the ornithology of the Proposed Development, identified through the onsite assessments, and based on the following considerations:

- Identification of ‘biodiversity protection zones’ and areas adjacent to specific features, such as nesting sites;
- Inclusion of details for the implementation of working method statements to achieve ornithological outcomes and mitigation measures;

⁵³ British Standards Institution (2013) Biodiversity – code of practice for planning and development. (BS42020:2013).

- Identification of practical measures and sensitive working practices to avoid construction related impacts;
- The location and timing of sensitive works to avoid harm to ornithological features;
- The times during construction when particular specialists are required to be present to oversee works;
- Responsible persons and lines of communications;
- Defining the role and responsibilities of an Ecological Clerk of Works (ECoW); and
- Use of protective barriers and warning signs to avoid and prevent harm to ornithology/biodiversity.

9.6.11 An ECoW would be appointed to address issues relating to ornithological (and wider ecological) features during construction, as well be described within the oCEMP. Their responsibilities would include:

- Undertake pre-construction surveys/check to ensure that significant effects to any newly colonised ornithological feature would be avoided;
- Inform and educate site personnel of sensitive ornithological features within/near to the working areas and how effects on these features could occur;
- Oversee management of ornithological issues during the construction period and advise on ornithological issues as they arise;
- Monitoring and reporting on complaints with legal, planning contract requirements;
- Provide guidance to contractors to ensure legal compliance with respect to protected habitats and species onsite and offsite;
- Liaise with officers from consenting authorities, other relevant bodies and contractors with regular updates in relation to construction progress; and
- Monitoring post-construction/implementation success of mitigation methods and aftercare of sensitive habitats and features.

9.6.12 Construction work would avoid the peak nesting period (April – May) wherever practicable to reduce impacts on the qualifying breeding bird species of the South Pennine Moors Phase 2 SPA and South Pennine Moors SSSI. This would be prioritised wherever practicable, but if construction work does need to take place

during these times (and at any time during the nesting season), then standard good practice appropriate mitigation measures would be put in place as described below.

Pre-construction Surveys

- 9.6.13 Prior to the commencement of construction works, a programme of pre-construction ornithological surveys will be undertaken. These surveys will be carried out by suitably qualified and experienced ornithologists and will focus on identifying any active nests, breeding territories, roost sites or other sensitive locations within and adjacent to the construction footprint. The purpose of these surveys is to confirm the status and location of key species and to inform the implementation of appropriate protection measures, including the establishment of exclusion buffers, , timing restrictions and other controls secured through the oCEMP and BPP.
- 9.6.14 In addition, these pre-construction surveys will form the first stage of the wider monitoring strategy, providing an up-to-date baseline against which construction and operation and maintenance effects can be assessed. This will enable meaningful comparison with post-construction monitoring data and support adaptive management where necessary. Pre-construction checks will also ensure compliance with relevant wildlife legislation (including Schedule 1 of the Wildlife and Countryside Act 1981, as amended) and will enable construction activities to proceed in a manner that reduces disturbance and risk to protected and sensitive species.

Site Clearance

- 9.6.15 Any removal of suitable bird nesting habitat (particularly habitat associated with the qualifying breeding bird species of the South Pennine Moors Phase 2 SPA and South Pennine Moors SSSI) to be removed during the nesting season, would first be checked for nests by the ECoW immediately prior to clearance. If nests are found, they would be retained (with a suitable, species-specific buffer from works established) and protected from damage or abandonment until the young have fledged.
- 9.6.16 The Bradford West Cable Corridor will be a temporary construction feature, with all disturbed land reinstated following completion of works. Reinstatement will restore soils, hydrology and vegetation to reflect pre-construction conditions as far as practicable, returning land to its former use. These measures will be secured through the oCEMP, ensuring no long-term habitat loss results from cable installation works.

Noise

- 9.6.17 Noise prevention measures would be implemented to reduce the impact of disturbance on birds, including:

- All plant and machinery to comply with specific noise legislation (The Noise Emission in the Environment for use Outdoors Regulations 2001) and turned off when not in use;
- Contractors to control noise on the working areas in accordance with British Standard 5228, Noise Control on Construction and Open Sites⁵⁴. Site inspections by the appointed contractor(s) shall include checks to ensure that plant is being operated with any specified acoustic covers in place. Excessively noisy plant shall be removed from the Proposed Development for repair or maintenance. Quieter construction methods would be used, where required and considered reasonable and feasible;
- Where feasible to do so, plant and equipment that generates low levels of noise and vibration shall be adopted as well as the use of hand-held equipment to carry out works where practicable in lieu of mechanical means; and
- Regular briefings for operators of moving plant to emphasise the importance of noise mitigation, specific avoiding movement over irregular surfaces (which tends to create more noise/vibration emissions).

Lighting

9.6.18 In general, artificial light creates a barrier to crepuscular species, so the use of artificial lighting during construction would be avoided wherever practicable. As would be described within an oCEMP, construction activities within the Proposed Development would take place during daylight hours where practicable to minimise disturbances to crepuscular species. If works are required to take place at night, the ECoW would limit night-time works to sections of the Proposed Development that avoid sensitive features. Where lighting is required, directional lighting (i.e., lighting which only illuminates work areas and not nearby habitat features) would be used to prevent light spill. This can be achieved by the design of the luminaire and by using accessories such as hoods, cowls, louvers, and shields to direct the light to the intended areas only.

Other Measures

9.6.19 Other measures for inclusion within the oCEMP would include:

- No removal of habitats or movement of construction machinery would occur outside of the construction working areas during the construction phase, clearly marking out the working areas footprints for site staff;

⁵⁴ British Standards Institution (2014) Code of practice for noise and vibration control on construction and open sites. (BS5228:2014).

- All edible and putrescible waste would be stored and disposed of in an appropriate and timely manner. Construction materials would be stored and stockpiled according to strategies set out within the oCEMP;
- Standard good practice pollution prevention guidance including managing the input of dust, cement, silt, hydrocarbons, and other chemicals to watercourses and other habitats. Measures such as silt traps, plant inspection, good practice re-fuelling of machinery, and drainage monitoring would be implemented as part of the oCEMP. An emergency plan for the construction phase to deal with accidental spillages would be contained within the oCEMP; and
- Delineation of buffer zones of sensitive habitats (e.g. important areas of the South Pennine and Moors Phase 2 SPA and South Pennine Moors SSSI) in order to safeguard and limit these habitats from construction related disturbance.

Operation and Maintenance

- 9.6.20 Good practice measures described in relation to construction methods would also be adopted during operational maintenance activities, as would be detailed within an outline Landscape Environmental Management Plan (oLEMP) and an outline Operational Environmental Management Plan (oOEMP), with final versions prepared in accordance with these outlines following development consent.
- 9.6.21 To mitigate and compensate for the loss of habitats, areas of habitat enhancement or restoration will be identified. Due to the sensitive nature of the habitats, a bespoke strategy for the delivery of habitat enhancement or restoration will be required and the approach agreed with relevant consultees. As this strategy has not been finalised, it is not taken into account during the preliminary assessment of effects.
- 9.6.22 Operation and maintenance of the Proposed Development will be required and will include a range of activities and regular attendance at site by engineers using a range of vehicles and machinery. Operations onsite will be completed following the oOEMP which will include measures to avoid impacts on the designated sites, their features and protected species.
- 9.6.23 To further avoid, minimise and/or mitigate impacts on bird species during operation, a BPP will be developed which will support the oOEMP. Operational maintenance would minimise the level of removal of suitable habitat, limit disturbance during ecological maintenance including using appropriate access windows; and use existing access routes where possible. Good practice methods would be adopted to reduce the potential for disturbance (e.g., to reduce generation of additional noise, light and vibration). In particular, effects on active bird nests would be

minimised by undertaking any required vegetation maintenance by timing works outside the peak nesting season (April – May) and undertaking nesting bird checks prior to clearance of any suitable nesting habitat where avoidance is not possible within the breeding season.

- 9.6.24 During the operational phase, continued monitoring of the Proposed Development would be undertaken as would be secured within the oLEMP and oOEMP. This would include regular post construction monitoring surveys (in years 1, 2, 3, 5, 10, 15, 20, 25 and 30) and an avian fatality monitoring programme to confirm the accuracy of the CRM predictions that will be made in the assessment within the ES and to propose remedial actions, if required.

Decommissioning

- 9.6.25 Good practice measures described in relation to construction methods would also be adopted during the decommissioning stage, with a commitment to produce an outline Decommissioning Environmental Management Plan (oDEMP). As with an oCEMP, this would include measures to reduce disturbance to bird species (including through noise, vibration, additional lighting), minimising habitat removal, temporal considerations to works (avoiding peak nesting season), pollution prevention measures, etc.
- 9.6.26 There is a clear commitment to habitat reinstatement following decommissioning. Upon cessation of operations, the majority of infrastructure associated with the wind farm would be removed and a comprehensive Habitat Reinstatement Plan would be implemented (as part of the oDEMP). The Habitat Reinstatement Plan would, to the extent that this is possible, aim to return the Proposed Development to a condition that aligns with the ecological and ornithological character and conservation objectives of the surrounding South Pennine Moors Phase 2 SPA and South Pennine Moors SSSI. Where feasible, reinstatement efforts would seek not only to restore but to enhance the quality of habitats to support and potentially improve condition for the key breeding species of the SPA/SSSI. All reinstatement activities would be developed in consultation with relevant statutory bodies, including Natural England, to ensure that these are ecologically appropriate and contribute to the long-term conservation of the SPA/SSSI.

Assumptions

- 9.6.27 At the PEIR stage, the assessment has been undertaken on the basis of a precautionary, reasonable worst-case approach. This reflects both the stage of design development and the ecological sensitivity of the study area, which supports internationally and nationally important upland bird populations.
- 9.6.28 Given the sensitivity of the study area and the importance of the ornithological receptors present, the PEIR adopts assumptions regarding the scale, duration and

spatial extent of effects. Where uncertainty exists, particularly in relation to infrastructure layout, construction methodologies, noise characteristics and land management outcomes, effects have been assessed on the basis of worst-case scenarios. This includes assuming full overlap between infrastructure and sensitive habitats or territories where plausible, and assuming disturbance during ecologically sensitive periods unless clearly avoidable.

9.6.29 The PEIR assessment has therefore focused on identifying the presence, nature and potential significance of effects, rather than full quantitative refinement. Detailed quantification of impacts, will be undertaken at the ES stage, once further baseline surveys are completed and design parameters (including turbine specifications and construction methodologies) are finalised. This approach aligns with the methodology set out in the Next Steps Section (Paragraphs 9.9.213 - 9.9.215) and reflects standard practice for large, complex infrastructure projects affecting sensitive ecological receptors.

9.6.30 Specific assumptions have also been applied where baseline information is still being completed, as follows:

- Un-surveyed sections of the Western Access Route and Bradford West Cable Corridor: detailed walkover surveys of remaining sections of the Western Access Route and Bradford West Cable Corridor will be undertaken in 2026. Pending completion of these surveys, the PEIR assumes the presence of suitable habitat for breeding and foraging birds along these routes and assesses effects on a precautionary basis. This ensures that potential constraints are not discounted prematurely and that any future refinements can only reduce, rather than increase, predicted effects.
- Hen harrier roost surveys: hen harrier roost surveys are currently being undertaken at an anecdotally identified roost location in the vicinity of Gorple Reservoir. For the purposes of the PEIR, and in accordance with the precautionary principle, the assessment assumes that this roost is present and functionally linked to foraging habitats within the study area. Effects have therefore been assessed on the basis of roost presence, with confirmation and refinement to be provided in the ES.
- Habitat mitigation and compensation: the PEIR assumes that measures will be developed to mitigate and compensate for the loss of habitats through the identification of areas for habitat enhancement and/or restoration. Given the sensitive nature of habitats within the study area, the delivery of such measures will require a bespoke strategy to be developed in consultation with relevant consultees. As this strategy has not yet been finalised, the potential ecological benefits associated with habitat enhancement or restoration have not been

taken into account within the preliminary assessment of effects presented in the PEIR.

- 9.6.31 Overall, the PEIR presents a deliberately conservative assessment based on reasonable worst-case assumptions, reflecting the high sensitivity of the study area and the importance of receptors. The ES will build on this foundation by incorporating completed baseline surveys, quantified impact modelling and refined mitigation proposals, enabling a more precise evaluation of residual effects.

9.7 Potential Effects Scoped Out

- 9.7.1 This section lists the effects which are scoped out of the ornithology assessment as they are not considered likely to be significant. This includes the evidence that justifies this approach, as shown in **Table 9-11** below.

Table 9-11: Potential Effects Scoped Out

Effects/Feature Scoped Out	Justification	Phase
Bradford West Cable Corridor	As agreed with PINS, operational (and maintenance) effects of the Bradford West Cable Corridor on ornithology can be scoped out of the assessment with regards to likely significant effects (in EIA terms), on the basis that the connection would be installed entirely underground. As the cable would be buried, there would be no physical infrastructure above ground during the operational phase that could lead to ongoing disturbance, habitat loss, or collision risk to bird species. Once reinstatement is complete, the land along the cable corridor would be returned to its previous use, allowing habitats to recover and function as before. There would be no operational lighting, noise, or activity associated with the cable infrastructure post-construction, and therefore no long-term direct or indirect effect on ornithological features is anticipated. Ecological maintenance (and associated access) would be carefully managed to avoid disturbance (as per Section 9.6 above). As such, provided construction-phase impacts are appropriately assessed and mitigated, no further assessment of operational (and	Operational Phase

Effects/Feature Scoped Out	Justification	Phase
	maintenance) ornithological impacts arising from the Bradford West Cable Corridor is considered necessary from an EIA perspective.	
Death/injury of species as a result of construction and decommissioning activities as well as routine operational maintenance works	<p>Death and injury effects arising from construction activities, decommissioning works and routine operational maintenance are scoped out of further assessment. With the inclusion of a comprehensive BPP, secured through the oCEMP, oOEMP and oDEMP, there will be robust embedded safeguards to ensure these impacts are avoided.</p> <p>The BPP would require pre-works ornithological checks, active nest searches, species-specific exclusion zones, seasonal working restrictions, toolbox talks, and ECoW oversight. These measures would ensure that no works proceed in a manner that could result in the killing or injury of breeding, roosting or foraging birds. As these procedures would be fully integrated into construction, maintenance and decommissioning practices, the potential for death or injury to birds during these phases is effectively eliminated at source.</p>	All Phases

9.8 Evaluation of Ornithological Features

9.8.1 **Table 9-12** below outlines the importance of each of the ornithological features identified within the ZoI of the Proposed Development. Features of ‘Negligible’ importance and those where significant impacts can be categorically ruled out, are scoped out for further assessment, and are therefore not considered further. It should be noted that a precautionary approach has been taken in determining which features are taken forward for further assessment. Some features are taken forward for assessment based upon their conservation status, population trends and likely importance to designated sites.

Table 9-12: Evaluation of Ornithological Features

Ornithological Feature	Legislative / Conservation Context*	Evaluation rationale	Importance / Sensitivity	IOF?	Effects Scoped into Preliminary Assessment	Phase
Designated Sites						
South Pennine Moors Phase 2 SPA	Designated as a SPA under the Conservation of Habitats and Species Regulations 2017 as amended by the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019	The South Pennine Moors Phase 2 SPA is designated for its internationally important bird populations and upland habitats. As the majority of the Proposed Development lies within the SPA, there is potential for direct and indirect effects, including habitat loss, disturbance, displacement and death/injury of qualifying species. Furthermore, the study area supports approximately 10 – 14% of the SPA’s breeding golden plover population, 11 – 18% of the SPA’s breeding merlin population and notable populations of the recognised assemblage species, making it integral to maintaining this population. The SPA is of international importance and is scoped into the assessment for all phases of the Proposed Development.	International	Yes	Habitat loss and alteration	All Phases
					Disturbance and displacement	All Phases
					Death/injury of qualifying species through collision with turbines	Operational Phase
North Pennine Moors SPA	Designated as a SPA under the Conservation of Habitats and Species Regulations 2017 as amended by the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019	<p>The North Pennine Moors SPA is designated for hen harrier, merlin, peregrine and golden plover. The Turbine Area lies approximately 18.85km from this SPA, with the Bradford West Cable Corridor and Western Access Route located approximately 9.5km and 14.34km away at their closest points. In accordance with Scottish Natural Heritage (now NatureScot) guidance on assessing connectivity with SPAs, these distances are well beyond the recognised core foraging ranges of all qualifying species (hen harrier: 2km; merlin: 5km; peregrine: 2km; golden plover: 3km). For a functional linkage to exist, habitats outside an SPA must be used by a significant proportion of qualifying species on a frequent and regular basis, as defined by Natural England. Given the substantial separation distances involved, it is highly unlikely that qualifying species from the North Pennine Moors SPA make regular or meaningful use of the Turbine Area. Functional connectivity can therefore be robustly ruled out for pathways relating to habitat loss and alteration, disturbance and displacement, and death/injury through collision with turbines.</p> <p>Potential effects associated with the Bradford West Cable Corridor and the Eastern and Western Access Routes would be localised, temporary and limited in spatial extent, and it would be therefore disproportionate to apply the same connectivity assumptions to these linear components as to the Turbine Area itself. Accordingly, direct and indirect effects on the North Pennine Moors SPA via habitat loss and alteration, disturbance and displacement, and death/injury through collision with turbines can be confidently scoped out of further assessment.</p>	International	Yes	Competition from birds displaced by the Proposed Development	All Phases

Ornithological Feature	Legislative / Conservation Context*	Evaluation rationale	Importance / Sensitivity	IOF?	Effects Scoped into Preliminary Assessment	Phase
		<p>However, on a precautionary basis, one potential pathway is retained for further consideration: competition arising from displacement of bird from the Proposed Development. While functional connectivity between the SPA and the Proposed Development is not anticipated, it is acknowledged that birds displaced from breeding or foraging areas within the study area could, in theory, redistribute more widely within the regional upland landscape, including towards areas within the North Pennine Moors SPA. Although such movements are considered unlikely to be substantial given the distance involved and the availability of alternative habitat closer to the Proposed Development, this pathway is scoped in to allow explicit consideration of whether any redistribution could lead to increased competitive pressure on qualifying species within the SPA.</p> <p>This approach is considered proportionate and precautionary, while avoiding unnecessary assessment of impact pathways for which there is no plausible mechanism or reasonable likelihood of effect.</p>				
South Pennine Moors SSSI	Protected by the WCA 1981	The South Pennine Moors SSSI is designated for its nationally important assemblage of upland habitats and bird species, many of which overlap with the qualifying features of the SPA. As the majority of the Proposed Development lies within the SSSI, there is potential for direct and indirect effects, including habitat loss, disturbance, and changes to habitat condition. The site is of national importance and is scoped into the assessment for all phases of the Proposed Development.	National	Yes	Habitat loss and alteration Disturbance and displacement Death/injury of qualifying species through collision with turbines	All Phases All Phases Operational Phase
Upper Ball Grove Lodge LNR	Designated under Section 21 of the National Parks and Access to the Countryside Act 1949	The Upper Ball Grove Lodge LNR lies approximately 1.5km west of the Western Access Route at its closest point and is located outside the Zol for local sites for the Turbine Area (6km north-west of the Turbine Area). As such, the Turbine Area itself does not present a likely pathway for effects, and the Western Access Route is the only component of the Proposed Development with any potential to influence the LNR. The LNR comprises a small lowland waterbody and woodland within an urban fringe setting and supports locally important winter waterfowl and gull assemblages. These species are unlikely to use habitats along the Western Access Route in any meaningful way due to the lack of foraging resource present (lack of open water bodies). The Western Access Route is a linear, temporary construction feature with a limited spatial footprint, and any disturbance would be short-term and highly localised, with no realistic mechanism for population level effects on the LNR. Collision risk pathways are not relevant. The site can therefore be scoped out of further ornithological assessment.	Local	No	N/A	N/A

Ornithological Feature	Legislative / Conservation Context*	Evaluation rationale	Importance / Sensitivity	IOF?	Effects Scoped into Preliminary Assessment	Phase
Ogden Water LNR and LWS	Designated under Section 21 of the National Parks and Access to the Countryside Act 1949	Ogden Water LNR and Ogden Reservoir LWS lie approximately 4km (Ogden Reservoir LWS) and 4.km (Ogden Water LNR) east of the Turbine Area, and approximately 1.0 – 1.7km south of the Bradford West Cable Corridor at their closest points. The Turbine Area therefore lies beyond the ZoI for both the LNR and LWS and does not present a plausible pathway for effects on the LNR and LWS. The only element of the Proposed Development in closer proximity is the Bradford West Cable Corridor, which represents a temporary, linear construction feature with a limited spatial footprint. Any associated disturbance would be short-term, localised and reversible, with no likely mechanism for population-level effects on the ornithological interest of the LNR/LWS. There is no likely pathway for significant effects via habitat loss and alteration, disturbance and displacement, or collision-related mortality, and the sites are therefore scoped out of further ornithological assessment.	Local	No	N/A	N/A
South Pennine Moors Phase 2 SPA qualifying species (included under the citation of the SPA)						
Golden plover	Annex 1, Green	<p>The study area supports approximately 10–14% of the South Pennine Moors Phase 2 SPA breeding population of golden plover, representing a notable concentration within the South Pennines. These birds form part of the southernmost viable breeding population of golden plover globally, underscoring the conservation sensitivity of the population at the southern edge of the species’ range. However, in the context of national population size (study area holds 0.1% of the national breeding population³⁹) and comparison with larger and more important breeding strongholds in Yorkshire⁴⁰, the breeding population within the study area is considered to be of regional importance.</p> <p>In comparison to regional totals at important sites in Yorkshire⁴⁰ and nationwide, the non-breeding population within the study area is considered to be of local importance. golden plover are therefore scoped into the assessment for all phases of the Proposed Development.</p>	Regional (breeding), Local (non-breeding)	Yes	Habitat loss and alteration	All Phases
					Disturbance and displacement	All Phases
					Death/injury through collision with turbines	Operational Phase
Merlin	Schedule 1, Annex 1, Red	<p>The study area supports approximately 11 – 18% of the SPA’s breeding population, representing a substantial proportion of this designated feature. In reference to the 2022 Rare Breeding Birds Panel report⁵⁵, the study area could support up to 10% of the Yorkshire breeding population and approximately 4% of the total English population. The population within the study area therefore makes a meaningful contribution to the national breeding population and forms part of one of England’s key upland strongholds for the species, occurring towards the southern extent of its breeding range. Taking account of its contribution at the England scale, the breeding merlin population within the study area is assessed</p>	National (breeding), Regional (non-breeding)	Yes	Habitat loss and alteration	All Phases
					Disturbance and displacement	All Phases
					Death/injury through collision with turbines	Operational Phase

⁵⁵ Eaton, M. and Rare Breeding Birds Panel (2024) Rare breeding birds in the UK in 2022. *British Birds*, 117, 585 – 660.

Ornithological Feature	Legislative / Conservation Context*	Evaluation rationale	Importance / Sensitivity	IOF?	Effects Scoped into Preliminary Assessment	Phase
		as being of national importance and is scoped into the assessment for all phases of the Proposed Development.				
South Pennine Moors Phase 2 SPA breeding assemblage species (included under the citation of the SPA)						
Common sandpiper	Amber	Up to eight breeding pairs of common sandpiper were recorded within the study area, representing a notable proportion in the context of key Yorkshire sites ⁴⁰ . The breeding population is considered of regional importance, forming an important component of the upland South Pennine breeding assemblage. As the species does not winter in the UK, it is of negligible importance to the non-breeding assessment. Although scoped into assessments of habitat loss and alteration; disturbance and displacement during construction, operational death/injury (collision) effects are scoped out. No flight seconds were recorded at CRH during VP surveys, and all mapped flight lines (all below CRH) occurred around Widdop Reservoir, entirely outside the WFA. Consequently, collision risk from operational turbines is considered negligible for this species.	Regional (breeding), Negligible (non-breeding)	Yes	Habitat loss and alteration	All Phases
					Disturbance and displacement	All Phases
Curlew	S41, Red	In reference to notable populations in Yorkshire ⁴⁰ and records of 456 pairs in the South Pennine Moors Phase 2 SPA in 2014 ⁵⁶ and 645 pairs in 1990 across the wider South Pennines ⁵⁷ , the curlew population within the study area could potentially represent up to 10% of the South Pennine population. The breeding population is therefore considered of regional importance. The non-breeding population is assessed to be of local importance, as it was largely restricted to groups of birds recorded on passage migration. As curlew are known to be sensitive to wind farm infrastructure, the species is scoped into the assessment for all phases of the Proposed Development.	Regional (breeding), Local (non-breeding)	Yes	Habitat loss and alteration	All Phases
					Disturbance and displacement	All Phases
					Death/injury through collision with turbines	Operational Phase
Dunlin	Annex 1, Red	In reference to important numbers recorded within Yorkshire ⁴⁰ and the fact that the South Pennine population represents the southernmost viable breeding population of dunlin in the world, the study area is considered integral to maintaining the species' range. Although breeding occurs at low densities, the population forms part of this key stronghold and is therefore of regional importance. The non-breeding population was recorded only in relatively low numbers and is therefore of local importance. Dunlin are therefore scoped into the assessment for all phases of the Proposed Development.	Regional (breeding), Local (non-breeding)	Yes	Habitat loss and alteration	All Phases
					Disturbance and displacement	All Phases
					Death/injury through collision with turbines	Operational Phase
Lapwing	S41, Red	In reference to the important numbers recorded within Yorkshire ⁴⁰ and the species' nationally declining conservation status, the breeding		Yes	Habitat loss and alteration	All Phases

⁵⁶ Keystone (2014) South Pennine Moors SSSI/SPA, Phase2: Breeding Bird Surveys 2014.

⁵⁷ Brown, A.F. & Shepherd, K.B (1991) *Breeding birds of the South Pennine moors*. Joint Nature Conservation Committee (JNCC), Report Number 7.

Ornithological Feature	Legislative / Conservation Context*	Evaluation rationale	Importance / Sensitivity	IOF?	Effects Scoped into Preliminary Assessment	Phase
		population of lapwing within the study area is considered to be of regional importance, forming part of a key upland stronghold in the South Pennines. In comparison to regional totals at important sites in Yorkshire and nationwide, the non-breeding population is considered to be of local importance. Considering their conservation status and their vulnerability to wind farm infrastructure, lapwing are scoped into the assessment for all phases of the Proposed Development.	Regional (breeding), Local (non-breeding)		Disturbance and displacement	All Phases
					Death/injury through collision with turbines	Operational Phase
Redshank	Amber	In reference to the important numbers recorded within Yorkshire ⁴⁰ and the species' nationally declining conservation status, the breeding population of redshank within the study area is considered to be of regional importance, forming part of a key upland stronghold in the South Pennines. In comparison to regional totals at important sites in Yorkshire ⁴⁰ and nationwide ³⁹ , the non-breeding population is considered to be of local importance. Redshank are scoped into the assessment for all phases of the Proposed Development.	Regional (breeding), Local (non-breeding)	Yes	Habitat loss and alteration	All Phases
					Disturbance and displacement	All Phases
					Death/injury through collision with turbines	Operational Phase
Ring ouzel	S41, Red	A single ring ouzel territory was recorded adjacent to Widdop Reservoir, outside of the Turbine Area, in 2024 and 2025, with only small numbers recorded on passage during the non-breeding season. Despite its conservation status and limited UK distribution, the species is considered of local importance for both breeding and passage populations. As the territory in 2024 and 2025 lies outside of the PEIR boundary, there would not be any direct habitat loss for this species. Furthermore, passerines are not generally considered to be significantly affected by wind farms ¹⁹ due to minimal land take and low collision risk. Taking these factors and embedded mitigation into account, ring ouzel have been scoped out of further assessment and are not considered further.	Local	No	N/A	N/A
Short-eared owl	Annex 1, Amber	Up to six breeding pairs of short-eared owl were recorded within the study area during the survey period, representing approximately 35% of the Yorkshire breeding population and up to 20% of the English breeding population ⁵⁵ . The breeding population is therefore assessed as being of national importance. During the non-breeding season, up to three overwintering individuals were recorded, which, when compared with Yorkshire-wide wintering numbers ⁴⁰ , are considered to be of regional importance. Given the species' conservation status, sensitivity to wind farm infrastructure, and regular presence within the study area, short-eared owl are scoped into the assessment for all phases of the Proposed Development.	National (breeding), Regional (non-breeding)	Yes	Habitat loss and alteration	All Phases
					Disturbance and displacement	All Phases
					Death/injury through collision with turbines	Operational Phase
Snipe	Amber	Up to 22 breeding pairs of snipe were recorded within the study area across the survey period, potentially representing up to 21% of the South Pennine Moors Phase 2 SPA population (106 pairs recorded in 2014 ⁵⁶). The breeding population is therefore assessed as being of regional	Regional (breeding), Local (non-breeding)	Yes	Habitat loss and alteration	All Phases
					Disturbance and displacement	All Phases

Ornithological Feature	Legislative / Conservation Context*	Evaluation rationale	Importance / Sensitivity	IOF?	Effects Scoped into Preliminary Assessment	Phase
		importance. In comparison to national and Yorkshire-wide wintering numbers ⁴⁰ , the non-breeding population is considered to be of local importance. Given their presence within the study area and sensitivity to habitat loss and disturbance, snipe are scoped into the assessment for all phases of the Proposed Development.			Death/injury through collision with turbines	Operational Phase
Twite	Red	Twite were not recorded breeding within the study area, and only a single flock of approximately 40 individuals was observed during the non-breeding season. The South Pennine Moors Phase 2 SPA citation ⁵⁸ notes that breeding populations are largely confined to the southern block of the SPA, particularly around Soyland and Rishworth Moor, outside the study area. Given this distribution, the absence of breeding records, and the fact that passerines are not generally considered to be significantly affected by wind farms ¹⁹ , twite have been scoped out of further assessment and are not considered further.	Negligible	No	N/A	N/A
Wheatear	Amber	<p>Between four and ten breeding pairs of wheatear were recorded within the study area, with small numbers of individuals also observed on passage during the non-breeding season. In the context of populations at important Yorkshire sites⁴⁰ and given the species' widespread distribution across upland habitats, the wheatear population is considered to be of local importance. As passerines are unlikely to be significantly affected by wind farm operation¹⁹, particularly through collision risk, wheatear are scoped out of assessment for operational death/injury effects. With the inclusion of embedded mitigation, specifically the BPP, potential effects of death/injury during construction can also be scoped out.</p> <p>Wind turbines are also highly unlikely to disturb or displace wheatear; and operational maintenance activities, delivered in accordance with the embedded BPP within the oOEMP, are expected to avoid disturbance at sensitive periods. Multiple reviews demonstrate that passerine species generally do not exhibit sustained avoidance behaviour around operation turbines. Percival (2005)⁸⁷ found no consistent evidence of operational displacement amongst passerines across UK sites, with breeding densities unchanged before and after construction, including at upland sites. Other studies such as by Leddy <i>et al.</i> (199)⁵⁹ and Devereux <i>et al.</i> (2008)⁶⁰ have yielded similar results showing that there are fewer effects of turbine proximity on passerines, and where apparent, these are often smaller in magnitude. Therefore, disturbance/displacement during the operational phase is also scoped out</p>	Local (breeding), Negligible (non-breeding)	Yes	Habitat loss and alteration (breeding only)	All Phases
					Disturbance and displacement (breeding only)	Construction and Decommissioning Phases

⁵⁸ Natural England (2025) *South Pennine Moors Phase 2 SPA – Designated Site View*. Available at: <https://designatedsites.naturalengland.org.uk/>

⁵⁹ Leddy, K.L., Higgins, H.F. & Naugle, D.E. (1999) Effects of wind turbines on upland nesting birds in conservation reserve program grasslands. *Wilson Bulletin*, **111**, 100-104.

⁶⁰ Devereux, C.L., Denny, M.J.H. & Whittingham, M.J. (2008) Minimal effects of wind turbines on the distribution of wintering farmland birds. *Journal of Applied Ecology*, **45**, 1689-1694.

Ornithological Feature	Legislative / Conservation Context*	Evaluation rationale	Importance / Sensitivity	IOF?	Effects Scoped into Preliminary Assessment	Phase
		Wheatears may, however, be sensitive to changes in vegetation structure, land management practices, and temporary disruption associated with works. They are therefore scoped into assessment for disturbance and displacement during construction and decommissioning and habitat loss and alteration during all phases of the Proposed Development.				
Whinchat	Red	Between one and two breeding pairs of whinchat were recorded within the study area, with no records during the non-breeding season. In the context of the species' patchy but widespread, albeit declining, distribution within upland fringe habitats, the breeding population is considered to be of local importance, and the non-breeding population of negligible importance. The evaluation rationale for wheatear is applicable, as the species share comparable ecological characteristics and habitat requirements within the study area and are therefore likely to experience similar impacts.	Local (breeding), Negligible (non-breeding)	Yes	Habitat loss and alteration (breeding only)	All Phases
					Disturbance and displacement (breeding only)	Construction and Decommissioning Phases
South Pennine Moors SSSI species (in addition to those not included above under the SPA citation but included under the citation for the SSSI)						
Dipper	Amber	Up to two breeding pairs were recorded along watercourses within the study area as well as one – two birds regularly recorded in the non-breeding season, consistent with the species' status as an uncommon but locally distributed upland resident in Yorkshire ⁴⁰ . This level of activity does not constitute a regionally significant concentration and is typical of suitable upland riverine habitat in the South Pennines. Refer to wheatear, within this table, for the evaluation rationale. Although dipper occupies different habitat niches within the study area to wheatear, the evaluation rationale is considered applicable as both species are passerines and are expected to respond similarly to the impact pathways assessed.	Local	Yes	Habitat loss and alteration (breeding only)	All Phases
					Disturbance and displacement (breeding only)	Construction and Decommissioning Phases
Grey wagtail	Amber	Up to five breeding pairs were recorded along the fast-flowing streams and reservoir outflows within the study area, with up to six individuals regularly present during the non-breeding season. These levels of use are consistent with the species' status in Yorkshire as an uncommon but widespread upland breeder concentrated along suitable watercourses ⁴⁰ . Although a healthy local breeding presence is evident, the population does not represent a regionally significant concentration and is therefore of local importance. Refer to wheatear for evaluation rationale. Although grey wagtail occupies different habitat niches within the study area to wheatear, the evaluation rationale is considered applicable as both species are passerines and are expected to respond similarly to the impact pathways assessed.	Local	Yes	Habitat loss and alteration (breeding only)	All Phases
					Disturbance and displacement (breeding only)	Construction and Decommissioning Phase

Ornithological Feature	Legislative / Conservation Context*	Evaluation rationale	Importance / Sensitivity	IOF?	Effects Scoped into Preliminary Assessment	Phase
Little ringed plover	Schedule 1, Green	<p>Up to four pairs of little ringed plover were recorded breeding within the study area, representing up to 8.7% of the Yorkshire population⁵⁵. The breeding population is therefore considered to be of regional importance. As the species does not winter in the UK and was not recorded during the non-breeding season, the non-breeding population is of negligible importance.</p> <p>Little ringed plover were not recorded breeding within the Turbine Area. While pairs were confirmed at Warley Moor and Watersheddles Reservoirs adjacent to the Eastern and Western Access Routes respectively, the proposed works here would not result in the loss of any breeding habitat. With good practice pollution prevention and environmental protection measures embedded within the oCEMP and oDEMP, habitat loss and alteration during construction and decommissioning can therefore be scoped out.</p> <p>Operational changes to land management (e.g., cessation of grouse moor management) may influence predator abundance and consequently breeding success. Therefore, little ringed plover remain scoped into assessments of habitat loss and alteration during operation.</p> <p>Although the species is legally protected as a Schedule 1 WCA bird and remains sensitive to disturbance, operational death/injury (collision risk) effects are scoped out. Only 200 seconds of flight activity were recorded at CRH during VP surveys, and all mapped flights occurred outside the WFA, meaning exposure to operational turbines would likely be negligible. As such, collision risk is not anticipated to result in significant effects.</p> <p>Little ringed plover are therefore scoped into assessments of disturbance/displacement across all phases; and scoped into operational habitat loss/alteration, but scoped out of operational collision risk effects.</p>	Regional (breeding), Negligible (non-breeding)	Yes	Habitat loss and alteration	Operational Phase
					Disturbance and displacement	All Phases
Peregrine	Schedule 1, Annex 1, Green	<p>The breeding population of peregrine within the study area represents up to 2.6% of the Yorkshire population⁵⁵, with consistent activity of up to three individuals recorded during the non-breeding season. Given this, the population within the study area is considered to be of regional importance. As peregrine are known to be sensitive to wind farm developments, particularly due to potential risks of collision, disturbance, and displacement, they are scoped into the assessment for all phases of the Proposed Development.</p>	Regional	Yes	Habitat loss and alteration	All Phases
					Disturbance and displacement	All Phases
					Death/injury through collision with turbines	Operational Phase
Shelduck	Amber	Shelduck are listed as a feature of the South Pennine Moors SSSI but were not recorded during breeding surveys within the study area between 2022 and 2025. The citation refers specifically to a single breeding pair at	Negligible	No	N/A	N/A

Ornithological Feature	Legislative / Conservation Context*	Evaluation rationale	Importance / Sensitivity	IOF?	Effects Scoped into Preliminary Assessment	Phase
		Blackstone Edge Reservoir, located within the southern block of the SPA ⁵⁸ , outside the study area, representing a very localised breeding occurrence. Given their absence from the study area and limited upland breeding distribution, shelduck are scoped out of the assessment of effects and are not considered further.				
Stonechat	Green	Up to 18 breeding pairs were recorded within the study area, primarily associated with heather stands and small scrub patches around reservoir margins, which are habitats typical of upland South Pennine stonechat populations. This aligns with the species' status in Yorkshire as a scarce but widespread upland breeder, with highly variable local densities and winter resilience strongly influenced by weather ⁴⁰ . Although 18 pairs represent a healthy local population, it does not constitute a regionally significant concentration given higher breeding numbers elsewhere in Yorkshire and the species' broader distribution. Regular winter use of the study area was recorded, but again at levels typical of upland sites. Refer to wheatear, within this table, for evaluation rationale. The evaluation rationale for wheatear is applicable, as the species share comparable ecological characteristics and habitat requirements within the study area and are therefore likely to experience similar impacts.	Local	Yes	Habitat loss and alteration (breeding only)	All Phases
					Disturbance and displacement (breeding only)	Construction and Decommissioning Phase
Red grouse	S41, Green	<p>Red grouse were abundant across the study area, with a peak of 847 individuals in 2024. The Walshaw Moor Estate represents one of the largest remaining expanses of intensively managed drive grouse moors in the South Pennines, a form of management that has declined across upland Britain. Given the scale and continuity of this land management, the study area is likely to support a notable proportion of the Yorkshire red grouse population, which is nationally important as an English stronghold for the species, being at one of the southernmost points of their range. On this basis, the red grouse population within the study area is assessed as being of regional importance.</p> <p>Although typically low-flying, red grouse recorded 4,974 seconds at CRH during VP surveys, indicating a credible vulnerability to collision impacts during operation. The species may also be affected by temporary habitat loss and disturbance during construction and decommissioning, and by changes to land management during operation (e.g. reduced predator control, altered heather structure), which could influence breeding productivity and territory occupancy. Given the species' territorial behaviour and sensitivity to activity levels within breeding areas, operational disturbance and displacement effects cannot be ruled out. Red grouse are therefore scoped into the assessment for all phases of the Proposed Development.</p>	Regional	Yes	Habitat loss and alteration	All Phases
					Disturbance and displacement	All Phases
					Death/injury through collision with turbines	Operational Phase
Other priority wader species						

Ornithological Feature	Legislative / Conservation Context*	Evaluation rationale	Importance / Sensitivity	IOF?	Effects Scoped into Preliminary Assessment	Phase
Oystercatcher	Amber	Up to 21 pairs of oystercatcher were recorded breeding within the study area, and in reference to numbers recorded at important sites in Yorkshire ⁴⁰ , the breeding population is considered to be of regional importance. In the context of regional and national numbers of wintering oystercatcher, the non-breeding population is of local importance. Given the species' sensitivity to disturbance, displacement, and collision risk, oystercatcher are scoped into the assessment for all phases of the Proposed Development.	Regional (breeding), Local (non-breeding)	Yes	Habitat loss and alteration	All Phases
					Disturbance and displacement	All Phases
					Death/injury through collision with turbines	Operational Phase
Whimbrel	Schedule 1, Red	Whimbrel were recorded only occasionally in low numbers on passage, with a total flight time of 205 seconds at potential collision height during the course of the surveys. Given this limited activity and low likelihood of significant interaction with turbines, whimbrel are scoped out of further assessment and are not considered further.	Negligible	No	N/A	N/A
Woodcock (<i>Scolopax rusticola</i>)	Red	A single breeding pair of woodcock was recorded within the study area, with only occasional observations during the non-breeding season. Both the breeding and non-breeding populations are therefore assessed as being of local importance. Woodcock activity within the Turbine Area was very limited, with only 20 seconds of flight recorded at CRH and all breeding evidence associated with woodland habitats that are not being removed as part of the Proposed Development. The species' preferred nesting and foraging habitats, woodland and dense scrub, and would not be directly affected by land-take. Suitable habitat remains abundant and widespread in the surrounding landscape. Given the minimal baseline use of the affected upland habitats and the availability of extensive alternative foraging habitat nearby, all potential effects (habitat loss/alteration, disturbance/displacement, and death/injury) across all phases of the Proposed Development are assessed as negligible. Woodcock are therefore scoped out of further assessment.	Local	No	N/A	N/A
Other priority raptor species						
Goshawk	Schedule 1, Green	A possible breeding pair of goshawk was recorded within the study area in 2025, representing up to 3.1% of the Yorkshire population ⁵⁵ . The species was also regularly recorded foraging during the non-breeding season, indicating continued use of the area year-around. The breeding and non-breeding populations are therefore considered of regional importance. Given its scarce national population, Schedule 1 protection, and sensitivity to wind farm developments, goshawk are scoped into the assessment for all phases of the Proposed Development.	Regional	Yes	Habitat loss and alteration	All Phases
					Disturbance and displacement	All Phases
					Death/injury through collision with turbines	Operational Phase
Hen harrier	Schedule 1, Annex 1, S41, Red	Up to one breeding pair of hen harrier was recorded within the Turbine Area, representing approximately 7.7% of the Yorkshire population and up to 2% of the English breeding population ⁵⁵ , making the breeding	National	Yes	Habitat loss and alteration	All Phases

Ornithological Feature	Legislative / Conservation Context*	Evaluation rationale	Importance / Sensitivity	IOF?	Effects Scoped into Preliminary Assessment	Phase
		<p>population of national importance. During the non-breeding season, four to five individuals regularly foraged within the study area, and anecdotal reports confirm a winter roost south of Gorple Lower Reservoir supporting four to six birds regularly, and up to 11 on occasion, one of the most significant roosts in England. The non-breeding population is therefore also of national importance. Given their conservation status and high sensitivity to wind farm development, hen harrier are scoped into the assessment for all phases of the Proposed Development.</p>			Disturbance and displacement	All Phases
					Death/injury through collision with turbines	Operational Phase
Hobby (<i>Falco subbuteo</i>)	Schedule 1, Green	<p>A regular but low-density of this species was recorded within the study area, with most observations recorded early in the breeding season and therefore likely associated with spring passage. A small number of hunting records in July 2024 indicate the potential presence of a breeding pair, although no nests were located during surveys. Any breeding activity is most likely to have occurred outside the study area, reflecting the species' wide foraging range. However, even a single possible pair could represent up to 2.7% of the Yorkshire breeding population⁵⁵, and the species is therefore considered to be of regional importance.</p> <p>A total of 320 seconds of flight activity was recorded at CRH, representing a very small proportion of overall observations in the context of the surveys that were undertaken, and indicating a low risk of collision. However, given the regional importance of hobby, this species is scoped into the assessment of operational death/injury effects on a precautionary basis.</p> <p>As the species does not nest within the study area (as described in Appendix 9.1: Baseline Ornithology Report), no direct nesting habitat loss is anticipated, despite the presence of suitable woodland habitat. Construction, decommissioning and operation of the Proposed Development are also unlikely to affect foraging habitat availability or significantly reduce prey abundance, given the broad foraging behaviour of hobby. Therefore, habitat loss and alteration effects are scoped out.</p> <p>Due to its listing on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended), hobby are scoped in for assessment of disturbance and displacement effects across all phases of the Proposed Development as well as death/injury through collision with turbines during the operational phase of the Proposed Development.</p>	Regional (breeding), Negligible (non-breeding)	Yes	Disturbance and displacement	All Phases
					Death/injury through collision with turbines	Operational Phase
Kestrel	Amber	Up to four breeding pairs of kestrel were recorded within the study area, and the species was the most frequently observed raptor during the non-breeding season. In the context of numbers recorded at important sites	Regional	Yes	Habitat loss and alteration	All Phases

Ornithological Feature	Legislative / Conservation Context*	Evaluation rationale	Importance / Sensitivity	IOF?	Effects Scoped into Preliminary Assessment	Phase
		for this species in Yorkshire ⁴⁰ , both the breeding and non-breeding populations are considered to be of regional importance. Kestrel were also recorded extensively in flight, with over 90,000 seconds of activity at CRH, indicating clear potential for operational effects. Given their regular year-round activity, regional importance, and high exposure to collision, kestrel are scoped into the assessment for all phases of the Proposed Development.			Disturbance and displacement	All Phases
					Death/injury through collision with turbines	Operational Phase
Marsh harrier	Schedule 1, Annex 1, Amber	A single breeding pair of marsh harrier was recorded in 2025 on the northern boundary of the Turbine Area, an unusual breeding record for moorland habitats, representing approximately 2.3% of the Yorkshire breeding population and therefore of regional importance. During the non-breeding season, the species was recorded only in low numbers during passage, indicating a locally important population only. Owing to its conservation status and high sensitivity to wind farm development, marsh harrier are scoped into the assessment for all phases of the Proposed Development.	Regional (breeding), Local (non-breeding)	Yes	Habitat loss and alteration	All Phases
					Disturbance and displacement	All Phases
					Death/injury through collision with turbines	Operational Phase
Red kite	Schedule 1, Annex 1, Green	Although no nests were identified, red kite are likely breeding within the nearby Hardcastle Crags woodland or adjacent plantations, with the breeding population in the wider study area potentially representing up to 1.2% of the Yorkshire population ⁴⁰ . The breeding population is therefore assessed as being of regional importance, while the small number of wintering birds recorded is considered of local importance when placed in the context of Yorkshire's non-breeding totals. Owing to its Schedule 1 WCA status, high conservation sensitivity, and known susceptibility to wind farm impacts, red kite are scoped into the assessment for all phases of the Proposed Development.	Regional (breeding), Local (non-breeding)	Yes	Habitat loss and alteration	All Phases
					Disturbance and displacement	All Phases
					Death/injury through collision with turbines	Operational Phase
Sparrowhawk	Amber	Up to one breeding pair of sparrowhawk was recorded within the study area, with only occasional observations of individuals hunting over moorland and grassland during the non-breeding season. In the context of populations recorded at important sites in Yorkshire, the breeding and non-breeding populations are assessed as being of local importance. Sparrowhawk were not recorded at all during VP surveys, confirming no exposure to collision risk. Breeding evidence and foraging activity were associated with woodland blocks and plantation edges, all of which lie outside the Proposed Development footprint and would remain unaffected by land-take. Suitable foraging habitat for sparrowhawk is extensive and widespread across the surrounding landscape, and the species' broad habitat tolerance and high mobility mean that any	Local	No	N/A	N/A

Ornithological Feature	Legislative / Conservation Context*	Evaluation rationale	Importance / Sensitivity	IOF?	Effects Scoped into Preliminary Assessment	Phase
		<p>temporary disturbance or small-scale habitat modification associated with the works would be negligible.</p> <p>Given the very limited use of affected habitats, the absence of significant collision exposure, and the availability of extensive alternative habitat, all potential effects (habitat loss and alteration, disturbance/displacement, and death/injury) during all phases of the Proposed Development are assessed as negligible. Sparrowhawk are therefore scoped out of further assessment.</p>				
Other priority owl species						
Barn owl	Schedule 1, Green	<p>Barn owl were recorded breeding and wintering within the study area and, when compared with numbers at important sites in Yorkshire⁶⁰, their population is considered to be of local importance. Barn owl do not show meaningful vulnerability to turbine collision risk: they were recorded for only 110 seconds at CRH across the survey period. Barn owl are known to have a very low collision risk with wind turbines⁶¹.</p> <p>Given this low collision risk, the species are scoped out of operational death/injury effects. However, because they nest and forage within habitats that may be affected by construction, operational maintenance or decommissioning activity, they remain sensitive to habitat loss/alteration and disturbance/displacement. Therefore, barn owl are scoped into assessment for these effects across all phases of the Proposed Development.</p>	Local	Yes	Habitat loss and alteration	All Phases
					Disturbance and displacement	All Phases
Tawny owl	Amber	<p>Tawny owl was recorded only infrequently within the study area, with one confirmed breeding pair within The Plantation, within the Turbine Area and other observations confined to woodland habitats such as Hardcastle Crag, all of which lie outside the footprint of the Proposed Development. In the context of Yorkshire populations, tawny owl is assessed as being of local importance. As a low-flying forest species, tawny owl was not recorded at CRH during VP surveys, confirming a negligible likelihood of collision with turbines.</p> <p>Breeding and core foraging habitats, mature woodland and plantation edges, are not subject to land-take, and construction, operational and decommissioning activities would not materially alter these habitat types. Given the species' strong association with woodland and limited reliance on the open moorland habitats affected by the Proposed Development, any potential disturbance or habitat modification would be minor and</p>	Local	No	N/A	N/A

⁶¹ Barn Owl Trust (2025) *Wind Turbines and Barn Owls*. Available at: <https://www.barnowltrust.org.uk/hazards-solutions/barn-owls-wind-turbines/>

Ornithological Feature	Legislative / Conservation Context*	Evaluation rationale	Importance / Sensitivity	IOF?	Effects Scoped into Preliminary Assessment	Phase
		<p>temporary, with extensive suitable habitat remaining in the surrounding landscape.</p> <p>Accordingly, potential effects from habitat loss and alteration, disturbance/displacement, and death/injury are all considered negligible, and tawny owl are therefore scoped out of further assessment for all phases of the Proposed Development.</p>				
Priority waterfowl/waterbird species						
Common scoter (<i>Melanitta nigra</i>)	Schedule 1, S41, Red	Only a single observation of a non-breeding flock was recorded during surveys. The species does not breed within the study area, and the isolated record provides no indication of regular use of the study area or functional importance. In this context, the species is of negligible importance. Given the extremely limited and incidental use of the study area, common scoter are scoped out and not considered further.	Negligible	No	N/A	N/A
Greylag goose	Amber	<p>Greylag goose is a resident species within the study area, recorded year-round using the moorland, reservoir complexes and adjacent grassland for foraging, with up to 19 breeding pairs confirmed. As the species is a common resident across Yorkshire, the breeding and non-breeding populations within the study area are assessed as being of local importance.</p>	Local	Yes	Habitat loss and alteration	All Phases
		<p>The Proposed Development has potential to cause habitat loss and alteration affecting nesting areas during construction and decommissioning, and changes to land management during operation (e.g. reduced predator control) may influence breeding success through increased predation risk. Greylag geese were also recorded extensively in flight at collision-risk height (>50,000 seconds), indicating a potential for operational collision-related mortality. Associated behavioural responses to infrastructure and construction activity mean there is also potential for disturbance and displacement, particularly during the breeding season when sensitivity is highest.</p>			Disturbance and displacement	All Phases
		<p>Given these risks, greylag goose are scoped into assessment of habitat loss and alteration; disturbance and displacement; and operational death/injury (collision) effects across all relevant phases of the Proposed Development.</p>			Death/injury through collision with turbines	Operational Phase
Little egret (<i>Egretta garzetta</i>)	Annex 1, Green	A single little egret was recorded during VP surveys, with no evidence of regular use of the study area and no breeding habitat present. The species is therefore of negligible importance. Given the extremely limited and incidental occurrence, despite 225 seconds of flight at collision height, the species is highly unlikely to be significantly affected by the	Negligible	No	N/A	N/A

Ornithological Feature	Legislative / Conservation Context*	Evaluation rationale	Importance / Sensitivity	IOF?	Effects Scoped into Preliminary Assessment	Phase
		Proposed Development and are therefore scoped out and not considered further.				
Mallard	Amber	<p>Mallard were recorded breeding within the study area (up to eight pairs) and were present year-round, regularly using the reservoir complexes and adjacent grassland for foraging during both the breeding and non-breeding seasons. Given the species' widespread and abundant status across Yorkshire, the mallard population within the study area is assessed as being of local importance. Furthermore, mallard exhibited over 6,000 seconds of flight at collision-risk height during VP surveys, indicating potential vulnerability to operational collision-related mortality.</p> <p>In line with the rationale applied to greylag goose, mallard are scoped into assessment of habitat loss and alteration; disturbance and displacement; and operational death/injury (collision) effects across all relevant phases of the Proposed Development.</p>	Local	Yes	Habitat loss and alteration	All Phases
					Disturbance and displacement	All Phases
					Death/injury through collision with turbines	Operational Phase
Pink-footed goose	Amber	<p>Pink-footed geese were recorded exclusively as commuting birds, primarily on passage, with no evidence of foraging or roosting within the study area. Despite not using study area habitats directly, comparatively large commuting flocks (up to 325 birds) were recorded regularly during the non-breeding season. In the context of important flock sizes in Yorkshire⁴⁰, this commuting population is assessed as being of regional importance.</p> <p>VP surveys recorded nearly 500,000 seconds of flight at collision-risk height, indicating a clear vulnerability to collision-related mortality during operation. Due to this elevated collision risk, pink-footed goose are also scoped into operational disturbance/displacement effects, as avoidance of turbines and associated disturbance responses may alter flight lines or commuting behaviour.</p> <p>As the species does not use habitats within the study area for feeding or roosting, habitat loss and alteration can be scoped out for all phases. Similarly, disturbance and displacement during construction and decommissioning are scoped out, as these activities are highly unlikely to affect commuting flights at height and no functional habitat is utilised by this species within the site.</p>	Regional (non-breeding), Negligible (breeding)	Yes	Disturbance and displacement	Operational Phase
					Death/injury through collision with turbines	Operational Phase
Scaup (<i>Aythya marila</i>)	Schedule 1, S41, Red	Scaup were recorded only once during the breeding surveys and showed no evidence of regular use of the study area. The species is therefore of negligible importance. Given this very limited occurrence, scaup is highly unlikely to be significantly affected by any component of the Proposed Development and are therefore scoped out of the assessment of effects.	Negligible	No	N/A	N/A

Ornithological Feature	Legislative / Conservation Context*	Evaluation rationale	Importance / Sensitivity	IOF?	Effects Scoped into Preliminary Assessment	Phase
Teal (<i>Anas crecca</i>)	Amber	Teal were recorded only occasionally during the non-breeding season, with no flights observed at collision-risk height during VP surveys. A single observation of an alarm calling female was recorded during the 2022 breeding season. However, breeding was not confirmed, and the species was not recorded during the breeding seasons in subsequent survey years. Given that three years of full-coverage breeding bird surveys were undertaken based on the Brown and Shepherd (1993) survey methodology, this indicates that the study area does not support a notable breeding population. The species is therefore considered of local importance. Given the very limited presence, lack of confirmed breeding and absence of collision-risk activity, teal are scoped out of all assessments of effects.	Local	No	N/A	N/A
Whooper swan	Schedule 1, Annex 1, Amber	<p>Whooper swan were recorded only as commuting birds on passage, with infrequent flocks of up to 60 individuals flying over the study area and no evidence of roosting or foraging use of study area habitats. In comparison with flock sizes recorded at important Yorkshire sites, this commuting population is assessed as being of regional importance.</p> <p>Given the species' flight behaviour and the substantial time recorded at height (> 11,000 seconds), the scoping assessment for whooper swan mirrors that applied to pink-footed goose. Accordingly, whooper swan is scoped into operational collision risk and operational disturbance/displacement associated with turbine avoidance, as both impact pathways present potential risk.</p> <p>As the species does not utilise habitats within the Turbine Area or wider study area, all habitat loss and alteration effects are scoped out for every phase of the Proposed Development. Likewise, disturbance/displacement during construction and decommissioning is scoped out, as these activities would not affect commuting birds at height.</p>	Regional (non-breeding), Negligible (breeding)	Yes	Disturbance and displacement	Operational Phase
					Death/injury through collision with turbines	Operational Phase
Priority gull species						
Black-headed gull (<i>Choroicocephalus ridibundus</i>)	Amber	Gull species were regularly recorded throughout the year, predominantly during the non-breeding season, occurring in small flocks commuting across the study area or foraging within the reservoir complexes. Three	Local (breeding black-headed gull), Negligible	Yes	Disturbance and displacement	Operational Phase

Ornithological Feature	Legislative / Conservation Context*	Evaluation rationale	Importance / Sensitivity	IOF?	Effects Scoped into Preliminary Assessment	Phase
Common gull (<i>Larus canus</i>)	Red	<p>black-headed gull nests were recorded adjacent to Walshaw Dean Lower Reservoir in 2022; however, breeding was not recorded in subsequent survey years, indicating that gulls do not make regular use of the study area for breeding. The 2022 nests were located outside the Turbine Area, directly adjacent to the reservoir margin, and would not be affected by land take from the Proposed Development. In the context of breeding populations at important sites in Yorkshire, the breeding occurrence is assessed as being of local importance, with major breeding colonies concentrated elsewhere (primarily on coastal and wetland sites in Yorkshire).</p> <p>All gull species were frequently recorded flying at collision-risk height during VP surveys and are therefore scoped into the assessment of operational death/injury effects. They are also scoped into operational disturbance and displacement, reflecting the potential for turbine presence and collision-avoidance behaviour to influence flight activity patterns.</p> <p>Given the limited and irregular breeding use, and absence of breeding habitat, within the Proposed Development footprint; and the availability of alternative breeding and non-breeding foraging habitat in the wider area, along with the species' wide-ranging mobility; habitat loss and alteration is scoped out for all phases. Short-term, temporary disturbance and displacement during construction and decommissioning are also unlikely to result in likely significant effects and these criteria are therefore scoped out.</p>	(breeding all other gull species), Local (non-breeding)		Death/injury through collision with turbines	Operational Phase
Great black-backed gull (<i>Larus minus</i>)	Red					
Herring gull (<i>Larus argentatus</i>)	S41, Red					
Lesser black-backed gull (<i>Larus fuscus</i>)	Amber					
Other priority grouse/game birds						
Black grouse (<i>Lyrurus tetrix</i>)	S41, Red	<p>Black grouse were recorded only very infrequently, with isolated observations of one to two individuals foraging on western moorland adjacent to plantation woodland in January 2022. Given the species' near-absence from the South Pennines, and its confinement to remnant northern populations (e.g. North Pennines and the North York Moors reintroduction⁶²), these records are considered outliers rather than evidence of a resident or functionally connected population within the study area.</p> <p>The species is therefore assessed as being of negligible importance in both the breeding and non-breeding context and is scoped out of all assessments of effects for the Proposed Development.</p>	Negligible	No	N/A	N/A
Grey partridge (<i>Perdix perdix</i>)	S41, Red	Grey partridge were recorded very infrequently during both the breeding and non-breeding surveys between 2022 and 2025, with no confirmed	Local	No	N/A	N/A

⁶² GWCT (2025) *Black Grouse Range Expansion Project*. Game & Wildlife Conservation Trust, Fordingbridge. Available at: <https://www.gwct.org.uk/bgxp>

Ornithological Feature	Legislative / Conservation Context*	Evaluation rationale	Importance / Sensitivity	IOF?	Effects Scoped into Preliminary Assessment	Phase
		<p>breeding evidence and only a precautionary classification of 'possible breeder', based solely on occasional presence. In the context of Yorkshire, where the species remains a common resident⁴⁰, the population within the study area is assessed as being of local importance, though in reality is likely negligible, given the scarcity of records.</p> <p>Grey partridge are typically associated with lowland arable farmland, favouring cereal crops, field margins and mixed farmland mosaics for nesting and foraging. This species' habitat preferences are not strongly associated with upland moorland or reservoir landscapes within the Turbine Area, and the occasional individuals recorded are likely transient birds moving through the wider landscape rather than forming part of a resident upland population.</p> <p>This species was not recorded during any VP surveys, indicating no meaningful use of airspace at collision-risk height and therefore no risk of collision-related mortality. Its low flight height and ground-based behaviour further support scoping out collision effects.</p> <p>Given the very low number of observations, absence of confirmed breeding, lack of suitable breeding/foraging habitat within construction or operational footprints, its strong association with habitats largely outside the Order Limits, the temporary and highly localised nature of construction/decommissioning works (especially along the Bradford West Cable Corridor where this species is more likely to be present) and the inclusion of embedded measures (e.g. BPP) that avoid disturbance to breeding birds; grey partridge can be scoped out of assessment for all potential effects, including habitat loss/alteration, disturbance/displacement and death/injury.</p>				
Other priority species						

Ornithological Feature	Legislative / Conservation Context*	Evaluation rationale	Importance / Sensitivity	IOF?	Effects Scoped into Preliminary Assessment	Phase
Other priority passerines and relatives	Schedule 1 (common crossbill only) and/or S41, and/or Red, and/or Amber.	<p>Priority passerine and relative species recorded within the study area are assessed as being of local importance in both the breeding and non-breeding context. Although several species hold conservation designations (e.g. NERC S41 or BoCC Red/Amber), the proportion of regional populations represented within the study area is relatively small and these species remain widespread across the uplands of the South Pennines.</p> <p>In line with NatureScot (2025) guidance¹⁹, passerines and relatives are not considered sensitive to collision-related mortality. Consequently, operational death/injury effects are therefore scoped out of the assessment.</p> <p>Wind turbines are also highly unlikely to disturb or displace passerines and relatives, and operational maintenance activities, delivered in accordance with the embedded BPP within the oOEMP, are expected to avoid and mitigate disturbance at sensitive periods. Therefore, disturbance/displacement during the operational phase is also scoped out.</p> <p>Priority passerine and upland species may, however, be sensitive to changes in vegetation structure, land management practices, and temporary disruption associated with works. They are therefore scoped into assessment for disturbance and displacement during construction and decommissioning and habitat loss and alteration during all phases of the Proposed Development.</p> <p>During the winter and passage periods, these species are highly mobile and utilise a wide network of suitable habitats across the wider South Pennines landscape. As such, any temporary disturbance, minor habitat alteration, or localised displacement resulting from construction, operation or decommissioning would be negligible, as individuals can readily redistribute to abundant alternative habitat nearby. Accordingly, all effects across all phases of the Proposed Development are scoped out for non-breeding passerine bird species, with no potential for significant effects.</p>	Local	Yes	Habitat loss and alteration (during breeding only)	All Phases
		Disturbance and displacement (during breeding only)			Construction and Decommissioning Phases	
Non-priority species						
All non-priority species	Green or Not Assessed	Non-priority bird species recorded within the study area are not considered sensitive to wind farm-related impacts such as collision risk and are not afforded elevated conservation or legislative status (e.g. Schedule 1 WCA 1981, BoCC Red/Amber listing, Annex I of the Birds Directive, or NERC S41). These species are generally common and widespread across the region, exhibiting broad habitat tolerance and adaptable behaviour that reduces their susceptibility to disturbance or	Local	No	N/A	N/A

Ornithological Feature	Legislative / Conservation Context*	Evaluation rationale	Importance / Sensitivity	IOF?	Effects Scoped into Preliminary Assessment	Phase
		<p>displacement. Given the very limited extent of land take associated with the Proposed Development, combined with embedded mitigation measures, particularly those incorporated within the BPP to avoid impacts during peak nesting periods, any effects on these species are predicted to be minimal and not significant. Accordingly, non-priority species are scoped out of further detailed assessment for all phases of the Proposed Development.</p>				
<p>*'Red', 'Amber' and 'Green' relates to Birds of Conservation Concern status. 'Schedule 1' comprises birds listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended). 'Annex 1' comprises birds listed on Annex 1 of the EC Birds Directive (2009/147/EC). 'S41' comprises Species of Principal Importance as listed under Section 41 of the NERC Act 2006.</p>						

9.9 Preliminary Environmental Assessment

- 9.9.1 The Preliminary Environmental Assessment details the effects that are considered, based on information available at this stage, to be likely significant including providing details of how and why such a conclusion has been reached.
- 9.9.2 The Preliminary Environmental Assessment considers the potential effects of the Proposed Development on IOFs identified in **Table 9-12**, following the relevant guidance for assessing wind farm impacts on birds. Effects are assessed separately for the construction, operation (and maintenance) and decommissioning phases, further subdivided by the three principal impact pathways relevant to upland wind farms as well as the fourth additional impact pathway identified during the scoping opinion process (see **Table 9-2**):
- habitat loss and alteration;
 - disturbance and displacement;
 - death/injury through collision with turbines (specific to the operational phase); and
 - competition from birds displaced by the Proposed Development.
- 9.9.3 To avoid unnecessary repetition and to ensure a proportionate assessment, IOFs with similar ecological characteristics, habitat dependencies and sensitivities have been grouped together for assessment.
- 9.9.4 This is a preliminary assessment of significant effects with the embedded environmental measures (**Section 9.6**) in place, but without additional mitigation/compensation.

Construction

- 9.9.5 The Preliminary Environmental Assessment on IOFs during the construction of the Proposed Development is described below and summarised in **Table 9-13**, in accordance with the effect terminology described in **Section 9.4**.
- 9.9.6 The construction phase of the Proposed Development has the potential to give rise to a range of effects on ornithological features. These effects primarily relate to the temporary but spatially extensive construction activities within the Turbine Area, the Western Access Route, Eastern Access Route and the Bradford West Cable Corridor. Construction works would include turbine foundation excavations, hardstanding installation, track upgrades, borrow pit and construction compound creation, cable trenching, substation works, and increased vehicle and personnel movements across the moorland landscape. Further details are provided in **Chapter 4: The Proposed Development**.

9.9.7 In the context of the habitats present, the qualifying features of the South Pennine Moors Phase 2 SPA and South Pennine Moors SSSI, and the diverse breeding and non-breeding assemblages recorded within the study area the key potential effects arising during construction are detailed below.

Habitat Loss and Alteration

9.9.8 Construction of the Proposed Development has the potential to result in direct and indirect habitat loss and alteration within the Turbine Area and along the associated Access Routes and Bradford West Cable Corridor. Habitat loss may occur through the permanent or temporary removal of upland habitats to accommodate turbine foundations, crane hardstandings, access tracks, cable trenches, borrow pits, compounds and associated infrastructure.

9.9.9 Construction activities have the potential to cause habitat alteration degradation, which may affect ornithological features beyond the immediate construction footprint. Such effects may arise through mechanisms including, but not limited to, dust deposition on vegetation, accidental pollution events, changes in water quality, localised nitrogen deposition, and alterations to air quality, as well as changes to hydrological regimes and soil structure. These pathways could lead to changes in vegetation composition, invertebrate abundance and habitat condition, with potential knock-on effects for breeding success, prey availability and habitat suitability for birds. At this PEIR stage, these degradation effects are acknowledged qualitatively, with further refinement and quantification to be provided within the ES.

9.9.10 Indirect effects may also arise from changes to hydrology, drainage patterns and soil compaction, particularly within sensitive habitats such as blanket bog, wet heath and flushes. Such changes could alter vegetation structure, water availability and edge conditions, potentially reducing habitat quality for species reliant on specific moisture regimes or vegetation mosaics. Habitat alteration may further result from localised disturbance to vegetation communities, temporary changes in land management practices, and the creation of new habitat edges during the construction period.

9.9.11 For the purposes of this PEIR, only features identified as being sensitive to habitat removal or modification within the Evaluation of Ornithological Features (**Table 9-12**) are scoped into the assessment of construction-related habitat loss and alteration. Features scoped in include:

- South Pennine Moors Phase 2 SPA;
- South Pennine Moors SSSI;
- Merlin;

- Golden plover;
- Other waders (common sandpiper, curlew, dunlin, lapwing, oystercatcher, redshank, snipe);
- Other raptors and owls (barn owl, goshawk, hen harrier, kestrel, marsh harrier, peregrine, red kite, short-eared owl);
- Waterfowl (greylag goose and mallard);
- Gamebirds (red grouse); and
- Passerines and relatives (wheatear, whinchat, dipper, grey wagtail, stonechat and priority passerines and relatives group).

9.9.12 Species that do not utilise habitats within the construction footprint (e.g. pink-footed goose, whooper swan, commuting gull species) or those whose ecological characteristics make them unlikely to be affected by habitat loss (e.g. twite, black grouse, non-priority species) have been scoped out of this impact pathway during the construction phase.

Nature and Extent of Land Take

9.9.13 The Proposed Development would result in the direct loss of upland habitats within the construction footprint. Based on the current Proposed Development Layout (**Figure 4-1**), the following areas of habitat loss are anticipated (directly under the construction footprint):

- Blanket bog (H7130): 10.4 ha;
- Degraded blanket bog: 21.5 ha;
- Dry heath; upland (H4030): 15.3 ha;
- Wet heathland with cross-leaved heath; upland (H4010): 9.5 ha;
- Modified grassland: 4.4 ha;
- Other upland acid grassland: 3.6 ha;
- Other upland acid grassland – Rush dominant, wet: 0.6 ha;
- Other upland acid grassland – Rushes dominant: 0.4 ha;
- Upland flushes, fens and swamps: 0.5 ha; and
- Bracken: 0.2 ha.

- 9.9.14 These habitats form key components of the breeding and foraging resource for upland bird assemblages within the South Pennine Moors Phase 2 SPA and South Pennine Moors SSSI. Blanket bog and wet heath support important breeding wader species (e.g. golden plover, dunlin, snipe), while dry heath and heath–grass mosaics provide nesting and foraging habitat for short-eared owl, merlin, wheatear, whinchat, stonechat and red grouse. Localised watercourse habitats and reservoir margins support common sandpiper, dipper, grey wagtail and breeding waterfowl.
- 9.9.15 Construction activities have the potential to remove or degrade these habitats temporarily or permanently because of changes in surface and sub-surface hydrology, the introduction of toxic pollutants into the environment (e.g. from construction machinery and storage and use of materials to facilitate construction), dust deposition, changes in air quality and changes in the levels of recreational impacts.
- 9.9.16 In addition, the cessation or temporary modification of grouse moor management during construction may alter predator dynamics, vegetation structure and burning/cutting regimes, with secondary implications for certain bird species. Environmental measures (**Section 9.6**) would reduce habitat disturbance and degradation, but some degree of residual habitat alteration is inevitable. For example, as outlined in **Chapter 8: Biodiversity** and **Chapter 10: Hydrology, Hydrogeology, Geology and Peat**, the hydrological impacts as a result of the Proposed Development could lead to the ‘functional loss’ of approximately 80ha of habitat in addition to the direct habitat loss (when applying a 10m buffer around all infrastructure). Whilst it is not certain whether this will lead to the loss of nesting habitat for the species present within the study area, it is more likely to impact foraging opportunities and prey availability, which could have knock-on effects for breeding success.
- 9.9.17 The following sections therefore evaluate the likely impact magnitude, extent and significance of habitat loss and alteration for all features scoped into this impact pathway during the construction phase.

South Pennine Moors Phase 2 SPA/South Pennine Moors SSSI

- 9.9.18 Construction of the Proposed Development would result in the direct, permanent loss and modification of habitats that form part of both the South Pennine Moors Phase 2 SPA (international importance) and the South Pennine Moors SSSI (national importance). As shown in **Figure 4-1**, activities within the construction footprint would remove or alter areas of blanket bog, degraded blanket bog, wet heath and dry heath, all of which are core habitats supporting the SPA’s breeding bird assemblage and the SSSI’s notified features. Therefore, the nature of effect from direct habitat loss will be adverse, direct, permanent and long-term. The nature of the effect from temporary modification from construction activities, hydrological

change, vegetation removal and habitat degradation is adverse, direct, and temporary, short to medium-term.

9.9.19 Given that 91.76% of the Proposed Development lies within the SPA and SSSI, any loss or alteration of these habitats would directly affect the ecological resources upon which the qualifying features rely. Specifically, the construction footprint would reduce and impact the:

- Extent and distribution of habitats supporting SPA/SSSI species;
- Structure and function of the blanket bog-heath mosaic;
- Supporting processes, including hydrological and vegetation dynamics;
- Availability of suitable nesting, foraging and brood-rearing habitat for SPA/SSSI qualifying and assemblage species; and
- Distribution of breeding territories within affected parts of the SPA/SSSI.

9.9.20 As a result, the proposed land-take and potential habitat degradation undermines the Conservation Objectives of the SPA⁵⁸ and by extension the SSSI, which require the maintenance or restoration of these habitats and their supporting processes.

9.9.21 Considering the Proposed Development lies within approximately 10.72% of the SPA/SSSI, and construction would result in the permanent loss of 0.38% of the SPA/SSSI area, the impact magnitude would be large, reflecting the permanent removal of sensitive habitats within the SPA/SSSI designations and the direct interaction with habitats relied upon by qualifying and assemblage bird species. Although the proportion of the SPA/SSSI affected is relatively small in an absolute sense, the sensitivity of these habitats is high, and any permanent loss within an internationally and nationally designated site is considered ecologically meaningful.

9.9.22 For the South Pennine Moors Phase 2 SPA, the impact constitutes a **likely significant adverse effect at the international scale**.

9.9.23 For the South Pennine Moors SSSI, the impact constitutes a **likely significant adverse effect at the national scale**, due to the permanent removal and modification of notified habitats that underpin the site's designation.

Merlin

9.9.24 Merlin are a qualifying feature of the South Pennine Moors Phase 2 SPA and South Pennine Moors SSSI and the study area supports an important proportion of the regional breeding population. Across the survey period, 3-5 breeding pairs were recorded annually, representing approximately 11-18% of the SPA reference population (28 pairs)⁶⁵. Long-term BTO Nest Record Scheme data (2012-2023)

confirm the presence of well-established, repeatedly occupied nest sites across both the eastern and western sections of the Turbine Area as well as adjacent to the Western Access Route. These territories have shown strong site fidelity for over a decade..

- 9.9.25 Breeding merlin within the study area are closely associated with steeper heather-dominated slopes, which provide well-concealed nesting locations and support an abundant prey base, particularly meadow pipit. These preferred nesting habitats fall within the footprint of the Proposed Development, where several turbines (including T01, T03, T04, T06, T07, T12, T13 T21, T24, T25) tracks and associated infrastructure intersect up to three established breeding territories. Construction could therefore result in the direct loss and modification of preferred nesting habitat, both on the plateau edges and along moorland slopes, leading to the loss of up to three pairs of merlin, impacting 2% of the national population, 6.25% of the Yorkshire population⁵⁵, and 11% of the SPA population.
- 9.9.26 In addition to direct habitat removal, construction activities may alter the suitability of surrounding nesting territories through changes to vegetation structure (e.g. cutting, ground disturbance, pollution etc.), potential changes to prey availability, and loss of mature heather stands that are integral to nest concealment and foraging. These effects run counter to the SPA's conservation objectives⁵⁸, which require the maintenance of suitable nesting habitat, structurally diverse dwarf shrub heath and adequate prey availability, and seek to maintain or restore a breeding population above the SPA reference level⁶³ (28 pairs).
- 9.9.27 Despite efforts during the design of the Proposed Development to avoid established merlin nesting sites, complete avoidance has not been possible in all circumstances. This reflects the species' breeding ecology, whereby the exact location of nest sites within a territory can vary between years, even where territories remain broadly consistent. As a result, while turbine infrastructure and associated construction footprints have been sited to reduce overlap with known nesting locations, some elements of the Proposed Development would coincide with areas that are used for nesting within established territories.
- 9.9.28 The Proposed Development has the potential to remove or degrade habitat supporting 4% of the national population and 10% of the SPA population, and intersects up to three established territory sites. The nature of the effect from direct habitat loss would be adverse, direct, permanent, long-term and of large magnitude. The nature of the effect from temporary modification from construction activities, hydrological change, vegetation removal and habitat degradation is adverse, direct, and temporary short to medium-term.

⁶³ The population recorded on the Standard Data Form for the South Pennine Moors Phase 2 SPA.

- 9.9.29 Accordingly, habitat loss and alteration arising from construction would result in a **likely significant effect at the national scale**, due to the potential substantial loss to the national merlin population.
- 9.9.30 During the non-breeding season, merlin were recorded regularly across the study area, with approximately four to five individuals observed foraging over moorland throughout winter. These birds utilised the open heather moorland and blanket bog mosaics primarily for hunting small passerine prey and showed no evidence of winter roost formation within the Turbine Area.
- 9.9.31 Although construction of the Proposed Development would result in the loss and alteration of moorland habitats used opportunistically by foraging merlin during winter, these habitats are extensive, widespread and continuous across the landscape surrounding the study area. The study area does not function as a discrete or critical winter foraging resource for merlin, and individuals observed here form part of a wider-ranging regional winter population rather than a site-specific concentration. As a result, the removal of habitat within the construction footprint is unlikely to materially reduce the availability of suitable foraging habitat at a population level.
- 9.9.32 Furthermore, merlin are highly mobile during winter and are short-distance migrants; many disperse to lower altitudes after breeding, normally within 100km of their breeding area, and smaller numbers move south into France and Iberia⁶⁴. They are also capable of shifting foraging areas in response to localised disturbance or changes in prey distribution. The baseline data does not indicate strong spatial fidelity to specific winter foraging locations within the Turbine Area, meaning that habitat loss is unlikely to result in substantial displacement or affect overwinter survival.
- 9.9.33 Given the low sensitivity of the non-breeding population to habitat removal, the availability of extensive alternative foraging areas in the wider moorland landscape, and the absence of any site-specific reliance on habitats directly affected by construction, the impact magnitude would be small. The effect would be adverse, direct, and permanent long-term but does not approach a magnitude level that would affect the conservation status of the non-breeding population. Accordingly, construction-phase habitat loss and alteration for non-breeding merlin is assessed as **likely significant at the local level**.

⁶⁴ Heavisides, A. (2002) *The Merlin*. In: *The Migration Atlas: Movements of the Birds of Britain and Ireland*. Wernham, C.V., Toms, M.P., Marchant, J.H., Clark, J.A., Siriwardena, G.M. & Baillie, S.R. (eds). T. & A.D. Poyser, London. Pp 250-252.

Golden Plover

- 9.9.34 Golden plover are a qualifying feature of the South Pennine Moors Phase 2 SPA and South Pennine Moors SSSI and are supported in regionally important numbers within the study area. Across the 2022-2025 survey period, 28-40 breeding pairs were recorded annually, representing approximately 10-14% of the SPA breeding population (292 pairs, SPA Standard Data Form⁶⁵) and 0.1% of the national breeding population. These birds form part of the southernmost viable golden plover population in the world, highlighting the conservation value of the habitats within the study area.
- 9.9.35 Breeding pairs were consistently associated with the high, open plateaus dominated by blanket bog, heath, short grassland mosaics and recently burnt/cut heather, habitats that align closely with the SPA's supplementary conservation advice⁶⁶ and as referenced in **Appendix 9-1**. High breeding densities were recorded within the Turbine Area (Harry Side, Heather Hill, Wadsworth Moor, White Hill) and around Crow Hill, along the Western Access Route. These areas correspond to core SPA breeding locations identified in previous studies⁶⁷ and support habitat conditions, open plateaus above circa 430m with low disturbance, which are essential to nesting, chick-rearing and foraging success.
- 9.9.36 Construction of infrastructure (including turbines, tracks, crane pads, compounds and particularly the Western Access Route) would result in direct, permanent loss and modification of golden plover breeding habitat across multiple plateau areas. Infrastructure overlaps directly with several of the above core breeding locations (Harry Side, Heather Hill, Wadsworth Moor, White Hill and Crow Hill), resulting in:
- Removal of nesting habitat used annually by territorial pairs;
 - Fragmentation of plateau habitat, reducing its functional land connectivity; and
 - Long-term changes to vegetation structure through earthworks, drainage, compaction etc.
- 9.9.37 Proposed infrastructure would also overlap with areas identified through acoustic monitoring as important nocturnal foraging habitat, particularly the lowland pasture around Holme Ends to the south of the Turbine Area. In addition, sections of the Western Access Route and Bradford West Cable Corridor include habitat with the

⁶⁵ Natural England (2015) *South Pennine Moors Phase 2 SPA – Standard Data Form*. Available at: <https://designatedsites.naturalengland.org.uk/>

⁶⁶ Natural England (2018) *European Site Conservation Objectives: Supplementary advice on conserving and restoring site features – South Pennine Moors Phase 2 SPA*.

⁶⁷ Brown, A.F. & Shepherd, K.B (1991) *Breeding birds of the South Pennine moors*. Joint Nature Conservation Committee (JNCC), Report Number 7.

potential to support foraging golden plover that functionally supports the local breeding population. The loss of this habitat could therefore reduce the availability of foraging habitat that may be important in maintaining breeding productivity.

- 9.9.38 Based on the mapping of sensitive nesting areas for golden plover presented in **Appendix 9-1**, the Proposed Development infrastructure would result in the permanent loss of approximately 36.2ha of the identified sensitive nesting area (up to 2%) through direct land-take beneath the proposed infrastructure.
- 9.9.39 In absolute terms, this level of direct habitat loss has the potential to result in the loss of up to one breeding pair of golden plover as a consequence of land-take alone, assuming average territory densities recorded within the core plateau areas (up to 0.02 pairs/ha or 2.1 pairs/km²). This estimate is conservative and reflects only the habitat permanently removed beneath the construction footprint.
- 9.9.40 In practice, the ecological consequences are likely to extend beyond the area of direct land-take. Modification and degradation of adjacent habitats arising from construction activities, including changes to hydrology, soil compaction and vegetation structure, as well as dust deposition and changes to air quality, are expected to reduce the functional suitability of surrounding breeding habitat. Given the species' site fidelity, sensitivity to disturbance and reliance on large, contiguous open plateaus, these indirect effects are likely to exacerbate the effective loss of breeding habitat beyond that quantified through land-take alone, with implications for territory occupancy and breeding success within affected plateau areas.
- 9.9.41 The nature of the effect from direct habitat loss would be adverse (reduces available breeding resource and spatial distribution of territories), direct (physical loss of nesting and brood-rearing habitat), and permanent long-term (impacts persist throughout the operational lifespan and beyond as the access tracks and turbine bases are likely to remain in-situ post decommissioning).
- 9.9.42 The nature of the effect from temporary modification from construction activities hydrological change, vegetation removal and habitat degradation on golden plover is adverse, indirect, and temporary short to medium-term.
- 9.9.43 The impact magnitude for both effects would be small, as activities within the construction footprint are potentially resulting in the potential loss of at least one breeding pair within the study area, which is not considered a high impact magnitude in EIA terms (see **Table 9-10**). However, it is acknowledged that this is a conservative figure and that other effects in cumulation will likely result in a greater loss of breeding pairs (see **Section 9.11** and **Chapter 24: Cumulative Effects**), especially as losses will occur within habitat types explicitly identified within South Pennine Moors Phase 2 SPA's conservation objectives (i.e. blanket bog, heath and associated mosaics)⁵⁸.

- 9.9.44 Given the regional sensitivity of the receptor, the location of direct habitat loss in core breeding and foraging areas, but the otherwise small numbers of breeding pairs impacted in relation to the wider population in the South Pennines, the effect constitutes a **likely significant adverse effect at the local scale**.
- 9.9.45 During the non-breeding season, golden plover were recorded using the study area only intermittently, primarily during passage periods when flocks of up to 115 birds were observed resting or foraging on moorland and grassland slopes. These records indicate that the study area functions as a temporary staging area, providing short-term refuge and refuelling habitat rather than supporting a resident wintering population. In comparison to important non-breeding sites within Yorkshire, the passage/staging population is assessed as being of local importance. While construction activities would lead to some loss and modification of moorland and grassland habitats used opportunistically during migration, the habitat loss is not considered significant in the context of the wider availability of suitable upland foraging habitat across the South Pennines.
- 9.9.46 The nature of the effect for golden plover would be: adverse, direct, and permanent long-term (impacts persist throughout the operational lifespan and beyond). However, given the transient and dispersed nature of golden plover during the non-breeding season, and the lack of evidence for consistent winter occupancy, the removal of habitat within the construction footprint is assessed as having a small impact magnitude and an adverse effect that is **likely significant at the local scale** upon non-breeding golden plover.

Other Waders

- 9.9.47 Common sandpiper breeding territories were exclusively associated with the gravel and stony margins of the Walshaw Dean, Widdop and Warley Moor Reservoirs, habitats that lie entirely outside the construction footprint. No infrastructure (including internal site access routes or compounds) overlaps with reservoir shorelines. With the inclusion of good practice pollution prevention measures and a BPP secured through the oCEMP, there is no realistic pathway for habitat degradation or loss of breeding habitat. Accordingly, the effect would be adverse, direct, permanent long-term but of negligible impact magnitude. Therefore, the overall effect would be **not significant** in EIA terms.
- 9.9.48 For curlew, dunlin, lapwing, oystercatcher, redshank and snipe, the construction of the Proposed Development would result in the direct permanent removal and modification of key breeding and foraging habitats that form the core breeding habitats for the upland wader assemblage, including:
- Blanket bog (H7130);
 - Degraded blanket bog;

- Dry heath; upland (H4030);
- Wet heathland with cross-leaved heath; upland (H4010 Wet heath); and
- Acid grassland, upland flushes and pasture.

9.9.49 Baseline surveys recorded:

- Curlew: 34-44 pairs (up to 1.1 pairs/km² in suitable habitat), widespread, with highest densities on Widdop Moor, Wadsworth Moor, White Hill and slopes around Oxenhope Moor, frequent foraging in pasture near Holme Ends;
- Dunlin: Consistently one breeding pair annually, restricted to high plateau blanket bog around Will's Allotment, White Hill and Mare Greave Slack, forming part of the SPA core range.
- Lapwing: 30-40 pairs (up to 3.6 pairs/km² in suitable habitat), concentrated in moorland fringe and rough pasture, especially around Holme Ends and Mare Greave Slack;
- Redshank: Up to six pairs, localised around Holme Ends pasture, Juncus flushes and reservoir margins;
- Snipe: 17-22 pairs (up to 2.7 pairs/km² in suitable habitat), most concentrated around Holme Ends and eastern areas, such as Mare Greave Slack; and
- Oystercatcher: 18-21 pairs, using pastures and reservoir margins, particularly in the south of the Turbine Area.

9.9.50 Activities in the construction footprint would remove or modify breeding habitat in several key areas, as follows:

- The southern areas of the Turbine Area (around Holme Ends): Direct overlap with the highest breeding densities of lapwing, redshank, oystercatcher and snipe, as well as curlew foraging zones;
- High plateau and moorland slopes (northern, eastern and western aspects of the Turbine Area): Direct overlap with curlew and dunlin nesting habitat across blanket bog and heather-grass mosaics; and
- Western Access Route (Crow Hill / Sandy Hill Moor): Intersects important curlew and lapwing territories and foraging grounds, with smaller impacts on snipe and oystercatcher.

9.9.51 Given the central role of these habitats in supporting the upland wader assemblage (including SPA/SSSI citation species), their loss constitutes a material reduction in breeding habitat availability.

9.9.52 The nature of the effect on curlew, lapwing, redshank, snipe, oystercatcher and dunlin is adverse, direct, and permanent long-term from permanent habitat removal. The nature of the effect from temporary modification from construction activities, hydrological change, vegetation removal and habitat degradation on the same species is adverse, indirect, and temporary short to medium-term. However, the relatively limited scale of land take on sensitive blanket bog, wet heath, dry heath and moorland fringe pasture, indicates a small magnitude of impact at the species-assemblage level compared to the wider population within the South Pennines (see Paragraph 9.9.53). It is acknowledged that other effects are likely to act in cumulation with direct habitat loss, leading to a greater loss of breeding pairs (see above and **Chapter 24: Cumulative Effects**).

9.9.53 For these species, the Proposed Development involves directly removing key breeding habitat in multiple high-density areas. Based on the mapping of sensitive nesting areas presented in **Appendix 9-1**, the following specific quantification of direct habitat loss is identified:

- Curlew: Significant breeding population for the SPA and wider South Pennines; widespread use of the Turbine Area, Western Access Route and wider study area. The Proposed Development would result in the permanent loss of approximately 56.5ha (1.5%) of the identified sensitive nesting area for curlew, which in absolute terms has the potential to result in the loss of approximately up to one breeding pair from direct land-take. Given the species' strong site-faithful nature and sensitivity to habitat fragmentation and degradation, the effective loss of breeding habitat is likely to exceed this figure. This, however, represents a small impact magnitude, leading to a **likely significant adverse effect at the local scale**, with implications for the SPA/SSSI assemblage;
- Dunlin: The study area supports part of the southernmost viable population in the world. Although only a single breeding pair is recorded annually, the Proposed Development would result in the permanent loss of approximately 1.8ha (1.4%) of the identified sensitive nesting area, equating to an estimated 0.04 pairs lost from direct land-take (up to one). Given the conservation sensitivity of this marginal population and the importance of habitat continuity within its core range, any direct loss is ecologically meaningful. The magnitude for this species is therefore a small impact magnitude leading to a **likely significant adverse effect at the local scale**, with implications for the SPA/SSSI assemblage;
- Lapwing: Significant breeding population for the SPA; stronghold in Holme Ends and Mare Greave Slack. The Proposed Development would result in the permanent loss of approximately 19.6ha (1.8%) of the identified sensitive nesting areas for lapwing, which could in absolute terms equate to the loss of

approximately up to one breeding pair from direct land-take. Given the concentration of territories within affected areas and the species' sensitivity to habitat modification and disturbance, this loss is likely to be exacerbated by indirect effects. The magnitude for this species is therefore a small impact magnitude leading to a **likely significant adverse effect at the local scale**, with implications for the SPA/SSSI assemblage;

- Redshank: Localised but regionally important populations. The Proposed Development would result in the permanent loss of approximately 6.3ha (3.1%)% of the identified sensitive nesting areas for redshank, equating to up to one breeding pair lost from direct land-take. Given the small population size and restricted distribution within suitable wet grassland and flush habitats, this loss represents a small impact magnitude leading to a **likely significant adverse effect at the local scale**, with implications for the SPA/SSSI assemblage;
- Snipe: Dispersed but high densities in Holme Ends and the eastern part of the Turbine Area. The Proposed Development would result in the permanent loss of approximately 12.9ha (1.6%%) of the identified important snipe breeding area, which could equate to the loss of approximately up to one breeding pair from direct land-take. Given the species' reliance on intact wet habitats and sensitivity to hydrological change and disturbance, indirect effects are likely to increase the effective loss of functional breeding habitat. The magnitude for this species is therefore a small to medium impact magnitude leading to a **likely significant adverse effect at the local scale**, with implications for the SPA/SSSI assemblage; and
- Oystercatcher: Not a SPA/SSSI feature but regionally important numbers breeding within the study area. The magnitude for this species is therefore a small to medium impact magnitude leading to a **likely significant adverse effect at the local scale**.

9.9.54 Curlew, lapwing, oystercatcher and occasionally dunlin, redshank and snipe use the study area for foraging during the winter or as a stopover and passage foraging area. However, use is dispersed, habitats are extensive and widely available in the wider South Pennines, and birds are highly mobile during the non-breeding season. Loss of habitat within the construction footprint does not meaningfully constrain passage or winter foraging opportunities. The impact magnitude for habitat loss and alteration effects during construction is considered small but **not significant** in EIA terms for the non-breeding season for these species.

Other Raptors and Owls

9.9.55 Raptors and owls scoped into the assessment of habitat loss and alteration during construction comprise barn owl, goshawk, hen harrier, kestrel, marsh harrier,

peregrine and short-eared owl. These species utilise the study area for breeding and/or foraging across a mosaic of heather moorland, blanket bog, grass and sedge dominated reservoir margins, moorland fringe pasture and woodland/farmland interfaces.

Short-eared Owl

- 9.9.56 Short-eared owl is a nationally scarce upland breeder and a SPA/SSSI assemblage species, with between three and six breeding pairs recorded annually across the study area and up to four pairs within the Turbine Area. Breeding activity was closely associated with grass and rush/sedge dominated habitats around the margins of the main reservoirs (Walshaw Dean, Widdop, Gorple Warley Moor, and Watersheddles) and adjacent short moorland vegetation. Long-term BTO Nest Record Scheme data shows consistent occupation of the Walshaw Moor Estate; supporting one of the southernmost viable populations in England.
- 9.9.57 The construction footprint intersects established nesting and core foraging areas within the Turbine Area (including sites that have been occupied across multiple years) and one long established territory along the Western Access Route. Construction would therefore result in direct, long-term loss, fragmentation and degradation of nesting and key foraging habitat in parts of these territories, with limited scope for complete avoidance through infrastructure placement. This could potentially lead to the loss of two to three breeding pairs within the Turbine Area and one breeding pair along the Western Access Route impacting 13% of the national population and 24% of the Yorkshire population⁵⁵.
- 9.9.58 Given the national importance of the population within the study area and its contribution to the SPA/SSSI assemblage, the nature of the effect from direct habitat loss would be characterised as adverse, direct, and permanent long-term. The nature of the effect from temporary modification from construction activities, hydrological change, vegetation removal and habitat degradation is adverse, indirect, and temporary short to medium-term. The overall impact magnitude from habitat loss and alteration would be large. The resulting impact on short-eared owl would therefore be **likely significant adverse effect at the national scale**.
- 9.9.59 During the non-breeding season, up to three short-eared owls were recorded foraging across the study area, primarily utilising the grass and rush/sedge dominated moorland margins and open slopes. While these habitats would be subject to localised loss and modification during construction, the non-breeding population of short-eared owl is highly mobile, with individuals making extensive use of wider upland and lowland landscapes in winter.

- 9.9.60 British short-eared owls typically disperse from their upland breeding ranges to lower altitudes during the winter months⁶⁸, resulting in broad and flexible foraging ranges that are not tightly associated with specific moorland territories. As such, birds recorded in the study area are likely part of a wider roaming winter population, utilising the area opportunistically rather than relying on it as a core seasonal resource.
- 9.9.61 The nature of the effect from direct habitat loss on non-breeding short-eared owl is assessed as adverse, direct, permanent long-term. The nature of the effect from temporary modification from construction activities, hydrological change, vegetation removal and habitat degradation is adverse, indirect, and temporary short to medium-term. Given the species' high winter mobility, the localised extent of construction-related habitat loss, and the availability of extensive alternative suitable foraging habitat in the surrounding uplands, the overall impact magnitude from habitat loss and alteration on non-breeding short-eared owl would be small. The effect is therefore **likely significant adverse at the local level** for non-breeding short-eared owl.

Hen Harrier

- 9.9.62 Hen harrier is a Schedule 1, Annex I and S41 species of national importance, with one confirmed breeding pair recorded within the Turbine Area in 2025 and repeated courtship activity in the same heather-dominated area in 2022. The territory is associated with extensive heather moorland in the eastern Turbine Area, consistent with habitat used by the wider English breeding population.
- 9.9.63 The activities within the construction footprint (particularly around T02) have the potential to intersect this nesting area and associated core foraging ground, resulting in permanent loss and degradation of nesting and supporting habitats within the territory. Given the small and highly vulnerable national population and the study area's estimated contribution (up to circa 7.7% of the Yorkshire breeding population and circa 2% of the English population), the loss of, or functional degradation of this territory, would constitute a material reduction in suitable breeding habitat for hen harrier.
- 9.9.64 The nature of effect from direct habitat loss on suitable breeding habitat for hen harrier is therefore assessed as adverse, direct, permanent long-term. The nature of the effect from temporary modification from construction activities, hydrological change, vegetation removal and habitat degradation is adverse, indirect, and

⁶⁸ Glue, D.E. (2002) Short-eared Owl. In: *The Migration Atlas: Movements of the Birds of Britain and Ireland*. Wernham, C.V., Toms, M.P., Marchant, J.H., Clark, J.A., Siriwardena, G.M. & Baillie, S.R. (eds). T. & A.D. Poyser, London. Pp 437-440.

temporary short to medium-term. The overall impact magnitude from habitat loss and alteration on breeding hen harrier would be large. The effect is considered a **likely significant adverse effect at the national scale**.

- 9.9.65 In addition to the breeding population, approximately four to five individual hen harriers were recorded using the Turbine Area regularly during the non-breeding season, with birds frequently observed quartering the moorland slopes, blanket bog and heather-dominated plateaus. Anecdotal and field-based evidence also confirms the presence of a well-used winter roost to the south-east of the Turbine Area, supporting between four and six individuals in most years and up to 11 on occasion, making it one of the most significant winter roosts in England.
- 9.9.66 The distribution and frequency of winter observations indicate that the Turbine Area forms an integral foraging component of this wider non-breeding range, functioning as part of the daily hunting circuit used by roosting individuals. The permanent loss and degradation of upland habitats within the Turbine Area could therefore reduce prey availability and remove structurally suitable hunting grounds that are potentially functionally linked to this important roost.
- 9.9.67 The nature of the effect from direct habitat loss on the non-breeding hen harrier population represents an effect which is adverse, direct, permanent long-term. The nature of the effect from temporary modification from construction activities, hydrological change, vegetation removal and habitat degradation is adverse, indirect, and temporary short to medium-term. Given the national conservation status of the species, the reliance of wintering birds on the study area, and the potential functional connectivity between the Turbine Area and the established roost, and the habitat loss and alteration during construction, the overall impact magnitude from habitat loss and alteration on non-breeding hen harrier would be large, resulting in a **likely significant adverse effect at the national scale**.

Marsh Harrier

- 9.9.68 Marsh harrier is a Schedule 1 and Annex I species of regional and national conservation concern, and 2025 survey data recorded the first breeding attempt within the study area, with a probable nest located just north of the Turbine Area in acid grassland and upland flushes. This represents an unusual upland breeding record (marsh harrier typically nest in lowland areas, generally in large reedbeds in wetlands), with the local breeding pair estimated to contribute approximately 2.3% of the Yorkshire breeding population.
- 9.9.69 The construction footprint in the northern Turbine Area is directly adjacent to this breeding area. Construction would likely result in the direct modification of nesting habitat and loss and modification of foraging habitat that underpins this territory. Given the species' national scarcity and the importance of this site in supporting a

rare upland breeding attempt, the impact magnitude for habitat loss would be medium.

- 9.9.70 The nature of the effect from direct loss of foraging habitat would be direct, adverse, and permanent long-term. The nature of the effect from temporary modification from construction activities, vegetation removal and habitat degradation is adverse, indirect, temporary short to medium-term. The overall impact magnitude from habitat loss and alteration would be large, resulting in a **likely significant adverse effect at the national scale**, recognising both the contribution to the Yorkshire breeding population and the rarity of upland breeding sites in England.
- 9.9.71 Marsh harrier was recorded very infrequently during the non-breeding season, with only occasional individuals noted (primarily in 2022) and no evidence to suggest regular wintering use of the Turbine Area. These sparse records are consistent with the species' known ecology: British marsh harriers are partial migrants, with many birds dispersing south or to coastal and lowland wetlands during the winter months⁶⁹. As a result, birds occurring in the study area in winter are likely to be transient individuals rather than a discrete or site-faithful wintering population.
- 9.9.72 Given this ecological behaviour, any construction-related loss or alteration of moorland or grassland habitats within the Turbine Area, Bradford West Cable Corridor and the Access Routes is unlikely to meaningfully affect marsh harrier during the non-breeding season. The species does not rely on the study area as a core foraging resource in winter, and the extensive availability of suitable alternative foraging areas elsewhere in the wider region ensures that any habitat changes would not influence winter habitat selection or survival.
- 9.9.73 Accordingly, the nature of the effect would be adverse, direct, permanent long-term (direct loss of foraging habitat) and adverse, indirect and temporary short to medium-term (modification and degradation of foraging habitat), but of a negligible impact magnitude, and therefore **not significant** in EIA terms.

Peregrine

- 9.9.74 A long-established peregrine pair has occupied a nesting territory in the study area since at least 2022, with the Turbine Area and surrounding moorland forming their core foraging range. Peregrine forage extensively across the blanket bog, heather, grass mosaics, moorland slopes and reservoir margins within the Turbine Area, and this area supports their primary prey base, upland waders and passerines, many of

⁶⁹ Underhill-Day, J. (2002) Marsh Harrier. In: *The Migration Atlas: Movements of the Birds of Britain and Ireland*. Wernham, C.V., Toms, M.P., Marchant, J.H., Clark, J.A., Siriwardena, G.M. & Baillie, S.R. (eds). T. & A.D. Poyser, London. Pp 225-226.

which are predicted to experience substantial habitat loss under the Proposed Development.

- 9.9.75 Peregrines typically take the majority of their large prey within 2km of the eyrie (a nest of a bird of prey built in a tree or on a cliff), with very few prey items taken beyond 6km⁷⁰. Given this documented spatial limitation in foraging range, the habitats within the Turbine Area clearly form an integral component of their core foraging territory. The permanent loss and modification of these habitats within the construction footprint would therefore reduce both functional hunting range and prey availability and could therefore potentially impact 2.6% of the Yorkshire population of peregrine.
- 9.9.76 Although the nesting cliffs or eyries themselves would not be directly affected, the reduction in suitable hunting habitat and prey abundance would be a medium impact magnitude, with a clear ecological consequence for the territorial pair. As peregrines maintain and defend their territories year-round²⁸, the impacts during both the breeding and non-breeding seasons are expected to be similar.
- 9.9.77 The nature of the effect from direct loss of foraging habitat would be direct, adverse, and permanent long-term. The nature of the effect from temporary modification from construction activities, vegetation removal and habitat degradation is adverse, indirect, temporary short to medium-term. The overall impact magnitude from habitat loss and alteration would be large, resulting in a **likely significant adverse effect at the regional scale**, recognising the contribution to the Yorkshire breeding population.

Goshawk

- 9.9.78 Goshawk were recorded only occasionally within the Turbine Area, with sparse observations during both the breeding and non-breeding seasons. Although a single descent into The Plantation suggested possible nesting interest, the woodland size (7.5ha) is substantially below the 20-50ha typical minimum required for goshawk nesting²⁸ and no nests were confirmed. It is far more likely that goshawks using the study area originate from larger woodland blocks such as Hardcastle Crag or plantations located further afield in the surrounding landscape.
- 9.9.79 As a result, the Turbine Area does not form a core foraging territory for goshawk, nor does it provide the main nesting habitat for the local population. While goshawk may opportunistically forage across the moorland for small birds, the habitats

⁷⁰ Hardey, J., Crick, H.Q.P., Wernham, C.V., Riley, H.T., Etheridge, B. & Thompson, D.B.A. (eds) (2009) *Raptors: a field guide to survey and monitoring*. Second edition. The Stationery Office, Edinburgh.

directly affected by construction activities would not limit resources for this species at the landscape scale.

- 9.9.80 Habitat loss and alteration may remove and effect small patches of potential foraging ground, but this represents only a very small proportion of the species' wider territory, and goshawks are known to hunt over large, variable ranges dominated by woodland edges and lowland farmland, not upland blanket bog or heather moorland.
- 9.9.81 Therefore, the effect of construction-related habitat loss and alteration on goshawk would result in an adverse, direct and indirect, permanent long-term and temporary short to medium-term effect but of a small magnitude. Overall, this would result in an effect that is **not significant** in EIA terms.

Other Raptor/Owl Species

- 9.9.82 Kestrel, red kite and barn owl all make regular use of the Turbine Area and wider study area for foraging, with several confirmed or probable nest sites located either within the Turbine Area or immediately adjacent in surrounding woodland or farmland buildings. These species rely heavily on the structurally diverse mosaic of upland grassland, heath and moorland edge habitats that support high densities of small mammals and passerines.
- 9.9.83 Although none of these species have breeding sites directly intersected by the proposed infrastructure, the extent of land-take across the moorland due to construction activities would remove or degrade key foraging habitats used routinely by these species throughout the breeding season and non-breeding season. For example, red kites usually forage within 3km (occasionally up to 6km) from their nest^{71,72}, not only indicating a nest in the vicinity but also that the Turbine Area constitutes a core foraging area for this species' home range, particularly in 2025. The loss of rough grassland, upland flushes, heather–grass mosaics and moorland fringe habitats would reduce prey availability, alter hunting efficiency, and compress the functional home ranges of these species.
- 9.9.84 Given the observed frequent use of the Turbine Area by these species; and reliance on these habitats for successful reproduction and year-round survival, this reduction in available foraging habitat constitutes an adverse, direct, permanent long-term effect on these species. Furthermore, the temporary modification from

⁷¹ Carter, I. (2001) *The Red Kite*. Arlequin Press, Chelmsford.

⁷² Wotton, S.R., Carter, I., Cross, A.V., Etheridge, B., Snell, N., Duffy, K., Thorpe, R. & Gregory, R.D. (2002) Breeding status of the Red Kite *Milvus milvus* in Britain in 2000: The first coordinated Red Kite survey across Britain since the reintroduction programme began in 1989, yields 430 breeding pairs. *Bird Study*, **49**(3), 278-286.

construction activities, vegetation removal and habitat degradation would be an adverse, indirect, temporary short to medium-term effect. While these species do not form part of the qualifying features of the SPA, they nonetheless occur at local to regional importance within the study area, and their ecology makes them sensitive to sustained reductions in prey base and foraging habitat.

9.9.85 The impact magnitude would be small to medium, reflecting the meaningful reduction in foraging resource across core parts of their territories. Therefore, there would be a **likely significant adverse effect at the local scale**.

9.9.86 All three species were also recorded regularly across the study area during the winter months. However, their ecological behaviour differs from the breeding season. Whilst ultimately remaining close to their breeding grounds, these species exhibit larger winter home ranges, greater mobility, and increased use of the wider lowland farmland, woodland edges and valley systems surrounding the Turbine Area, Access Routes and Bradford West Cable Corridor. While construction-related land-take would remove some foraging habitat used opportunistically in winter, this represents only a small proportion of the much wider winter foraging landscape available to these species. Accordingly, the nature of the effect would be adverse, direct, permanent long-term (direct loss of foraging habitat) and adverse, indirect, temporary short to medium-term (modification and degradation of foraging habitat), but of a negligible impact magnitude, and therefore **not significant** in EIA terms.

Waterfowl

9.9.87 Greylag goose (up to 19 breeding pairs) and mallard (up to eight breeding pairs) breed within the study area, primarily using the moorland fringe, acid grassland and reservoir margins for nesting and foraging. Both species were also recorded regularly throughout the non-breeding season, with greylag geese frequently foraging in surrounding pasture and small flocks of mallard commuting between the reservoir complexes. Given their widespread distribution across Yorkshire, both are assessed as being of local importance.

9.9.88 Construction activities would result in the direct loss of moorland and grassland habitats used by both species for nesting and foraging. This would constitute an adverse, direct, permanent long-term effect. Furthermore, the temporary modification from construction activities, vegetation removal and habitat degradation would be an adverse, indirect, temporary short to medium-term effect. However, the spatial extent of habitat loss and modification relative to the availability of similar habitat in the wider landscape limits the scale of the effect. Embedded measures within the oCEMP would minimise risks to water quality and reservoir-edge habitats.

- 9.9.89 Given the local importance of these species and the small impact magnitude related to habitat loss and modification relative to the wider resource, the overall effect and would be **not significant** in EIA terms.

Gamebirds

- 9.9.90 Red grouse are abundant within the study area, reflecting the long-term management of Walshaw Moor Estate as a driven grouse moor. Surveys recorded up to 847 individuals, with the species widely distributed across the blanket bog and heath habitats that dominate the Turbine Area. These habitats are directly relied upon for nesting, brood-rearing and year-round foraging. Given the extent and management of this moorland block, one of the largest intensively managed grouse moors remaining in Yorkshire, the population within the study area is assessed as being of regional importance.
- 9.9.91 Construction activities, including within the Western Access Route would lead to the direct loss and degradation of blanket bog and heath, the primary habitats supporting the species. Based on the mapping of sensitive nesting areas presented in **Appendix 9.1: Baseline Ornithology Report**, the Proposed Development would result in the permanent loss of approximately 50.5ha (1.6%) of the identified sensitive nesting area for red grouse from direct land-take alone. Land-take within these core habitats removes nesting and foraging areas, and fragmentation caused by internal site access tracks and other infrastructure has the potential to reduce habitat continuity and alter predator–prey dynamics, particularly where vegetation structure is modified. Given that red grouse rely on a mosaic of heather age-classes and low disturbance across their territories, these changes represent a meaningful reduction in habitat quality.
- 9.9.92 The direct loss of habitat constitutes an adverse, direct, permanent long-term effect. Furthermore, the temporary modification from construction activities, vegetation removal and habitat degradation would be an adverse, indirect, temporary short to medium-term effect. These effects would occur across areas of the Turbine Area where red grouse densities are highest. Although suitable habitat would remain available in the wider Walshaw Moor Estate beyond the Proposed Development, the quantum of loss within the construction footprint and the species' inclusion under the citation of the SSSI represents a large impact magnitude from habitat loss and alteration leading to a **likely significant adverse effect at the regional scale**.

Breeding Passerines and Relatives

- 9.9.93 A diverse assemblage of upland passerines and associated species, comprising wheatear, whinchat, dipper, grey wagtail, stonechat, and the wider priority passerine group (e.g. skylark, meadow pipit, grasshopper warbler, reed bunting, linnet, cuckoo, dunnock, song thrush, willow warbler, redstart, spotted flycatcher,

house sparrow, swallow, common crossbill etc.) was recorded breeding across the Turbine Area and wider study area. These species collectively form part of the South Pennine Moors Phase 2 SPA and South Pennine Moors SSSI assemblages, utilising a mosaic of heather moorland, acid grassland, upland flushes, moorland fringe, cloughs, reservoir margins and scattered scrub habitats.

- 9.9.94 Direct habitat loss arising from activities within the construction footprint and including the Western Access Route would result in the permanent removal and modification of areas of heather moorland, blanket bog margins, grass–heather mosaics and wet grassland, all of which are used by multiple passerine species for breeding and foraging. Species such as wheatear, whinchat and stonechat breed primarily in open heather/scrub mosaics and rocky moorland slopes. Skylark and meadow pipit occupy extensive areas of short moorland and acid grassland; and grasshopper warbler, reed bunting and other wetland-fringe passerines rely on upland flushes and wetter grassland margins, and habitats intersected by the proposed infrastructure in the southern part of the Turbine Area.
- 9.9.95 For dipper and grey wagtail, the key nesting locations (e.g. rocky crags, cloughs, fast-flowing watercourses and reservoir spillways) lie predominantly outside the construction footprint. With embedded measures in the oCEMP, including a BPP and pollution prevention controls, direct alteration or degradation of these nesting habitats would be avoided. This constitutes an adverse, direct, permanent long-term effect, of small impact magnitude, which overall, would be **not significant** in EIA terms.
- 9.9.96 Woodland-associated passerines, including common crossbill, redstart, willow warbler, song thrush, mistle thrush, dunnock, spotted flycatcher, etc., likewise are not expected to be affected by habitat loss or alteration during construction. These species breed predominantly within The Plantation, Hardcastle Crags, reservoir-edge woodland and conifer plantations, all of which lie outside the construction footprint. With embedded pollution prevention measures in the oCEMP and the BPP in place, no woodland clearance or structural modification of these habitats is proposed. There is, therefore, no plausible pathway for effects from habitat loss and alteration and so this is **not significant** in EIA terms.
- 9.9.97 For upland open-ground passerines, such as skylark and meadow pipit, however, the loss of moorland vegetation structure would remove small, but ecologically meaningful, areas of breeding territory and reduce foraging habitat quality within parts of the Turbine Area. These species are generally common, widespread and of local importance; and habitat suitable for all species exists extensively across the surrounding landscape. However, the permanent nature of moorland vegetation removal and resultant modification for this species group, represents an adverse, direct, permanent long-term (direct habitat loss) and adverse, indirect, temporary

short to medium-term (temporary habitat alteration from construction) effect, of a small impact magnitude. Given the local importance of these species and the small scale of land-take relative to available habitat, the effect is assessed as **likely significant adverse at the local scale**.

Disturbance/Displacement

- 9.9.98 Construction activities associated with the Proposed Development have the potential to generate a range of disturbance-related effects on birds within the study area. These include noise, human presence, vehicle and machinery movement, vegetation clearance, and the establishment of construction compounds and internal site access tracks, the Bradford West Cable Corridor and the Access Routes. Such activities can temporarily or permanently reduce habitat suitability, disrupt breeding or foraging behaviour or displace birds from otherwise suitable areas. Upland species, particularly waders and ground-nesting raptors, are known to be sensitive to construction-related disturbance. Evidence from Pearce-Higgins *et al.* (2012)⁷³ demonstrates that the construction phases of upland wind farms can result in measurable reductions in breeding densities, most notably for species such as curlew and snipe, within several hundred metres of turbine locations, with declines of up to 40% reported for curlew and 53% for snipe within wind farm footprints during construction. These findings highlight the need for a precautionary and species-specific assessments of disturbance effects during the construction phase.
- 9.9.99 In addition to direct behavioural responses, construction-related disturbance can lead to a range of indirect ecological effects with consequences for breeding success and population viability. Disturbance during sensitive periods can increase the frequency of distraction behaviours and vigilance, reducing time available for essential activities such as incubation, brooding and foraging. Repeated flushing of adults from nests increases the risk of chilling of eggs, overheating or starvation of young and exposes nests to high risks of predation. Disruption to normal foraging patterns may lead to reduced provisioning rates for chicks, poorer fledging condition and lower productivity. For ground-nesting species, particularly open-habitat waders and raptors, persistent disturbance can trigger temporary or permanent displacement from otherwise suitable territories (especially early in the nesting season), nest abandonment or selection of suboptimal habitats. Similar effects can occur to wintering species during foraging and roosting. Scientific evidence

⁷³ Pearce-Higgins, J.W., Stephen, L., Douse, A. & Langston, R.H.W. (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.

consistently demonstrates that these pathways can materially reduce breeding success or wintering viability during construction in upland environments.

9.9.100 While embedded environmental measures, including a BPP secured through an oCEMP, would provide important safeguards such as pre-construction checks, disturbance buffers, and a commitment to avoid peak nesting periods wherever practicable, it is acknowledged that the scale and nature of the Proposed Development means that construction cannot feasibly avoid all key breeding and non-breeding periods for all sensitive species. Given the ecological importance of the study area, the density of ground-nesting species present and the extent of infrastructure required within open moorland habitats, it is unavoidable that some level of disturbance and displacement would occur. The assessment presented in the following sections therefore assumes that disturbance and thus displacement to other areas during at least part of the core nesting season (and where relevant the non-breeding season) is inevitable and evaluates effects accordingly.

9.9.101 For this PEIR, only those ornithological features identified within the Evaluation of Ornithological Features (**Table 9-12**) as being sensitive to disturbance and displacement are scoped into the construction disturbance assessment. These include:

- South Pennine Moors Phase 2 SPA;
- South Pennine Moors SSSI;
- Merlin;
- Golden plover;
- Other waders (common sandpiper, curlew, dunlin, lapwing, little ringed plover, oystercatcher, redshank, snipe);
- Other raptors and owls (barn owl, goshawk, hen harrier, hobby, kestrel, marsh harrier, peregrine, red kite, short-eared owl);
- Waterfowl (greylag goose and mallard);
- Gamebirds (red grouse); and
- Breeding passerines and relatives (wheatear, whinchat, dipper, grey wagtail, stonechat, priority passerines and relatives group).

9.9.102 The following sections provide a detailed, feature-specific assessment of potential disturbance and displacement effects during the construction phase, characterising the impact magnitude, duration and significance of effects in accordance with the methodology outlined in **Section 9.4**.

South Pennine Moors Phase 2 SPA/South Pennine Moors SSSI

- 9.9.103 Construction activities associated with the Proposed Development have the potential to generate disturbance to qualifying features of the South Pennine Moors Phase 2 SPA and the notified breeding bird assemblage of the South Pennine Moors SSSI. This has the potential to undermine the conservation objectives of the designated sites where qualifying species depend on undisturbed moorland habitats for breeding and foraging.
- 9.9.104 For the SPA, the relevant conservation objectives include maintaining or restoring:
- The extent and distribution of habitats of qualifying features;
 - The structure and function of these habitats;
 - The supporting ecological processes on which qualifying features rely;
 - The population of each qualifying feature; and
 - The distribution of qualifying features within the site.
- 9.9.105 For the SSSI, the objective is to maintain the favourable condition of the upland breeding bird assemblage, including breeding waders, raptors, owls, and upland passerines.
- 9.9.106 Construction disturbance has the potential to adversely affect these objectives by:
- Reducing the suitability of nesting areas during sensitive periods;
 - Altering foraging behaviour or reducing foraging efficiency;
 - Displacing breeding pairs from optimal territories; and
 - Potentially decreasing productivity in the short term due to stress responses or nest abandonment.
- 9.9.107 Given the spatial overlap between construction works and the core breeding areas for key SPA/SSSI assemblage species, including golden plover, curlew, dunlin, snipe, merlin and short-eared owl, there is potential for disturbance to result in reduced territory occupation, altered spatial distribution and local decreases in pair densities.
- 9.9.108 The disturbance and displacement effect on SPA and SSSI features during construction would be adverse, direct, temporary, short to medium term and frequent, occurring during a critical period for most qualifying features (breeding season). The Magnitude of Impact would be large, as disturbance has the potential to significantly alter the behaviour and productivity of a large proportion of qualifying

features of the internationally and nationally designated site within the construction footprint and up to several hundred metres beyond.

- 9.9.109 Because construction disturbance may reduce the breeding success of multiple SPA/SSSI qualifying features, displace breeding pairs from territories integral to maintaining the SPA/SSSI reference populations, alter the distribution of qualifying features within the SPA/SSSI and undermine the supporting ecological processes and habitat functions relied upon by SPA and SSSI assemblage species, there would be a **likely significant adverse effect at the international scale** on the SPA and **likely significant adverse effect at the national scale** on the SSSI.

Merlin

- 9.9.110 Breeding merlin within the study area are likely to experience disturbance and temporary displacement during construction where construction activities lie within published disturbance buffers for this species and overlap with long-established nesting ranges.
- 9.9.111 Evidence from the disturbance distances review⁷⁴ indicates that merlin are considered to have medium sensitivity to human disturbance, with expert-derived advice suggesting upper disturbance limits of approximately 300-500m for pedestrians in the breeding season^{75,76}. Forestry and other operational guidance in the UK tends to recommend “no-work” buffers of roughly 200-400m around active merlin nests to avoid loss of territory or breeding failure. These distances broadly encompass the range at which merlin are likely to flush or abandon nests when repeatedly disturbed early in the season (laying and incubation), when adults roost and hunt close to nesting areas²⁸. Construction would bring regular heavy plant, vehicle traffic and personnel activity into this zone, particularly around the long-occupied nest sites in the eastern and western parts of the Turbine Area.
- 9.9.112 Although merlin can tolerate some human activity in certain contexts (including urban nesting)⁷⁷, the literature stresses that early-season disturbance at traditional upland nesting ranges can cause birds to move or fail and that repeated disturbance

⁷⁴ Goodship, N.M. & Furness, R.W. (2022) Disturbance Distances Review: An updated literature review of disturbance distances of selected bird species. NatureScot Research Report 1283.

⁷⁵ Ruddock, M. & Whitfield, D.P. (2007) *A review of disturbance distances in selected bird species*. A report from Natural Research (Projects) Ltd to Scottish Natural Heritage.

⁷⁶ Whitfield, D.P., Ruddock, M. & Bullman, R. (2008) Expert opinion as a tool for qualifying bird tolerance to human disturbance. *Biological Conservation*, **141**, 2708-2717.

⁷⁷ Konrad, P.M. (2004) *Effects of management practices on grassland birds: Merlin*. Northern Prairie Wildlife Research Center, Jamestown, ND. 20 pages.

around occupied territories has the potential to depress productivity^{28,78,79}. In this case, the overlap between construction works and core nesting areas means there is a high likelihood that at least two to three established territories (i.e. those within the Turbine Area) would be temporarily abandoned, or that breeding success would be reduced during construction years. This could leave to the loss of up to three pairs of merlin, impacting 2% of the national population, 6.25% of the Yorkshire population⁵⁵, and 11% of the SPA population.

- 9.9.113 An embedded BPP within the oCEMP would include measures such as pre-construction checks, seasonal timing constraints (ECoW where required); and the establishment of exclusion buffers around any active nests identified in each construction period. These measures are intended to avoid the highest-risk activities during the most sensitive periods, wherever practicable. However, based on typical timing of merlin nesting (with egg laying around early May to mid-May and incubation between early May to mid-June and chick rearing to mid-July), there is likely to be unavoidable temporal overlap between construction periods and the main breeding period. Construction activities (e.g. implementation of site internal access tracks and enabling works) may still need to occur within the broader 300-500m ZoI around some territories, even if direct nest-site disturbance is avoided.
- 9.9.114 Overall, construction-related disturbance and displacement of breeding merlin would result in an adverse, direct and indirect effect, over the short to medium-term, which would be temporary and frequent. The potential for territory abandonment or repeated breeding failure affecting a population that comprises circa 2% of the national merlin population is considered to represent a large impact magnitude. Overall, this would result in a **likely significant adverse effect at the national scale**.
- 9.9.115 During the non-breeding season, merlin are more widely dispersed across lowland and moorland habitats, often shifting away from their upland breeding ranges and exhibiting highly mobile foraging behaviour. Wintering merlin in Britain includes both resident birds and immigrants from Iceland and individuals frequently range widely across open country in search of prey⁶⁴. The Disturbance Distances Review confirms that merlin can be disturbed at foraging and roosting sites in winter, with suggested non-breeding buffer zones of ≤200m for pedestrian or vehicle disturbance⁷⁴.

⁷⁸ Newton, I., Robinson, J.E. & Yalden, D.W. (1981) Decline of the merlin in the Peak District. *Bird Study*, **8**, 225-234.

⁷⁹ Becker, D.M. & Ball, I.J. (1983) Merlin (*Falco columbarius*). Impacts of coal surface mining on 25 migratory bird species of high federal interest, edited by Armbruster, J.S. USFWS, 124-137.

- 9.9.116 Within the study area, winter records comprised four to five individuals hunting intermittently across moorland slopes. No evidence of a communal winter roost was found, and observations were spread widely, indicating opportunistic use of the study area rather than reliance on any single foraging area.
- 9.9.117 Construction activities may temporarily disturb foraging merlin using the Turbine Area but any displacement is expected to be short-lived and highly reversible; given the absence of a known winter roost within or near the construction footprint, the high mobility of wintering merlin (which routinely exploit extensive alternative foraging areas across the South Pennines), and the abundance of suitable moorland and rough grassland in the surrounding landscape.
- 9.9.118 As a result, any disturbance or temporary displacement during construction for this species would be adverse, direct and indirect, temporary, short-term (within the construction period), frequent and of a small impact magnitude relative to the wintering merlin population. The resultant effect would be **not significant** in EIA terms.

Golden Plover

- 9.9.119 Golden plover are highly sensitive to human presence and construction-type disturbance during the breeding season. Empirical studies on Peak District populations have shown that adults with chicks typically begin alarming at mean distances of circa 180-200m from a human intruder, with responses recorded up to circa 570m, implying a substantial “disturbance zone” around regular human activity where birds may be reluctant to settle or may experience repeated flushing. Repeated alarming and displacement during chick-rearing can reduce time available for brooding and feeding, increasing energetic stress and predation risk for chicks, and is therefore likely to depress productivity⁸⁰. Multi-site wind farm studies have also shown that breeding waders, including golden plover, can exhibit reduced occupancy and density close to turbine and track infrastructure during and immediately following construction, with some studies reporting marked declines in territory density within 400-600m of turbines where construction disturbance has occurred⁸¹.
- 9.9.120 Activities within the construction footprint on the main plateau and upper slopes of the Turbine Area and Access Routes would introduce intensive, recurrent

⁸⁰ Yalden, D.W. & Yalden, P.E. (1989) The sensitivity of breeding Golden Plovers *Pluvialis apricaria* to human intruders. *Bird Study*, **36**, 49-55.

⁸¹ Hotker, H., Thomsen, K-M. & Jeromin, H. (2006) Impacts on biodiversity of exploitation of renewable energy sources: the example of birds and bats – facts, gaps in knowledge, demands for further research, and ornithological guidelines for the development of renewable energy exploitation. Michael-Otto-Institut im NABO, Bergenhusen.

disturbance (heavy plant, vehicle movements, personnel, blasting and concreting, etc.) directly into core golden plover nesting areas. Given the species' sensitivity distances and the spatial overlap between proposed works and the highest breeding densities, it is likely that:

- Birds would avoid establishing territories within and immediately adjacent to active construction zones;
- Pairs attempting to breed in proximity to works would suffer repeated disturbance, leading to reduced breeding success; and
- The effective area of suitable breeding habitat available within the Turbine Area (and to a lesser extent along the Western Access Route) would be temporarily reduced by a disturbance area extending several hundred metres beyond the direct footprint of works.

9.9.121 Nesting data for upland moorland birds indicate that golden plover typically initiate clutches from Mid to late April through May, with dependent young present into July⁸². Peak construction activity during this period would therefore coincide with the most sensitive stages of incubation and chick-rearing. The embedded BPP, secured via the oCEMP would seek wherever practicable to avoid the most sensitive months in core territories and to apply temporary exclusion buffers around active nests. However, given the scale of proposed construction activities and the concentration of golden plover territories across much of the plateau, it is unlikely that all disturbance to breeding birds within the Turbine Area and Access Routes can be avoided.

9.9.122 Taking into account the high sensitivity of breeding birds to human disturbance at distances between 200-600m and the intersection of the construction activities with known breeding and foraging areas for golden plover, this could affect the a large proportion of the sensitive nesting areas and important foraging areas identified within **Appendix 9.1: Baseline Ornithology Report**. As evidence suggests that construction phases of upland wind farms can cause substantial local reductions in wader densities and occupancy, construction-related disturbance and displacement of golden plover; there would be an adverse, direct, temporary, short to medium-term, frequent effect, but with an impact of a large magnitude. Given the importance of the golden plover population, this would constitute a **likely significant adverse effect at the regional scale**.

⁸² Wilson, M.W., Fletcher, K., Ludwig, S.C. & Leech, D.I. (2021) *Nesting dates of Moorland Birds in the English, Welsh and Scottish Uplands*. British Trust for Ornithology (BTO) Research Report 741.

9.9.123 Outside the breeding season, golden plover using the study area for staging and foraging (flocks of up to 115 birds), are of local importance and are likely to be more mobile, with access to extensive alternative foraging habitat in the wider South Pennines. Disturbance and displacement of non-breeding birds from construction activities is therefore assessed as an adverse, direct, temporary, short-term (within the construction period), frequent effect, but of a small magnitude and overall, **not significant** in EIA terms.

Other Waders

9.9.124 Construction activity within the Turbine Area and Western Access Route has the potential to cause disturbance and temporary displacement of breeding waders through increased human presence, noise, vehicle movement, and mechanised activity. These effects are well-documented across upland systems: population-level disturbance responses in breeding waders, including curlew, snipe and lapwing, are consistently highest during the construction phase, with significant declines in density recorded, relative to both pre-construction and operational phases⁷³. These findings are supported by the broader disturbance literature, which identifies typical avoidance or flushing distances of at least 100-200m for many moorland wader species during pedestrian or vehicle disturbance⁷⁴, with effects varying based on visibility, topography and breeding stage.

9.9.125 Disturbance during construction carries the greatest risk during the peak breeding period for moorland and grassland wader species (late March-late July), when nest establishment, incubation and chick-rearing coincide with the highest sensitivity to human activity. Nesting periods derived from Wilson *et al.* (2022)⁸² show that curlew, lapwing, redshank, dunlin, snipe and common sandpiper all overlap substantially across this May-July period. As demonstrated in Pearce-Higgins *et al.* (2012)⁷³, where curlew and snipe densities declined significantly during construction, disturbance at nest initiation and incubation stages may lead to nest desertion, reduced productivity or displacement away from otherwise suitable habitat.

9.9.126 Curlew, dunlin, lapwing, oystercatcher, redshank, and snipe all breed within areas that would be subject to direct construction activity, including blanket bog, wet and dry heath as well as moorland fringe and grassland habitats. Construction noise from repeated human presence, and vehicular movement would occur within established territories, including near nest sites and foraging habitat. Much of the construction footprint lies within the stated disturbance distances for these species (where data is available)⁷⁴. An embedded BPP within the oCEMP would include measures such as pre-construction checks, seasonal timing constraints and the establishment of exclusion buffers around any active nests identified in each construction season (as well as an ECoW where required). These measures are intended to avoid the highest-risk activities during the most sensitive periods,

wherever practicable. However, there is likely to be unavoidable temporal overlap between construction periods and the main breeding periods for these species.

- 9.9.127 Given the importance of the South Pennine uplands for these species, and the spatial overlap between core breeding territories and the construction footprint, particularly around Holme Ends, Mare Greave Slack and across higher blanket bog plateaus, the Proposed Development is likely to cause displacement from nesting areas, territory abandonment, and reduced breeding success across a significant proportion of their sensitive nesting areas as identified in **Appendix 9.1: Baseline Ornithology Report**. Therefore, there would be an adverse, direct, temporary short to medium term, frequent effect; with a large impact magnitude, leading to an overall **likely significant adverse effect at the regional scale** for curlew, dunlin, lapwing, oystercatcher, redshank and snipe.
- 9.9.128 Although Goodship & Furness (2022)⁷⁴ identify that wader species can exhibit disturbance responses during the non-breeding season, these findings are predominantly associated with wetland, estuarine and coastal sites, where birds congregate at high densities and have more spatially constrained foraging opportunities. In contrast, within the study area, curlew, lapwing, oystercatcher, and occasionally dunlin, redshank and snipe, use the moorland, rough pasture and reservoir margins primarily for dispersed foraging during winter or as short-term stopover areas during migration.
- 9.9.129 Wintering use of the study area is low-density, spatially diffuse and highly opportunistic, with birds ranging widely across the extensive open habitats of the South Pennines. Given the highly mobile nature of these species in the non-breeding season and the abundance of alternative foraging habitat available within the surrounding uplands, any disturbance effects arising from construction activities would be temporary, short-lived and easily avoided by relocation to adjacent habitat blocks. Accordingly, disturbance and displacement effects on these wader species during the non-breeding season would be an adverse, direct, temporary, short-term (within the construction period), frequent effect of small magnitude but **not significant** in EIA terms.

Common Sandpiper

- 9.9.130 Common sandpiper nests along reservoir shorelines within the study area, including Walshaw Dean and Widdop Reservoirs, with several breeding pairs occurring in close proximity (within 150m) to the construction footprint (e.g. around T32/T33), potentially affecting up to five pairs. Unlike the other moorland waders, common sandpiper occupies very narrow shoreline territory strips and is therefore highly vulnerable to disturbance that reduces the usability of even small sections of shoreline habitat.

- 9.9.131 Species-specific evidence from Yalden (1992)⁸³ shows that breeding common sandpipers exhibit pronounced sensitivity to human disturbance along reservoir margins, particularly when guarding chicks. This species study also demonstrated that persistent human presence forces birds to vacate preferred shoreline habitats, retreat into suboptimal areas and significantly reduces the size of the breeding population along affected shores. This is directly relevant to the Proposed Development, where construction activities would introduce regular human presence, machinery movement and noise at distances within the disturbance ranges reported.
- 9.9.132 Construction-phase activity is therefore expected to cause temporary displacement of breeding common sandpipers from shoreline territories adjacent to the construction footprint, with potential exclusion from sections of nesting habitat during the breeding season, impacting up to five breeding pairs. The effect on these species constitutes an adverse, direct, temporary, short to medium term (within the construction period), frequent effect of small impact magnitude that would result in a **likely significant adverse effect at a local scale**.

Little Ringed Plover

- 9.9.1 Little ringed plover do not nest within the Walshaw Dean reservoir complex itself, but do breed on Watersheddles Reservoir, immediately adjacent to the Western Access Route and a proposed borrow pit and a construction compound within the Turbine Area. This species nests on narrow bands of gravel, shale and sparsely vegetated shoreline, habitats that are extremely limited in extent and easily disturbed by repeated human presence.
- 9.9.2 Although species-specific disturbance distances are not well quantified in the literature, little ringed plover is known to be responsive to human presence at the nest, exhibiting rapid flushing behaviour and sensitivity during incubation and chick-rearing. As a Schedule 1 WCA species, it benefits from legislative protection, making it an offence to intentionally or recklessly disturb the birds while nest-building, with eggs or young at the nest, or when dependent young are present.
- 9.9.3 In practice, these legislative requirements mean that any works with potential to cause disturbance must be timed, managed or excluded entirely during the breeding period. Under the BPP secured through the oCEMP; construction activities will be controlled to ensure compliance with Schedule 1 obligations, including pre-works checks, buffer-setting, and cessation or modification of works if an active nest is identified.

⁸³ Yalden, D.W. (1992) The influence of recreational disturbance on common sandpipers *Actitis hypoleucos* breeding by an upland reservoir, in England. *Biological Conservation*, **61**, 41-49.

- 9.9.4 With these mandatory protections in place and the requirement to avoid disturbance enshrined in law and embedded within the BPP, significant effects on little ringed plover are not anticipated. The effect on this species would therefore be adverse direct, temporary, short-term (within the construction period), frequent but of overall negligible impact magnitude. Therefore, the resultant effect would be **not significant** in EIA terms.

Other Raptors and Owls

- 9.9.5 Construction of the Proposed Development would generate visual and acoustic disturbance across the Turbine Area and Western Access Route. Activities including groundworks, vehicle movements, personnel access and use of construction compounds have the potential to disturb raptors through increased human presence, noise, and direct activity within or near nesting, roosting, and foraging areas.
- 9.9.6 Raptors vary considerably in their sensitivity to disturbance. Species-specific avoidance distances and behavioural responses have been reviewed in Goodship & Furness (2022)⁷⁴ and provide the primary basis for assessing construction-related disturbance distances and their implications. Several raptor species recorded breeding within the study area are highly sensitive to disturbance early in the breeding season and construction activity overlaps directly with core nesting territories for some species.
- 9.9.7 The section below presents the preliminary assessment of likely construction disturbance/displacement effects on all other raptor and owl species scoped into the assessment (short-eared owl, hen harrier, marsh harrier, peregrine, barn owl, kestrel red kite, goshawk, hobby) drawing on known disturbance thresholds, the mapped distribution of nest sites, the number of breeding pairs present and the known foraging areas.

Short-eared Owl

- 9.9.8 Short-eared owls are of medium to high sensitivity to disturbance, with recommended breeding season buffers of 300-500m. The proposed infrastructure has the potential to directly intersect with two to three regularly used breeding territories within the Turbine Area (with up to four pairs in 2025) and one within the Western Access Route. With egg laying beginning in late April (late March at the earliest) to young fledging in late May to June²⁸, construction activity during this period would therefore risk displacement from core nesting areas, nest abandonment, failed broods and/or displacement from core hunting territories. This could potentially lead to the loss of two to three breeding pairs within the Turbine Area and one breeding pair along the Western Access Route impacting 13% of the national population and 24% of the Yorkshire population⁵⁵.

- 9.9.9 The nature of the effect is adverse, direct, temporary, short to medium term, and frequent. The impact magnitude would be assessed as large and would likely result in a **likely significant adverse effect at the national level**.

Hen Harrier

- 9.9.10 Hen harriers are especially sensitive to disturbance early in the breeding season when birds are laying as well as when they are present at roost sites. Hardey *et al.* (2013)²⁸ state that if females are disturbed during the laying period, nests containing one or two eggs may be deserted. Breeding season disturbance buffers of 300-750m are therefore recommended⁷⁴. One confirmed breeding pair in 2025 in the east of the Turbine Area directly intersects the proposed infrastructure and thus is within the disturbance range. Any construction activities during March-July (courtship through fledging) therefore risks either displacement from the established nest site altogether or nest desertion and loss of breeding productivity, impacting 7.7% of the Yorkshire breeding population and 2% of the national breeding population⁵⁵.
- 9.9.11 The nature of the effect is adverse, direct, temporary short to medium term, and frequent. The impact magnitude would be large as it could result in the loss of the only hen harrier territory within the study area. This would result in a **likely significant adverse effect at the national scale**.

Marsh Harrier

- 9.9.12 Marsh harriers exhibit disturbance sensitivity within 300-500m⁷⁴, and construction works occur immediately south of the suspected nesting area. Construction falls within this disturbance sensitivity zone, and construction activities across the Turbine Area are likely to disturb and displace any nesting or foraging activity. Potentially impacting 2.3% of the Yorkshire breeding marsh harrier population.
- 9.9.13 The nature of the effect would be adverse, direct, temporary, short to medium term, and frequent. The impact magnitude would be large and would result in a **likely significant adverse effect at the regional scale**.

Peregrine

- 9.9.14 Peregrines have high sensitivity, with disturbance buffers of 500-750m around eyries⁷⁴. A pair occupies a territory immediately adjacent to the Turbine Area and hunts extensively across the moorland. Most large prey is taken within 2km of the eyrie and few birds are captured beyond 6km⁷⁰, meaning the Turbine Area forms a core foraging range. Construction activities would therefore directly disturb and displace foraging behaviour and reduce prey availability and could therefore potentially impact 2.6% of the Yorkshire population of peregrine⁵⁵.

- 9.9.15 The nature of the effect would be adverse, direct, temporary, short to medium term, and frequent. The impact magnitude would be large and would result in a **likely significant adverse effect at the regional scale**.

Barn Owl

- 9.9.16 Barn owls have a lower sensitivity to disturbance, reflected in their smaller disturbance distance thresholds (50-100m)⁷⁴. One nest site within the Turbine Area lies approximately 270m from the nearest construction activity and is therefore beyond the 100m disturbance threshold. The Proposed Development could disturb this nesting species within its core foraging range (especially if construction takes place during crepuscular periods). Any disruption of nocturnal foraging and proximity to active works increases risk of temporary displacement and therefore impaired breeding success. However, due to the temporary nature of the construction phase and the abundance of foraging habitat in other areas close to the breeding site, this is unlikely to impair the breeding success of this nesting pair, especially considering that barn owls commonly habituate to human influenced areas.
- 9.9.17 The nature of the effect would be adverse, direct, temporary short term, (within the construction period) with a low frequency (bulk of construction works would take place outside of the period of peak activity for this species). The impact magnitude would be small and thus the effect would be **not significant** in EIA terms.

Kestrel

- 9.9.18 Kestrel have a comparatively lower sensitivity to disturbance and are considered a human-tolerant species; occurring in a variety of human-dominated environments including urban, suburban and agricultural habitats and are therefore able to habituate to at least some degree of human presence. However, kestrel do have the potential to be disturbed on breeding grounds and are particularly sensitive early in the breeding season. Hardey *et al.* (2013)²⁸ advises that care must be taken to avoid excessive disturbance around kestrel nests while pairs are displaying and laying, as this may cause the birds to move location. Disturbance at kestrel nests should also be avoided when the chicks are three weeks old or more because they are prone to fledge prematurely from this age²⁸. A breeding season buffer of 100-200m is therefore recommended⁷⁴.
- 9.9.19 The majority of breeding pairs are located outside the Turbine Area and Access Routes. One pair was recorded nesting within the Turbine Area, with the nest located approximately 270m from the nearest construction activity, which is beyond the recommended 200m disturbance threshold. As a result, direct disturbance to the nest site is unlikely. However, the Turbine Area forms part of the core foraging range for multiple pairs, and construction activities therefore have the potential to

cause temporary disturbance or displacement during foraging, rather than direct impacts on nesting.

- 9.9.20 The nature of the effect would be adverse, direct, temporary, short term (within the construction period) and frequent. The impact magnitude would be small and would therefore result in a **likely significant adverse effect at the local scale**.

Red Kite

- 9.9.21 Although no nests were confirmed within the Turbine Area or wider construction footprint, the presence of a breeding pair and dependent young in 2025 indicates the nest is likely within 3km of the Turbine Area. Red kites are highly mobile foragers, but they typically forage within 3km of the nest^{71,72}, with most prey taken close to the nest site. This means that the Turbine Area likely falls within the core foraging range of the breeding pair observed in 2025.
- 9.9.22 Goodship & Furness (2022)⁷⁴ identify red kite as having medium sensitivity to human disturbance, but most evidence relates to nesting sites. For foraging birds, disturbance reduces the availability of prey-rich ground within the home range, forcing adults to forage further, which is known to have energetic and productivity implications during chick-rearing.
- 9.9.23 The use of the Turbine Area for repeated foraging by a family group in 2025 indicates that the area forms a core component of the species' functional breeding range, despite nesting occurring offsite.
- 9.9.24 Although nesting sites themselves would not be directly disturbed, the functional foraging range of the breeding pair lies within the Turbine Area and the construction footprint would temporarily remove or render unavailable a proportion of this resource. The nature of the effect would be adverse, direct, temporary, short (within the construction period) and frequent. The impact magnitude would be medium and result in a **likely significant adverse effect at the local scale**.

Goshawk and Hobby

- 9.9.25 Goshawk and hobby have the potential to be disturbed on breeding grounds; both are most likely to be disturbed in breeding territories early in the breeding season. Depending on the level of habituation to disturbance, a buffer zone of 300-500m for goshawk (considered to be the upper disturbance limit estimated by expert opinion⁷⁴) and 200-450m for hobby during the breeding seasons⁷⁴ is considered.
- 9.9.26 Goshawk and hobby were recorded only occasionally within the Turbine Area, with sparse observations during the breeding season. Therefore, both species are unlikely to be breeding within the Turbine Area (or Western Access Route), and more likely associated with areas further afield. Although a single descent into The

Plantation suggested possible nesting interest, it is far more likely that goshawks using the study area originate from larger woodland blocks such as Hardcastle Crags or larger plantations located further afield in the surrounding landscape.

- 9.9.27 As a result, the Turbine Area does not form a core foraging territory for goshawk and hobby, nor does it provide the main nesting habitat for their local populations. While both species may opportunistically forage across the moorland for prey, temporary disturbance during construction is unlikely to limit resources for these species at the landscape scale. Measures within the BPP secured within the oCEMP would include measures to locate any potential future nests within the relevant disturbance thresholds of the construction footprint. As such, disturbance and displacement effects would be adverse, direct, temporary, short-term (within the construction period), frequent but would be of negligible impact magnitude and thus **not significant** in EIA terms.

Non-breeding Raptors

- 9.9.28 Goodship and Furness (2022)⁷⁴ identify hen harrier as highly sensitive to disturbance during the non-breeding season, particularly at communal roosts and foraging grounds. They advise that depending on habituation levels, a 300-750m buffer is required to avoid disturbance to foraging and roosting birds. For activities generating high levels of visual and auditory disturbance, such as construction involving vehicle movements, machinery, excavation, etc., a substantially larger buffer of 500-1000m is recommended to reduce behavioural disruption.
- 9.9.29 Although the known winter roost lies beyond 1,000m from the construction footprint, the core foraging habitats used by wintering hen harriers fall well within these disturbance thresholds. Construction activities would therefore occur at distances where behavioural disruption is highly probable, even unavoidable, resulting in:
- Temporary or sustained exclusion of birds from favoured hunting areas;
 - Increased energy expenditure as birds are forced to range further to locate prey;
 - Potential reduction in foraging efficiency, especially during periods of poor weather or low prey availability; and
 - Disruption of established commuting routes between foraging areas and the roost.
- 9.9.30 Peregrines are similarly sensitive to disturbance during the non-breeding season⁷⁴. Peregrines additionally maintain and defend their territories year-round²⁸ and thus the impacts during the non-breeding season are expected to be similar to that of the breeding season.

- 9.9.31 Although the oCEMP would include a BPP to minimise disturbance wherever practicable, construction activity cannot be fully excluded from large parts of the Turbine Area. As such disturbance of wintering hen harrier and peregrine and displacement from their core foraging areas is judged to be inevitable.
- 9.9.32 The nature of the effect would be adverse, direct, temporary, short term (within the construction period), and frequent. The impact magnitude would be medium. This would result in a **likely significant adverse effect at the national scale** for hen harrier and a **likely significant adverse effect at the regional scale** for peregrine.
- 9.9.33 During the non-breeding season, short-eared owl, marsh harrier, barn owl, kestrel, red kite and goshawk are assessed as experiencing **no significant effects** in EIA terms related to disturbance/displacement from construction activities. Wintering individuals of these species tend to be more mobile, typically foraging across large, landscape-scale home ranges, and are not constrained to specific foraging territories within the study area. As a result, temporary disturbance and displacement from parts of the construction footprint would constitute only a small and easily absorbed reduction in their available wintering foraging resource. The extensive availability of open moorland, farmland edge and woodland within the South Pennines provides ample alternative foraging and movement habitat.

Waterfowl

- 9.9.34 Greylag goose and mallard both breed widely across the study area, using reservoir margins, upland flushes and moorland fringe grassland for nesting, brood-rearing and foraging. These habitats occur within or in close proximity to the proposed infrastructure within the Turbine Area. Construction works would introduce recurrent human presence, noise, vehicle movements, machinery operation and ground disturbance into areas frequently used by these species during the breeding season.
- 9.9.35 Mallard is assessed by Goodship and Furness (2022)⁷⁴ as having low to medium sensitivity to disturbance, with 50-100m buffer distances during the breeding season. Non-breeding disturbance distances range from <200–400m with recommended non-breeding season buffers of ≥100m. Greylag goose is assessed as having medium sensitivity with disturbance distances of 200-600m during both the breeding and non-breeding seasons.
- 9.9.36 Given these sensitivity ranges, construction activity within or adjacent to nesting areas would fall inside the disturbance zones for both species. Breeding waterfowl are sensitive to repeated flushing during incubation or early brooding, with disturbance known to reduce nesting success by increased egg chilling, chick exposure, and nest abandonment.

- 9.9.37 The nature of the effect would be adverse, direct, temporary, short term, (within the construction period), and frequent, occurring during the most sensitive period for breeding waterfowl (March – July). The impact magnitude would be small, acknowledging that the affected breeding population is of local importance and the absolute area of breeding habitat is relatively limited compared with other breeding areas in the wider area. However, because effects would potentially occur during the sensitive nesting period and within established breeding areas, construction phase disturbance and displacement would result in a **likely significant adverse effect at the local scale** for both greylag goose and mallard during the breeding season.
- 9.9.38 Outside the breeding season, both greylag goose and mallard range widely across the wider landscape, using extensive moorland fringe pasture, open water and rough grassland. Wintering birds are highly mobile and not constrained to discrete foraging areas within the study area. Despite the larger recommended non-breeding disturbance buffers, the availability of abundant alternative foraging and loafing habitat in the surrounding landscape means any disturbance arising from construction activities would be easily avoided by short range relocation. This effect would be temporary in nature and unlikely to reduce winter survival or foraging efficiency at the population level. Accordingly, for both species, non-breeding disturbance/displacement would be **not significant** in EIA terms.

Gamebirds

- 9.9.39 Although not covered in Goodship and Furness (2022)⁷⁴, red grouse are known to be sensitive to localised, repeated human disturbance during the breeding season. Disturbance effects on grouse in managed moorland could include flushing of incubating adults from nests, disruption of brood-rearing activity, altered adult movement patterns, reduced foraging efficiency, displacement from favoured heath stands and reduced productivity.
- 9.9.40 Pearce-Higgins *et al.* (2012)⁷³ showed that while populations recovered during the operational phases, the construction phase led to substantial declines in red grouse populations at upland wind farms. This shows that temporary or intermittent disturbance during the peak nesting period can depress breeding success, particularly where activity intersects prime breeding territories. The construction footprint (including the Western Access Route) would introduce recurrent disturbance across large areas of blanket bog and heath where red grouse densities are highest. Given the extent of construction footprint and the high density of red grouse across the affected habitats, large numbers of territories across the study area would be exposed to disturbance. Although grouse may habituate to minor, intermittent human presence, the scale, duration and intensity of construction activities would likely exceed conditions under which such habituation typically occurs on driven grouse moors.

- 9.9.41 Construction phase disturbance is therefore expected to displace breeding pairs and broods from optimal heather stands, temporarily reduce occupancy within and adjacent to the construction footprint, reduce breeding success via disturbance induced flushing and brood fragmentation, and compress or shift functional foraging ranges away from affected habitats.
- 9.9.42 The effect would be adverse, direct, temporary, short to medium term, frequent and likely to occur over multiple years given the scale of the construction programme. Given the density of birds affected and the clear ecological consequences for breeding and non-breeding productivity, the impact magnitude is assessed as large, and would result in a **likely significant adverse effect at the regional scale**.

Breeding Passerines and Relatives

- 9.9.43 A diverse assemblage of upland passerines and associated species breed within the study area. This group includes common crossbill, a Schedule 1 WCA species. Collectively, these species form part of the South Pennine Moors Phase 2 SPA and South Pennine Moors SSSI breeding bird assemblages.
- 9.9.44 The majority of passerine species recorded within the study area nest in habitats that lie outside the construction footprint, including woodland (e.g. common crossbill, redstart, willow warbler, song thrush, mistle thrush, spotted flycatcher), watercourses, cloughs and reservoir margins (e.g. dipper, grey wagtail, reed bunting), scrub patches, gritstone edges, dry-stone walls and rocky outcrops (e.g. wheatear) and moorland fringe features. These habitats are not subject to extensive direct land-take or structural modification and embedded environmental measures (including the BPP secured through the oCEMP) would prevent disturbance at watercourses or woodland edges. Therefore, these species are unlikely to be materially disturbed and displaced by construction activities. The nature of the effect would be adverse, direct, temporary, short-term (within the construction period), frequent and would represent a small impact magnitude, resulting in an effect that would be **not significant** in EIA terms.
- 9.9.45 Common crossbill is a Schedule 1 WCA species, affording enhanced legal protection against disturbance. However, the species exclusively breeds in conifer woodland with one territory recorded in The Plantation in 2025. This and all other woodlands are outside the construction footprint and with embedded BPP measures ensuring pre-construction checks and appropriate buffers should nesting occur unusually close to works, the impact magnitude on crossbill is assessed as negligible and the effect would be **not significant** in EIA terms.
- 9.9.46 Open-habitat breeders such as meadow pipit, skylark and to a lesser extent whinchat hold territories within the blanket bog and grass-heather mosaic and acid grassland that are directly intersected by the proposed infrastructure. Repeated

disturbance within these habitats can reduce foraging efficiency, increase vigilance and distraction behaviours, and depress breeding success. Although these species are common and of local importance, the habitats affected form only a small proportion of the extensive contiguous moorland available across the wider landscape. Displacement is therefore likely to be temporary and reversible. The effect would be adverse, direct, temporary, short term (within the construction period), frequent and of a small impact magnitude. This would be **not significant** in EIA terms.

Competition from Birds Displaced by the Proposed Development

North Pennine Moors SPA

- 9.9.47 During construction, disturbance and temporary displacement of birds from habitats within the Turbine Area, Western Access Route, Eastern Access Route and Bradford West Cable Corridor could, in theory, result in redistribution of individuals into surrounding landscapes. One potential pathway requiring consideration is whether displaced birds could relocate into the North Pennine Moors SPA and increase competitive pressure on its qualifying features.
- 9.9.48 In accordance with NatureScot guidance²¹ on assessing functional connectivity with SPAs, a prerequisite for population-level effects via displacement or competition is that displaced individuals move into areas that are regularly and functionally used by a significant proportion of the SPA population, such that resource limitation or density-dependent effects could arise. The North Pennine Moors SPA lies approximately 18.9km from the Turbine Area, with the closest construction-related components (Bradford West Cable Corridor and Western Access Route) located at distances of approximately 9.5km and 14.3km respectively. These distances are well beyond the recognised core foraging ranges of all SPA qualifying species (hen harrier: 2km; merlin: 5km; peregrine: 2km; golden plover: 3km).
- 9.9.49 Given these separation distances, it is highly unlikely that birds temporarily displaced during construction would preferentially relocate into the North Pennine Moors SPA rather than into the extensive, contiguous upland habitats immediately surrounding the Proposed Development. The wider South Pennines comprise large areas of blanket bog, heath and upland grassland within the South Pennine Moors Phase 2 SPA as well as outside the SPA network, providing alternative nesting and foraging habitat that has the suitability and potential of absorbing short-term displacement.
- 9.9.50 Furthermore, any displacement during construction would be temporary and reversible, confined to the construction period, and spatially diffuse. There is no evidence to suggest that such short-term redistribution would lead to sustained increases in territory density, prey competition or reduced breeding success for SPA qualifying species within the North Pennine Moors SPA. Construction effects

associated with the Bradford West Cable Corridor and Access Routes would be particularly limited in extent, linear in nature, and short-term, with no realistic mechanism by which they could drive population-level redistribution at the scale required to affect the SPA.

- 9.9.51 On this basis, while competition from displaced birds has been considered as a precautionary pathway, the impact magnitude is assessed as negligible, with effects being indirect, temporary, and short to medium term. The resultant effect on the North Pennine Moors SPA during construction is therefore **not significant** in EIA terms.

Operation and Maintenance

- 9.9.52 The operation and maintenance phase of the Proposed Development encompasses the long-term functioning of the wind farm following completion of construction, including turbine operation, routine and reactive maintenance activities, periodic track inspections, vegetation management and use of substations and ancillary infrastructure. Operational activities would occur throughout the lifespan of the wind farm and have the potential to influence ornithological features through a combination of permanent habitat change, ongoing disturbance and risk of mortality or injury from collision with turbine blades.
- 9.9.53 During the operational and maintenance phase, the assessment of habitat loss and alteration is not centred on additional land-take, but instead focuses on two principal mechanisms. Firstly, habitat loss and modification associated with routine operational and maintenance activities, including ongoing access requirements and infrastructure upkeep. Secondly, the assessment considers longer-term ecosystem changes arising from the cessation of driven grouse moor management across the Walshaw Moor Estate. These factors form the basis of the habitat loss and alteration assessment for the operational phase. A key impact pathway arising uniquely during operation is the potential for death or injury through collision with rotating turbine blades. Collision risk varies according to species-specific flight behaviour, use of the Turbine Area for foraging and the alignment of turbine locations with core movement corridors used by birds. Species recorded flying at potential collision height during VP surveys, and those identified via the Evaluation of Ornithological Features (**Table 9-12**), are therefore assessed for operational collision risk in accordance with current guidance¹⁹, including NatureScot methodologies and species-specific evidence.
- 9.9.54 During operation, the permanent presence of infrastructure has the potential to displace birds from suitable habitat in proximity to those structures, particularly for species that exhibit turbine-avoidance or reduced territory occupancy near tall structures. Although operational maintenance involves far less activity than construction, periodic vehicle access, personnel presence and maintenance noise

introduce a low level of recurrent disturbance that may temporarily disrupt bird behaviour. While such disturbance is minimal and infrequent, the static visual and physical intrusion of the infrastructure itself represents the principal operational effect, with potential to alter habitat use, territory configuration and foraging patterns for sensitive upland species. These potential effects are assessed further under the disturbance/displacement assessment for the operational phase.

9.9.55 Only those species and designated features identified as sensitive to the above impact pathways within the Evaluation of Ornithological Features (**Table 9-12**) are scoped into the operational assessment. The following sections provide a feature-specific assessment for each operational impact pathway, characterising the impact magnitude, duration, reversibility and significance of effects in accordance with the impact assessment methodology (**Section 9.4**) and taking into account the embedded environmental measures and operational good practice defined within the oOEMP.

Habitat Loss and Alteration

9.9.56 During the operational phase, the Proposed Development has the potential to influence ornithological features through:

- Habitat loss and alteration associated with routine operational and maintenance activities; and
- Longer-term ecosystem changes arising from the cessation of driven grouse moor management across the Walshaw Moor Estate.

9.9.57 No additional physical land-take is required during operation but changes in management practices may alter moorland habitats that support qualifying features of the South Pennine Moors Phase 2 SPA, the South Pennine Moors SSSI, and a wide range of breeding and non-breeding birds within the study area. This section evaluates these impact pathways.

9.9.58 The following features are scoped into this assessment, as identified in the Evaluation of Ornithological Features (**Table 9-12**):

- South Pennine Moors Phase 2 SPA;
- South Pennine Moors SSSI;
- Merlin;
- Golden plover;
- Other waders (common sandpiper, curlew, dunlin, lapwing, little ringed plover, oystercatcher, redshank, snipe);

- Other raptors and owls (barn owl, goshawk, hen harrier, kestrel, marsh harrier, peregrine, red kite, short-eared owl);
- Waterfowl (greylag goose and mallard);
- Gamebirds (red grouse); and
- Passerines and relatives (wheatear, whinchat, dipper, grey wagtail, stonechat and priority passerines and relatives group).

Operational Habitat Loss and Alteration Resulting from Routine Maintenance

- 9.9.59 Routine maintenance during operation would comprise periodic access for turbines, inspections, servicing of electrical infrastructure, vegetation trimming around hardstandings, and cable runs, and ongoing use of existing access tracks. These activities would be highly localised, temporary and restricted to the operational infrastructure footprint.
- 9.9.60 No further habitat loss is predicted during operation. Habitat alteration associated with routine maintenance is limited to small areas immediately adjacent to access tracks and turbine bases and would not materially affect vegetation communities, ecological processes or habitat suitability for any breeding or non-breeding birds.
- 9.9.61 Embedded environmental protection measures secured through the oOEMP would apply throughout the operational phase. In particular, the BPP would ensure that operational maintenance avoids, wherever practicable, the most sensitive periods for key breeding bird species, including ground nesting waders and raptors. This would include timing restrictions, pre-maintenance checks, and exclusion zones where required to prevent disturbance to active nests or dependent young. These controls would further minimise the risk of habitat alteration or behavioural disruption arising from routine operational activities.
- 9.9.62 Given the limited scale, short duration, and reversibility of maintenance activities, and the safeguards provided by the oOEMP and BPP, operational maintenance would give rise to minimal habitat alteration. Effects would be adverse, direct, short-term, temporary, infrequent and of negligible impact magnitude and **not significant** for all IOFs in EIA terms.

Habitat Loss and Alteration Resulting from Cessation of Driven Grouse Moor Management

- 9.9.63 The most ecologically consequential operational effect would potentially arise from the cessation of driven grouse moor management across the Walshaw Moor Estate. This includes the removal of predator control, rotational heather burning/cutting, and controlled grazing regimes. These land-management practices are integral to maintaining the vegetation structure, prey base and predator–prey dynamics that underpin the densities of ground-nesting birds within the study area.

9.9.64 Evidence from scientific literature demonstrates that predator control and vegetation management significantly increase breeding success, territory occupancy and population densities of upland waders and raptors, including SPA/SSSI qualifying features. The Walshaw Moor landscape is an intensively kept and managed moorland, and this management is one of the reasons for the high ornithological value of the study area.

Predator-prey Dynamics

9.9.65 Multiple studies demonstrate that predator control on managed grouse moors substantially reduces densities of generalist predators such as corvids, foxes and mustelids, with positive effects on the breeding success of ground-nesting birds. Tharme *et al.* (2001)⁴² found consistently higher densities of breeding waders, especially golden plover, curlew, lapwing and snipe, on kept moors compared to 'un-kept' moors, attributing differences primarily to reduced predation pressure.

9.9.66 Further supporting evidence from Fletcher *et al.* (2010)⁴³ indicates that removal of predator control leads to reduced breeding success of multiple moorland bird species, including raptors, via increased predation rates on eggs, chicks and adults. Predation is a dominant driver of upland bird productivity and increases following cessation of management are strongly associated with local population declines and territory abandonment.

9.9.67 Golden plover in particular exhibit markedly higher breeding success on intensively managed moors, with documented increases in nest failure following predator increases⁸⁴.

Vegetation Structure and Habitat Heterogeneity

9.9.68 Driven grouse moor management currently maintains a structurally diverse mosaic of heather age-classes, short-sward grass–heather interfaces, upland flushes and open moorland vegetation. This heterogeneity is strongly linked to upland bird abundance and breeding success. Pearce-Higgins & Grant (2006)⁴¹ demonstrate clear positive associations between early-successional heather and higher densities of golden plover, dunlin and snipe, while similar relationships are reported for meadow pipit abundance, an important prey species for merlin and short-eared owl. Management also limits the spread of rank heather and scrub, which would otherwise develop in the absence of regular cutting/burning and controlled grazing.

⁸⁴ Pearce-Higgins, J.W. & Yalden, D.W. (2003) Golden Plover *Pluvialis apricaria* breeding success on a moor managed for shooting Red Grouse *Lagopus lagopus*. *Bird Study*, **50**, 170-177.

- 9.9.69 If driven grouse moor management ceases, vegetation structure would shift rapidly. Without routine burning/cutting and with reduced grazing pressure, heather stands would become older and taller, *Juncus*, *Molinia* and scrub would expand, and the structural heterogeneity central to moorland-specialist birds would diminish. Such shifts would result in widespread declines in ground-nesting waders and raptors due to increased vegetation height, reduced visibility for incubating adults, lower chick survival and reduced prey availability.
- 9.9.70 However, this shift in vegetation structure would not affect all breeding birds equally. While open-habitat specialists (e.g. golden plover, dunlin, curlew, merlin, hen harrier, skylark, meadow pipit, short-eared owl) would experience declines, breeding birds associated with scrub and woodland habitats, such as willow warbler, redstart, song thrush, spotted flycatcher, mistle thrush and common crossbill are likely to benefit from scrub encroachment and increased woodland fringe development. In these areas, the cessation of cutting/burning and reduced grazing would promote the re-establishment of taller heather, birch and willow scrub, offering increased nesting and foraging opportunities for these species. This localised positive response, however, does not offset the broad, adverse ecosystem-level changes to open moorland assemblages.

Conclusions – Breeding Birds

- 9.9.71 Overall, the cessation of grouse moor management would fundamentally diminish the suitability of the moorland ecosystems that underpin the breeding populations of the SPA/SSSI upland assemblage. Given the strong dependency for the SPA/SSSI species as well as hen harrier, oystercatchers and other priority raptor and waterfowl species on the habitat structure and predator-reduced conditions maintained through driven grouse moor management, the cessation of these practices would:
- Reduce breeding success across most species that characterise this area;
 - Increase nest predation risk;
 - Reduce prey availability;
 - Decrease territory occupancy; and
 - Alter population distribution within the SPA/SSSI.
- 9.9.72 These effects would be adverse (for all species aside from scrub/woodland passerines), direct (via vegetation change), indirect (via altering predator-prey dynamics), permanent, long-term, and of a large impact magnitude.

9.9.73 These changes would directly undermine SPA conservation objectives relating to habitat structure, supporting processes, breeding populations and their distribution. Accordingly, moorland management cessation would be a **likely significant adverse effect at the international scale** for the SPA, and a **likely significant adverse at the national scale** for the SSSI. Effects for all other species are deemed **likely significant adverse** at their relative levels of geographic importance, aside from breeding passerine species of woodland/scrub dependence, for which a **likely significant beneficial effect** at their relative levels of geographic importance would apply.

Non-breeding Species

9.9.74 Non-breeding birds are, in general, less vulnerable to predation and more capable of wide-ranging movement in response to habitat change. However, species such as hen harrier, which rely on the study area for winter roosting and core foraging habitat, would be exposed to increased predation risk and reduced prey availability. The effect would be adverse, direct and indirect, long-term with a large impact magnitude. Therefore, there would be a **likely significant adverse effect at the national scale** for hen harrier as a result of changes in land management.

9.9.75 Based on the cessation of current management across the Walshaw Moor Estate, forming a major proportion of the central South Pennine Moors, large-scale vegetation succession and predator increases would alter winter foraging and passage habitat quality across a substantial part of the landscape. Accordingly, adverse, long-term effects of a large impact magnitude are anticipated for all non-breeding species scoped into this assessment, with the exception of more scrub/woodland associated species which may experience beneficial effects from increased scrub and tree encroachment. Nevertheless, the effects are considered **likely significant adverse** for all non-breeding species, at their relative levels of geographic importance, aside from non-breeding passerine species of woodland/scrub dependence, for which a **likely significant beneficial** effect at their relative levels of geographic importance would apply.

Death/injury due to collision with turbines

9.9.76 During operation, the rotating blades of wind turbines present a potential source of mortality for birds flying within the 'rotor swept area'. Effects may arise where birds collide with turbines, towers, or associated infrastructure, resulting in injury or death. The likelihood of collision varies by species and is primarily influenced by:

- The degree of spatial overlap between turbine locations and key flight routes;
- The amount of time birds spend within collision risk height;

- Behavioural ecology, including typical flight heights, manoeuvrability, and propensity to fly in poor weather; and
- Population sensitivity, including conservation status and baseline abundance.

9.9.77 A detailed CRM exercise following NatureScot guidance (see **Appendix 9.1: Baseline Ornithology Report** for rationale of using this guidance) will be undertaken and presented in the ES once the candidate turbine specifications are finalised. At this stage it is therefore not possible to quantify collision mortality rates.

9.9.78 Accordingly, the following preliminary assessment provides a qualitative, precautionary evaluation of collision risk based on:

- VP flight activity data (2022 – 2025);
- Total flight seconds at collision risk height (assumed to be 10 – 200m);
- Species ecology and foraging behaviour;
- Spatial distribution of flights in relation to proposed turbine locations; and
- The sensitivity and conservation importance of the IOFs scoped into the assessment.

9.9.79 For the purposes of this qualitative assessment, a precautionary approach has been applied to defining the rotor swept area. To ensure a robust evaluation of potential collision exposure, the collision risk height (CRH) has been precautionarily set at 10 – 200 m above ground level, representing a realistic worst-case scenario based on indicative turbine dimension options identified to date and also aligning with height bands used during the VP surveys. This precautionary envelope captures the full range of potential rotor sweep extents and ensures that all relevant flight activity recorded during the VP surveys is assessed within a height band that is likely to appropriately estimate collision risk.

9.9.80 This approach allows the PEIR to identify those species where significant effects may be possible, thereby informing the scope of the CRM and population-level assessments to be completed for the ES.

9.9.81 The following features are scoped into this assessment, as identified in the Evaluation of Ornithological Features (**Table 9-12**):

- South Pennine Moors Phase 2 SPA;
- South Pennine Moors SSSI;
- Merlin;

- Golden plover;
- Other waders (curlew, dunlin, lapwing, oystercatcher, redshank, snipe);
- Other raptors and owls (goshawk, hen harrier, hobby, kestrel, marsh harrier, peregrine, red kite, short-eared owl);
- Waterfowl (greylag goose, mallard, pink-footed goose, whooper swan);
- Gamebirds (red grouse); and
- Gulls (black-headed gull, common gull, great black-backed gull, herring gull, lesser black-backed gull).

9.9.82 Based on the precautionary rotor swept area (10-200 m) and the VP dataset collected between 2022 and 2025, a clear differentiation emerges between species with substantial exposure to collision risk and those for which recorded flight activity suggests comparatively lower vulnerability. Species exhibiting both high flight activity at CRH and high sensitivity, due to being SPA/SSSI qualifying species, having a high conservation status, or those displaying particular ecological traits or flight behaviour, are considered likely to experience significant collision related effects in the absence of further mitigation.

9.9.83 The following species demonstrated notable to very high total flight seconds at CRH and/or show behavioural ecology that increases their vulnerability to turbine collision and will therefore be subject to CRM:

- Common gull: 15,751 seconds;
- Curlew: 56,014 seconds;
- Golden plover: 407,831 seconds;
- Greylag goose: 50,194 seconds;
- Hen harrier: 2,731 seconds;
- Kestrel: 92,157 seconds;
- Lapwing: 168,662 seconds;
- Lesser black-backed gull: 41,592 seconds;
- Mallard: 6,207 seconds;
- Marsh harrier: 1,505 seconds;
- Merlin: 1,643 seconds;

- Oystercatcher: 3,536 seconds;
- Peregrine: 13,535 seconds;
- Pink-footed goose: 499,122 seconds;
- Red grouse: 4,974 seconds;
- Red kite: 9,100 seconds;
- Short-eared owl: 2,057 seconds;
- Snipe: 2,197 seconds; and
- Whooper swan: 11,775 seconds.

9.9.84 The recorded flight activity indicates that a range of species (including SPA/SSSI qualifying species) utilise airspace within the potential rotor swept area, including migratory waterfowl (e.g. pink-footed goose and whooper swan), raptors (e.g. hen harrier, kestrel and marsh harrier) and moorland waders associated with habitats within the Turbine Area. While these data represent levels of activity at CRH, it is recognised that species-specific avoidance behaviour typically results in a high proportion of birds actively avoiding turbines in operational wind farms. Avoidance rates will be applied within the CRM once undertaken, to provide a realistic estimate of predicted collision mortality. For context, spatial mapping of flight lines is presented in **Appendix 9.1: Baseline Ornithology Report** to illustrate the distribution of activity within the Turbine Area and inform identification of areas where potential collision risk may be comparatively greater.

9.9.85 Given the volume of CRH activity, the geographic importance of some of these populations, and the potential for even small increases in adult mortality to affect sensitive breeding and non-breeding species, collision-related mortality effects are considered likely for these species. The final assessment of the significance of these effects, however, is subject to further detailed quantitative CRM analysis.

9.9.86 Collision-related mortality of SPA/SSSI qualifying species has the potential to undermine SPA conservation objectives, specifically those relating to:

- Maintaining the population of each qualifying feature;
- Maintaining or restoring habitat structure and supporting processes; and
- Supporting the distribution of qualifying species across the site.

9.9.87 As a precaution, and subject to the results of the CRM, it is provisionally concluded that these effects would be adverse, direct, long-term, potential frequent and of a large Magnitude of Impact. Accordingly, collision-related mortality would be a **likely**

significant adverse effect at the international scale for the SPA, and a **likely significant adverse effect at the national scale** for the SSSI. Effects for all other species listed above are deemed **likely significant adverse** at their relative levels of geographic importance.

9.9.88 The assessments above reflect a precautionary, preliminary judgement based solely on VP derived activity data and species ecology. Full CRM, incorporating turbine-specific dimensions will be undertaken for the ES to quantify collision mortality for each species, assess population level significance and determine if further embedded and additional mitigation is required. The final assessment of significance will therefore be confirmed through CRM and all conclusions presented in the ES.

Disturbance/Displacement

9.9.89 Operation of the Proposed Development has the potential to disturb and/or displace birds through a combination of factors, including the physical presence and movement of turbine blades, turbine noise, shadow flicker, lighting and recurrent human activity associated with routine inspection and maintenance. These stimuli may cause birds to avoid areas close to turbines or access tracks, to alter flight paths, or to reduce use of otherwise suitable nesting, foraging or roosting habitat. For some species this can result in effective habitat loss or local reductions in territory density around such infrastructure; for others, responses may be negligible or short-lived.

9.9.90 In line with the evaluation in **Section 9.8**, the following IOFs are scoped into the assessment of disturbance and displacement during operation:

- South Pennine Moors Phase 2 SPA;
- South Pennine Moors SSSI;
- Merlin;
- Golden plover;
- Other waders (common sandpiper, curlew, dunlin, lapwing, little ringed plover, oystercatcher, snipe);
- Other raptors and owls (barn owl, goshawk, hen harrier, hobby, kestrel, marsh harrier, peregrine, red kite, short-eared owl);
- Waterfowl (greylag goose, mallard, pink-footed goose, whooper swan);
- Gamebirds (red grouse); and

- Gull species (black-headed gull, common gull, great black-backed gull, herring gull, lesser black-backed gull).

- 9.9.91 The evidence base for operational disturbance and displacement effects on birds at onshore wind farms is mixed and strongly species and site specific. Analyses of upland wind farms in the UK have shown reduced occurrence of several species, including golden plover and curlew, within 500m of turbines, indicating some degree of localised displacement from areas closest to turbines⁸⁵. However, associated work comparing trends at wind farms and reference sites found little evidence of consistent population level declines attributable to operation, suggesting that any redistribution around turbines does not necessarily translate into substantial reductions in overall breeding densities at the site scale^{73,86}. In some cases, densities of species such as skylark and stonechat have been reported to habituate or even increase following construction⁷³, likely reflecting changes in vegetation structure or land management.
- 9.9.92 Meta-analyses and reviews of onshore wind farms similarly point to generally modest breeding-season avoidance distances for many species, with most breeding waders and passerines continuing to use habitat within approximately 100-500m of turbines^{85,81}, while some larger avoidance distances (several hundred metres) are commonly reported for non-breeding geese, ducks and waders at lowland or coastal sites⁸¹. In these reviews, waders associated with short swards (including golden plover and lapwing) emerge as potentially sensitive to disturbance and displacement, but responses remain variable and context-dependent, and there is limited evidence for strong or widespread long-term reductions in breeding populations solely due to operational disturbance^{81,87}. Syntheses emphasise that displacement effects can range, and that responses may be influenced as much by habitat changes and predator dynamics as by the turbines themselves⁸⁶.
- 9.9.93 Studies of migrating or wintering birds show that wind farms can act as partial barriers, with birds altering flight paths to avoid turbine arrays. For example, radar tracking of migrating common eider demonstrated systematic detours around an offshore wind farm, but with relatively small incremental energy costs at a single site; concerns arise primarily where multiple developments accumulate along

⁸⁵ Pearce-Higgins, J.W., Stephen, L., Langstone, R.H.W., Bainbridge, I.P. & Bullman, R. (2009) The distribution of breeding birds around upland wind farms. *Journal of Applied Ecology*, **46**, 1323-1331.

⁸⁶ Douglas, D.J.T., Bellamy, P.E. & Pearce-Higgins, J.W. (2011) Changes in the abundance and distribution of upland breeding birds at an operational wind farm. *Bird Study*, **58**, 37-43.

⁸⁷ Percival, S. (2005) Birds and windfarms: what are the real issues? *British Birds*, **98**, 194-204.

flyways⁸⁸. Comparable barrier and displacement effects have been documented for geese and other waterbirds at some onshore sites, again with considerable variation between species and locations. Overall, the literature indicates that operational phase disturbance may result in localised reductions in habitat use or territory density near turbines for certain sensitive species (notably some upland waders and large raptors), but that clear, consistent population level impacts are difficult to demonstrate and are likely contingent on site-specific factors such as turbine layout, overlap with key habitats and the quality and extent of alternative habitats.

- 9.9.94 Given the high conservation importance and sensitivity of the South Pennine Moors Phase 2 SPA and South Pennine Moors SSSI breeding bird assemblage, the preliminary assessment therefore adopts a precautionary approach. It assumes that operational disturbance and displacement could lead to local reductions in breeding density and effective habitat availability for key upland waders (including golden plover, curlew, lapwing, snipe and redshank), red grouse, and some raptors and owls (including hen harrier, short-eared owl and merlin) within a ZOI around operational infrastructure. For non-breeding waterfowl and gulls, disturbance effects are also considered possible where flight routes or roosting/foraging areas overlap with turbine locations, although these species may be more able to relocate to alternative habitat within the wider landscape. The magnitude and significance of these potential effects are assessed in subsequent sections by considering the spatial overlap between the location of operational infrastructure and key habitats, the availability of alternative habitat within and beyond the SPA/SSSI, and the sensitivity and conservation status of each IOF.
- 9.9.95 In addition to potential displacement effects arising from the presence of operational infrastructure, consideration has been given to the potential for changes in recreational activity within the Turbine Area during the operational life of the Proposed Development. The internal site track accesses, which intersect and run adjacent to the Pennine Way could increase public access into the Turbine Area if these tracks were to be used by walkers, cyclists or other recreational users. If this occurred, this could result in a localised increase in anthropogenic disturbance, with potential implications for sensitive upland breeding and foraging species. The assessment of **Chapter 17: Socio-economics and Tourism** determines that there is limited change to potential outdoor activity and recreational use in its preliminary analysis (with more detail to be provided at the ES). However, at this stage, it has not yet been determined whether public use of the turbine access tracks would be authorised or actively managed, and therefore, the magnitude of any recreational

⁸⁸ Marsden, E.A., Haydon, D.T., Fox, A.D., Furness, R.W., Bullman, R. & Desholm, M. (2009) Barriers to movement: impacts of wind farms on migrating birds. *ICES Journal of Marine Science*, **66**, 746-753.

disturbance effect cannot be reliably assessed. Therefore, at this stage, significant effects cannot be ruled out. A detailed assessment of recreational disturbance during operation will be presented in the ES, in conjunction with the related assessments in **Chapter 14: Transport and Access**.

9.9.96 As set out in **Section 9.6**, the BPP secured through the oOEMP would include measures to limit operational disturbance from maintenance activities during the most sensitive periods (e.g. core breeding season), wherever practicable. These measures would regulate the timing, frequency and nature of operational access, ensuring that maintenance activities avoid, as far as reasonably possible, periods when priority species are most vulnerable to disturbance or displacement. The BPP would also require careful planning of vehicle movements, restrictions on high-noise activities during sensitive windows, and continued monitoring of key territories to inform adaptive management, should unexpected sensitivities arise. Maintenance activities are typically low-intensity, infrequent and short in duration. The presence of a BPP that expressly controls the timing and methods of such works additionally limits any effects associated with these maintenance activities. Therefore, the nature of the effect would be adverse, direct and indirect, temporary, long-term (within the operational period), infrequent and of a negligible to small magnitude. This would result in an effect that is **not significant** in EIA terms on SPA/SSSI birds or other sensitive ornithological features. Any disturbance would be unlikely to materially alter the behaviour, productivity or long-term conservation status of the species assessed.

South Pennine Moors Phase 2 SPA/South Pennine Moors SSSI

9.9.97 During the operational phase, the presence and functioning of turbines, including blade rotation, aerodynamic noise, and shadow flicker have the potential to cause behavioural disturbance or displacement of qualifying species of the South Pennine Moors Phase 2 SPA and the notified breeding bird assemblage of the South Pennine Moors SSSI.

9.9.98 The scientific evidence demonstrates that responses to operational turbines vary by species and site, but several SPA/SSSI qualifying waders, including golden plover, curlew, dunlin, snipe and lapwing, show documented avoidance of turbine-proximal areas, often within 200-500m. Golden plover (see below) in particular exhibit some of the strongest displacement responses recorded among upland birds, with reduced densities around operational turbines and long-term redistribution away from turbine arrays.

9.9.99 Given that turbines are located within areas of suitable moorland breeding habitat, supporting golden plover, merlin, curlew, dunlin, snipe and short-eared owl, operational disturbance has the potential to reduce the suitability of key breeding territories, alter spatial distribution, and displace birds from otherwise favourable

habitat. Such effects are relevant to several SPA conservation objectives, including the population and distribution of qualifying features and the structure and function of supporting habitats.

9.9.100 Operational disturbance and displacement may adversely affect the SPA's conservation objectives through:

- Long-term avoidance of turbine-proximal areas leading to effective habitat loss;
- Altered spatial distribution and reduced territory density around turbines;
- Diminished foraging efficiency or avoidance of high-quality habitat;
- Chronic behavioural changes (e.g. reduced incubation attentiveness, increased vigilance); and
- Reduced productivity or long-term declines in breeding populations if disturbance/displacement persists across multiple seasons.

9.9.101 Due to the displacement distances involved, this could result in the material loss of large proportions of the Turbine Area, intersecting large areas of the sensitive nesting areas identified in **Appendix 9.1: Baseline Ornithology Report**. The operational disturbance effect is therefore assessed as being adverse, direct and indirect, potentially permanent, long-term and frequent. Given the sensitivity of qualifying features, the number of turbines within suitable habitat, and the evidence of displacement for several key upland species, the impact magnitude is considered large.

9.9.102 Accordingly, there would be a:

- **Likely significant adverse effect at the international scale** for the South Pennine Moors Phase 2 SPA; and
- **Likely significant adverse effect at the national scale** for the South Pennine Moors SSSI.

Merlin

9.9.103 The Scottish Wind Farm Bird Steering Group (SWBSG) Merlin Species Dossier⁸⁹ identifies a lack of empirical studies quantifying displacement or barrier effects for merlin at operational wind farms, noting that available research is sparse and largely inconclusive. Wider reviews of wind farm impacts on raptors⁸¹ note that small, agile falcons typically exhibit low collision rates but may experience

⁸⁹ Humphreys, E.M., Marchant, J.H., Wilson, M.W. & Wernham, C.V. (2015). *Merlin (Falco columbarius): SWBSG Species Dossier 11*. Report by BTO Scotland to SWBSG as part of Project 1403. Updated by SWBSG March 2017.

behavioural avoidance, habitat loss through functional displacement, or altered movement patterns in response to turbine operation. Barrier effects have also been recorded in at least one European study referenced in Hötker *et al.* (2005)⁸¹.

9.9.104 Monitoring at Ray Wind Farm (Northumberland)⁹⁰ demonstrates that merlin can continue to breed successfully within a wind farm setting, with 23 chicks fledged since 2017. This provides important counter evidence that operational turbines do not universally preclude successful merlin breeding. This particular example, however, does not quantify any reduction in abundance or evidence of displacement and does not reduce the requirement for a precautionary assessment for the Proposed Development.

9.9.105 Merlin specialise in hunting small passerines across open moorland; their home ranges are tightly structured around nesting locations, with foraging areas extending only a few kilometres from the nest²⁸. Given the location of turbines within up to three territories, merlin would be required to navigate repeatedly through or around the Turbine Area during routine foraging and provisioning flights.

9.9.106 Potential operational disturbance mechanisms include:

- Functional displacement from optimal hunting areas;
- Barrier effects, increasing energy expenditure and reducing provisioning efficiency;
- Altered flight routes, potentially reducing foraging efficiency or increasing exposure to predation or interspecific competition;
- Reduced territory occupancy due to persistent disturbance from turbine blade movement, maintenance activity, and human presence; and
- Effects on productivity, including reduced fledging rates or nest abandonment if avoidance behaviours become pronounced.

9.9.107 Given the high conservation importance of merlin and the fact that the operational infrastructure footprint intersects areas central to their breeding activity, even moderate displacement or behavioural avoidance could lead to meaningful reductions in productivity at the site level.

9.9.108 This is particularly relevant because merlin are primarily a ground nesting species in upland habitats and are especially vulnerable to disturbance early in the nesting

⁹⁰ Vattenfall (2025) Ray Wind Farm. Available at: <https://www.vattenfall.co.uk/our-projects/ray-wind-farm>

period⁹¹. Minor disturbance therefore has the potential to significantly alter breeding performance, potentially impacting 2% of the national population, and 6.25% of the Yorkshire population⁵⁵.

9.9.109 The operational disturbance/displacement effects on merlin would be adverse, direct and indirect, potentially permanent, long-term, frequent of a large impact magnitude and, therefore, there would be a **likely significant adverse effect at the national scale**. This assessment considers:

- The direct overlap of turbines and associated infrastructure with at least two well established merlin territories;
- The need for a precautionary approach due to knowledge gaps on wind farm displacement/barrier effects on merlin⁸⁹;
- Documented sensitivity of merlin to disturbance^{74,89};
- Evidence of potential barrier effects in at least one reviewed study⁸¹;
- Importance of the study area supporting a significant proportion of the SPA/SSSI qualifying merlin population (11-18%); and
- The potential for reduced breeding success, altered territory use, or displacement from core foraging areas.

9.9.110 During the non-breeding season, merlin are more widely dispersed across lowland and moorland habitats, often shifting away from their upland breeding ranges and exhibiting highly mobile foraging behaviour. Wintering merlin in Britain include resident birds and immigrants from Iceland, and individuals frequently range widely across open country in search of prey⁶⁴.

9.9.111 The presence of operational turbines is not expected to materially affect wintering merlin. Although the species can respond to disturbance at foraging or roosting sites, its wide-ranging behaviour, absence of a known roost within or near the Turbine Area, and the abundance of suitable alternative foraging habitat across the South Pennines make any displacement effects unlikely to be significant. Merlin routinely forage over large areas and can readily adjust hunting routes to avoid localised features such as wind turbines without population-level consequences.

⁹¹ Natural England (2018) *South Pennine Moors Phase 2 Special Protection Area (SPA): Supplementary advice on conserving and restoring site features*. Available at: <https://designatedsites.naturalengland.org.uk/>

9.9.112 Accordingly, operational disturbance and displacement effects on wintering merlin are assessed as being adverse, direct and indirect, potentially permanent, long-term, frequent and of a small impact magnitude, but **not significant** in EIA terms.

Golden Plover

9.9.113 Golden plover is a qualifying feature of the South Pennine Moors Phase 2 SPA and a key species of the South Pennine Moors SSSI breeding bird assemblage. Its sensitivity to disturbance, reliance on open moorland habitats, and high levels of observed flight activity within the Turbine Area during baseline surveys indicate a strong potential for interaction with operational turbines. For these reasons, golden plover remains one of the species at highest risk of operational disturbance and displacement effects.

9.9.114 Published evidence on golden plover responses to operational wind farms is mixed, with some studies reporting measurable displacement effects, while others report negligible or no detectable response.

9.9.115 Pearce-Higgins *et al.* (2009)⁸⁵ found that golden plover exhibited reduced densities close to operational turbines at multiple upland wind farm sites, concluding that turbines may lead to localised avoidance behaviour extending up to 500m from turbines, although effects varied among sites. This study forms a substantial part of the evidence base on turbine-associated disturbance in upland waders and suggests the potential for turbines to reduce habitat suitability within parts of a breeding territory.

9.9.116 However, other site-based monitoring has shown contrasting outcomes. The Farr Wind Farm golden plover study⁹² found no evidence of either immediate or gradual displacement of breeding golden plover from turbine locations despite full construction and four years of operation. This long-term dataset provides compelling evidence that, at least at Farr, golden plover showed no biologically significant avoidance of turbines. A BTO study of an upland wind farm over three years also showed no significant difference in the change in abundance or distribution of golden plover between the wind farm and control site⁸⁶.

9.9.117 The SWBSG Golden Plover Dossier⁹³ also highlights the inconsistency of evidence across wind farm sites, noting that golden plover responses range from clear

⁹² Fielding, A.H. & Haworth, P.F. (2010) Farr windfarm: A review of displacement disturbance on golden plover arising from operational turbines between 2005-2009. Haworth Conservation.

⁹³ Humphreys, E.M., Marchant, J.H., Wilson, M.W. & Wernham, C.V. (2015) *Golden Plover (Pluvialis apricaria): Scottish Windfarm Bird Steering Group (SWBSG) 13*. Report by BTO Scotland to SWBSG as part of Project 1403. Updated by SWBSG March 2017.

avoidance to apparent habituation, with site-level factors (vegetation, topography, grazing regime, turbine layout) influencing outcomes. Variability in methodology among studies also complicates direct comparison.

- 9.9.118 Within the study area, the Turbine Area and Western Access Route overlap directly with core breeding habitat for a large proportion of the local golden plover population, where territories are tightly clustered, particularly across the high moorland plateaus. Applying the worst-case scenario of 500m displacement from the Proposed Development infrastructure, on a precautionary basis, would mean a material reduction in the suitability of the sensitive nesting areas identified in **Appendix 9.1: Baseline Ornithology Report**, leading to a significant reduction in breeding pairs.
- 9.9.119 Given the level of golden plover activity, the concentration of breeding territories within and adjacent to turbine locations, and empirical evidence from some UK uplands studies, there is a credible pathway for significant operational disturbance and displacement of breeding golden plover within the Turbine Area and sections of the Western Access Route.
- 9.9.120 Even acknowledging the mixed evidence base and the possibility of limited displacement at some sites (e.g. Farr), operational disturbance/displacement effects on golden plover are assessed as adverse, direct and indirect, potentially permanent, long-term, frequent, of a large impact magnitude and there would, as such, be a **likely significant adverse effect at the regional scale**.
- 9.9.121 Outside the breeding season, golden plover using the study area for staging and foraging (flocks of up to 115 birds), are of local importance and are likely to be more mobile, with access to extensive alternative foraging habitat in the wider landscape. Disturbance and displacement of non-breeding birds from operation are therefore assessed as adverse, direct and indirect, potentially permanent, long-term, frequent but of small impact magnitude and would be **not significant** in EIA terms.

Other Waders

Little ringed plover

- 9.9.122 Within the study area, little ringed plover is confined to the reservoir complex, with territories recorded at Watersheddles Reservoir, Widdop Reservoir and Warley Moor Reservoir but not within the Turbine Area. Although parts of the operational development infrastructure and Western Access Route are located close to a known territory, little ringed plover is a species that routinely exploits human-modified habitats such as quarries, gravel pits and other engineered shorelines, and is regularly reported to habituate to human activity and static infrastructure where suitable substrates persist. Given the separation of territories from the Turbine Area and the species' demonstrated tolerance of analogous infrastructure

elsewhere, operational turbine and track activity is not anticipated to result in sustained displacement or the loss of breeding territories. Any operational disturbance or displacement along the Western Access Route is expected to be localised and subject to habituation over time; therefore, effects on little ringed plover are assessed as adverse, direct and indirect, potentially permanent, long-term, infrequent (as most nesting sites fall outside of areas proposed for infrastructure) but of a negligible impact magnitude and thus **not significant** in EIA terms.

Common sandpiper

9.9.123 Common sandpiper also breeds within the reservoir complex, but in contrast to little ringed plover, territories occur along the shorelines of the Walshaw Dean reservoirs, adjacent to the Turbine Area. Turbines 32 and 33 are within 150m of known breeding territories of common sandpiper. There is very limited species-specific evidence on common sandpiper responses to wind farms. However, as a small, riparian wader with known sensitivity to shoreline disturbance⁸³, it is reasonable to assume that the operational infrastructure footprint and associated activities may lead to avoidance of affected shorelines and/or act as a barrier to movements between reservoirs or along the reservoir margins. On a precautionary basis, it is therefore assumed that the Proposed Development could result in the effective loss of breeding habitat and productivity within the Turbine Area for common sandpiper, with the potential loss of a notable proportion of the local breeding population. This effect is assessed as adverse, direct/indirect, potentially permanent, long-term, frequent, of a small impact magnitude and thus would be a **likely significant adverse effect at the local scale**.

Other waders (curlew, dunlin, lapwing, oystercatcher, redshank, snipe)

9.9.124 Curlew, lapwing, redshank, dunlin and oystercatcher breed on open ground within and around the Turbine Area, using mosaics of pasture, moorland and wet flushes. These species all nest on the ground and are vulnerable to disturbance and predation where habitat becomes fragmented or subject to increased human activity. The curlew SWBSG dossier⁹⁴ highlights strong evidence from multi-site studies of reduced curlew densities during construction and operation, with modelled declines of circa 40-42% within 500m of turbines and concludes that curlew is particularly susceptible to displacement at upland wind farms. The snipe

⁹⁴ Humphreys, E.M., Marchant, J.H., Wilson, M.W. & Wernham, C.V. (2015). *Curlew (Numenius arquata): SWBSG Species Dossier 16*. Report by BTO Scotland to SWBSG as part of Project 1403. Updated by SWBSG March 2017.

SWBSG dossier⁹⁵ reports comparable effect sizes (circa 48% reduction in density within 500m), underscoring that some ground-nesting waders can show substantial and persistent displacement around turbines. While dunlin showed no consistent displacement signal in the same analyses, the dunlin dossier notes that evidence is sparse and insufficient to rule out effects at all sites. Taken together with the broader Pearce-Higgins *et al.* (2009)⁸⁵ analysis, which found significant avoidance of turbines for several upland waders, this supports a precautionary assumption that ground-nesting waders breeding in pasture and moorland could be displaced from at least part of the area around turbines and other operational infrastructure.

9.9.125 For the Proposed Development, operational infrastructure footprints and the Western Access Route intersect or lie immediately adjacent to core breeding areas for curlew, lapwing, redshank, dunlin and oystercatcher within the study area. Given the conflicting evidence in the literature⁸⁶ but recognising the strong displacement effects reported for some wader species and the high conservation concern for curlew in particular, the assessment applies a precautionary buffer whereby breeding curlew, lapwing, redshank, dunlin and oystercatcher are assumed to be displaced from suitable breeding habitat within 500m of the operational infrastructure footprint. This is consistent with, and in places more conservative than, the distances at which significant avoidance has been detected in multi-site studies. Application of this buffer substantially reduces the area of available breeding habitat within the Turbine Area and its immediate surroundings and is predicted to result in the loss of territories for each of these species where the operational infrastructure footprint directly intersects existing breeding concentrations. This would significantly reduce the suitability of sizeable proportions of the sensitive nesting areas identified in **Appendix 9.1: Baseline Ornithology Report**.

9.9.126 Given the degree of overlap between the operational infrastructure footprint and key breeding areas, the precautionary assumption of displacement ranging out to 500m and the sensitivity of the species involved; operational disturbance and displacement effects on curlew, dunlin, lapwing, oystercatcher, redshank and snipe would be adverse, direct and indirect, potentially permanent, long-term, frequent and of large impact magnitude. Therefore, there would be a **likely significant adverse effect at the regional scale** for curlew, dunlin, lapwing, oystercatcher, redshank and snipe.

⁹⁵ Humphreys, E.M., Marchant, J.H., Wilson, M.W. & Wernham, C.V. (2015). *Snipe (Gallinago gallinago): SWBSG Species Dossier 15*. Report by BTO Scotland to SWBSG as part of Project 1403. Updated by SWBSG March 2017.

Non-breeding waders

- 9.9.127 Wintering use of the study area by waders is low-density, spatially diffuse and highly opportunistic, with birds ranging widely across the extensive open habitats of the South Pennines. Given their high mobility and the abundance of alternative foraging and roosting habitat available in the surrounding upland landscape, any disturbance or displacement arising from the operation of the Proposed Development would be localised and readily absorbed within their wintering ranges. Minor changes in movement patterns or temporary avoidance of the Turbine Area would be unlikely to have measurable implications for individual fitness, overwinter survival or population viability.
- 9.9.128 Accordingly, disturbance and displacement effects on these wader species during the non-breeding season would be adverse, direct and indirect, potentially permanent, long-term, frequent and of a negligible-small impact magnitude, and **not significant** in EIA terms.

Other Raptors and Owls

- 9.9.129 Unlike the construction phase, where noise and activity can cause acute behavioural disturbance, operational effects are primarily derived from the permanent presence of turbines, blade movement and altered patterns of human access across the wind farm. Evidence from upland wind farms indicates that raptor responses vary substantially between species.
- 9.9.130 Across multiple studies reviewed by Madders and Whitfield (2006)⁹⁶, most upland raptors exhibited negligible or limited displacement once wind farms become operational, with some exception where core nesting or foraging habitat directly overlapped turbine locations. Percival (2005)⁸⁷ also concludes that displacement is one of the two principal wind farm effects (alongside collision), but emphasises that species-specific ecology determines vulnerability, with ground nesting or area-faithful species at highest risk.
- 9.9.131 The following assessment therefore considers species ecology, territory locations and the extent of overlap between turbine locations and core habitat to determine whether the operation of the wind farm is likely to cause behavioural avoidance, territory loss or functional habitat loss.

Short-eared owl

- 9.9.132 Short-eared owls are ground nesting and highly dependent on open moorland mosaics. Multiple well-established territories occur within and immediately adjacent

⁹⁶ Madders, M. & Whitfield, D.P. (2006) Upland raptors and the assessment of wind farm impacts. *Ibis* **148**, 43-56.

to the Turbine Area and Western Access Route, and the introduction of turbines into these nesting and hunting areas is expected to result in loss of territory function. This contrasts with species that forage opportunistically over very wide areas, where displacement risk is lower.

- 9.9.133 The nature of the effect would be adverse, direct and indirect, potentially permanent, long-term and frequent. The impact magnitude would be assessed as large as this has the potential to impact 24% of the Yorkshire population and 13% of the national population⁵⁵. Taking this into consideration, operational phase disturbance and displacement would likely result in a **likely significant adverse effect at the national level**.

Hen harrier

- 9.9.134 Hen harriers show mixed responses to operational wind farms across published literature. Although their sensitivity to displacement is generally considered low to medium⁹⁶, the species is widely acknowledged to be highly sensitive to expanding wind farm development^{97,98}. This spatial overlap significantly elevates the risk of functional habitat loss even where behavioural displacement responses are subtle.
- 9.9.135 Pearce-Higgins *et al.* (2009)⁸⁵ found that hen harriers avoided flying within 250m of turbines, resulting in an estimated 53% reduction in flight activity within 500m. A follow up study however, found that for most upland species, negative effects were strongest during construction and did not persist into the operational phase⁷³.
- 9.9.136 Other major research programmes, including the comprehensive studies by Whitfield and Madders (2006)⁹⁶ and Wilson *et al.* (2015)⁹⁹, report generally low levels of operational displacement, with many harriers continuing to forage within and around turbine arrays. These studies emphasise that displacement is most likely where turbines directly intersect core nesting or high use foraging areas, rather than through wind farm presence alone.
- 9.9.137 For the Proposed Development, the breeding territory in 2025 lies within the Turbine Area and turbines would be introduced directly into established hunting routes and nesting habitat. In this instance, it is highly likely that hen harrier would be displaced from their nesting site and foraging areas within the breeding season, potentially

⁹⁷ Percival, S.M. (2003) Birds and wind farms in Ireland: A review of potential issues and impact assessment. Ecology Consulting.

⁹⁸ Bright, J.A., Langston, R.H.W., Bullman, R., Evans, R., Gardner, S. & Pearce-Higgins, J.W. (2008) Map of bird sensitivities to wind farms in Scotland: A tool to aid planning and conservation. *Biological Conservation*, **141**, 2342-2356.

⁹⁹ Wilson, M., Fernandez-Bellon, D., Irwin, S. & O'Halloran, J. (2015) *WINDHARRIER: The interactions between Hen Harriers and wind turbines*. School of Biological, Earth & Environmental Sciences at University College Cork.

having to move to other areas with less suitability, less prey availability and greater risks of predation or persecution.

- 9.9.138 The nature of the effect would be adverse, direct and indirect, potentially permanent long-term, and frequent. The impact magnitude would be large as it could impact 7.7% of the Yorkshire breeding population and 2% of the national breeding population⁵⁵. Therefore, there would be a **likely significant adverse effect at the national scale**.

Marsh harrier

- 9.9.139 Although an atypical upland breeder, the single recorded marsh harrier pair, recorded during the 2025 breeding bird surveys, holds a territory immediately north of the proposed turbines and hunts over the Turbine Area. The species exhibits high site fidelity and relies heavily on open foraging areas close to the nest. The presence of operational turbines is expected to reduce the suitability of these areas, particularly where the turbine layout fragments open hunting habitat.

- 9.9.140 There is therefore a credible pathway for the displacement of the single nesting pair of marsh harrier within the study area. The nature of the effect would be adverse, direct and indirect, potentially permanent, long-term and frequent. The impact magnitude would be large as it could impact 2.3% of the Yorkshire breeding population of marsh harrier⁵⁵. Therefore, there would be a **likely significant adverse effect at the regional scale**.

Peregrine

- 9.9.141 The well-established peregrine pair occupies a territory immediately adjacent to the Turbine Area (and on some years within) and hunts extensively across the moorland. Most large prey is taken within 2km of the eyrie and few birds are captured beyond 6km⁷⁰, meaning the Turbine Area forms a core foraging range. Although evidence for displacement of peregrines is limited globally¹⁰⁰, the operational phase has the potential to displace foraging behaviour and reduce prey availability. Possible barrier-type effects could exclude the pair from large parts of their home range, decreasing foraging efficiency due to longer routes (accommodating avoidance behaviour) taken to, and from, foraging grounds and altered range use due to the presence of the Proposed Development.

- 9.9.142 The nature of the effect would be adverse, direct and indirect, potentially permanent, long-term and frequent. The impact magnitude would be large as it

¹⁰⁰ Humphreys, E.M., Marchant, J.H., Wilson, M.W. & Wernham, C.V. (2015) *Peregrine (Falco peregrinus): SWBSG Species Dossier 10*. Report by BTO Scotland to SWBSG as part of the Project 1403. Updated by SWBSG March 2017

could impact 2.6% of the Yorkshire population of peregrine⁵⁵ and therefore there would be a **likely significant adverse effect at the regional scale**.

Kestrel

Kestrels are generally more tolerant of human infrastructure and show low displacement at many operational sites⁹⁶. While most pairs within the study area nest directly adjacent to, rather than within, the Turbine Area, one pair lies 270m from the nearest operational infrastructure footprint. Furthermore, the Turbine Area constitutes a core foraging area for multiple pairs and therefore operation has the potential to displace multiple breeding pairs from their principal hunting grounds. Possible barrier-type effects as described above for peregrine (Paragraph 9.9.141) also apply to kestrel. However, kestrels are generally known to be more tolerant of human infrastructure and show low displacement at many operational sites^{96,101}, and so operational disturbance and displacement effects are likely to be limited.

- 9.9.143 The nature of the effect would be adverse, direct and indirect, potentially permanent, long-term and frequent. The impact magnitude would be small as it is likely to cause only a partial but discernible change in the status or productivity of the kestrel population but is nonetheless a **likely significant adverse effect at the local scale**.

Red Kite

- 9.9.144 Red kites are particularly vulnerable to wind farm presence due to their characteristic foraging flights and reliance on open ground; factors repeatedly identified in collision datasets^{102,103}.
- 9.9.145 The use of the Turbine Area for repeated foraging by a family group in 2025 indicates that the area forms a core component of the species' functional breeding range, despite nesting occurring off-site. Whether, or to what extent, breeding red kites change the way in which they use the landscapes when travelling from the nest site to their foraging areas as a consequence of barrier effects (from wind farms) is currently poorly understood¹⁰³. Therefore, taking a precautionary approach, it is assumed that the breeding pair could be displaced from their foraging areas within the study area due to the presence of the Proposed Development.

¹⁰¹ Humphreys, E.M., Marchant, J.H., Wilson, M.W. & Wernham, C.V. (2015) *Kestrel (Falco tinnunculus): SWBSG Species Dossier 10*. Report by BTO Scotland to SWBSG as part of the Project 1403. Updated by SWBSG March 2017

¹⁰² De Lucas, M., Jannss, G.F.E., Whitefield, D.P. & Ferrer, M. (2008) Collision fatality of raptors in wind farms. *Journal of Applied Ecology*, **45**, 1695-1703.

¹⁰³ Humphreys, E.M., Marchant, J.H., Wilson, M.W. & Wernham, C.V. (2015) *Red kite (Milvus milvus): SWBSG Species Dossier 10*. Report by BTO Scotland to SWBSG as part of the Project 1403. Updated by SWBSG March 2017.

9.9.146 The nature of the effect would be adverse, direct and indirect, potentially permanent, long-term and frequent. The impact magnitude would be medium as there is the potential to impact 1.2% of the Yorkshire population⁴⁰. Therefore there would be a **likely significant adverse effect at the regional scale**.

Other Raptors (Barn Owl, Goshawk, Hobby)

9.9.147 Barn owls show particularly strong tolerance of human-modified environments and linear infrastructure. Evidence indicates that barn owls exhibit high levels of habituation to operational wind farms, with no demonstrable long-term displacement effects⁶¹. As such, the presence of the operational Proposed Development is unlikely to affect territory occupancy, foraging behaviour or breeding success. The nature of the effect would be adverse, direct and indirect, potentially permanent, long-term, frequent but of negligible impact magnitude and therefore is **not significant** in EIA terms.

9.9.148 For goshawk and hobby, observations within the study area were only occasional, and both species were recorded only sparingly during the breeding season. Neither species is considered likely to be breeding within the Turbine Area, and their core territories and favoured habitats lie in woodland blocks and mixed farmland habitats in the surrounding landscape. Effects of disturbance/displacement of these species during the operational phase would therefore be **not significant** in EIA terms.

Non-breeding Raptors

9.9.149 Although the known hen harrier winter roost lies beyond 1,000m of the operational infrastructure footprint, the core wintering foraging ground used by hen harrier falls extensively within the Turbine Area. The permanent introduction of the operational infrastructure (e.g. turbine structures, rotating blades and internal site access tracks) is expected to alter the suitability of these foraging areas and displace birds away from this area⁸⁵. Operational turbine presence may lead to:

- Temporary or sustained exclusion from hunting grounds;
- Reduced foraging efficiency, particularly in poor weather or during periods of low prey availability;
- Increased energetic expenditure if birds are displaced to more distant areas; and
- Altered movement corridors between foraging areas and the winter roost.

9.9.150 These effects mirror the mechanisms identified during the construction phase assessment (see above) and remain relevant during operation, albeit through different disturbance pathways and barrier effects.

- 9.9.151 Peregrines maintain and defend territories year-round, and wintering individuals continue to forage widely across the Turbine Area. The presence of operational turbines may modify prey availability, reduce hunting efficiency in open moorland areas and displace birds from established winter hunting routes. As peregrines exhibit high site fidelity during both breeding and non-breeding seasons, the operation of turbines in their core foraging landscape is expected to cause behavioural disruption broadly consistent with the breeding-season effects.
- 9.9.152 The nature of the effect would be adverse, direct and indirect, potentially permanent, long-term and frequent. The impact magnitude would be medium and therefore would be a **likely significant adverse effect at the national scale** for hen harrier and a **likely significant adverse effect at the regional scale** for peregrine.
- 9.9.153 For the remaining species (aside from hobby which do not winter in the UK), operational disturbance and displacement effects during winter are not expected to be significant. Wintering individuals of marsh harrier, barn owl, red kite, kestrel and goshawk typically utilise large, flexible home ranges and are less dependent on specific upland foraging compartments within the study area. These species forage across broad landscapes including farmland, woodland edge and lowland grassland and are therefore able to redistribute easily in response to localised changes in habitat or disturbance.
- 9.9.154 The presence of operational turbines may cause minor, localised avoidance, but this would represent only a small reduction in the available wintering foraging resource. The surrounding landscape provides extensive alternative habitat, ensuring that resource displacement can be readily absorbed at the population level. Therefore, the effect would be adverse, direct and indirect, potentially permanent, long-term, frequent and of small impact magnitude but **not significant** in EIA terms.

Waterfowl

- 9.9.155 Breeding greylag goose and mallard identified within the study area are typical of species that readily habituate human-influenced environments, including reservoirs, farmland, parks and built structures. Both species are widespread generalists, frequently breeding in proximity to access tracks, agricultural activity and other sources of low-level disturbance.
- 9.9.156 Given this behavioural flexibility, the presence of operational infrastructure would not be expected to result in sustained displacement from breeding territories or a reduction in breeding productivity. Operational disturbance and displacement effects on breeding greylag goose and mallard would be adverse, direct and

indirect, potentially permanent, frequent but of a small impact magnitude and thus **not significant** in EIA terms.

- 9.9.157 Non-breeding greylag goose and mallard using the study area in winter and on passage are similarly adaptable, exploiting a wide range of wetland, reservoir and farmland habitats across the South Pennines and surrounding lowlands. Should individuals exhibit some degree of avoidance of the Turbine Area during the operational phase, the effect would equate to the loss of only a small proportion of the available foraging resource within their broader home ranges.
- 9.9.158 Given the extensive network of alternative waterbodies, grassland, and arable land in the surrounding landscape and their conservation status/sensitivity, any local displacement from the vicinity of the operational infrastructure would be readily absorbed at the population level. Consequently, the effect would be adverse, direct and indirect, potentially permanent, long-term and frequent but with a negligible impact magnitude, resulting in effects that are **not significant**.
- 9.9.159 Whooper swan and pink-footed goose occur within the study area as passage and wintering migrants travelling along the Pennine Chain, which forms a recognised north–south migration corridor. These species do not utilise the Turbine Area for foraging and typically migrate at altitudes or along routes that provide considerable flexibility in response to localised landscape features.
- 9.9.160 The wider literature, including the review by Rees (2012)¹⁰⁴, indicates that swans and geese commonly exhibit effective avoidance of wind turbines, routing around operational wind farms where necessary. The SWBSG pink-footed goose dossier¹⁰⁵ similarly concludes that pink-footed geese are generally highly capable of altering flight paths to avoid turbine arrays. While some studies note potential barrier effects at very large offshore and onshore wind farms, the evidence for significant energetic or population-level consequences remains inconclusive.
- 9.9.161 The Proposed Development is geographically limited in extent, occupying only a small section of the broader Pennine chain. Migratory whooper swans and pink-footed geese would be able to deviate around the turbine array with minimal added flight distance and therefore minimal additional energy expenditure, well within the behavioural flexibility documented for these species across Europe. Because neither species relies on the Turbine Area for stop-over, staging or foraging

¹⁰⁴ Rees, E.C. (2012) Impacts of wind farms on swans and geese: a review. *Wildfowl*, **62**, 37-72.

¹⁰⁵ Humphreys, E.M., Marchant, J.H., Wilson, M.W. & Wernham, C.V. (2015) Pink-footed goose (*Anas brachyrhynchus*): SWBSG Species Dossier 10. Report by BTO Scotland to SWBSG as part of the Project 1403. Updated by SWBSG March 2017

resources, the Proposed Development does not constitute a functional barrier to habitat access.

9.9.162 Any displacement during migration is therefore expected to be minor and highly localised, and would not measurably affect the fitness, migration success or energetics of either species. Taking into account the geographical footprint of the Proposed Development, the wide availability of alternative airspace, and the avoidance behaviour typical of both species, significant operational disturbance or displacement effects are not anticipated for whooper swan or pink-footed goose.

9.9.163 Accordingly, operational effects on these migratory waterfowl are assessed as adverse, direct, potentially permanent long-term (within the operation and maintenance period) but of negligible impact magnitude and therefore **not significant** in EIA terms.

Gamebirds

9.9.164 Red grouse are widespread across the Turbine Area and are generally regarded as tolerant of operational wind farm infrastructure. The weight of evidence from multiple UK upland wind farm studies demonstrates that red grouse show little to no avoidance of turbines, tracks or associated operational features.

9.9.165 Across 12 UK upland wind farms, Pearce-Higgins *et al.* (2009)⁸⁵ found no evidence of reduced occurrence of red grouse close to turbines. Similarly, Douglas *et al.* (2011)⁸⁶ recorded no significant difference in population change between a wind farm site and the matched control site, and no redistribution of pairs in relation to turbine proximity. Crucially, red grouse density increased slightly over the study period.

9.9.166 Although Pearce-Higgins *et al.* (2012)⁷³ reported reduction in red grouse abundance at several wind farms during the construction phase, these effects were temporary, with populations reverting to baseline levels once the sites became operational. This pattern strongly suggests that grouse responses are linked to construction disturbance rather than the presence or operation and maintenance of turbines.

9.9.167 On this basis, the Proposed Development would be unlikely to result in significant operational disturbance or displacement effects on red grouse. Any operational effects are thus considered adverse, direct and indirect, long-term and frequent but not permanent and of negligible impact magnitude. This would result in an effect that is **not significant** in EIA terms.

Gulls

9.9.168 Several gull species were recorded during the baseline surveys, predominantly as birds commuting over the Turbine Area or as small numbers foraging on the

reservoirs within the study area. These species utilise the upland landscape primarily as fly-over habitat, with limited associations with moorland feeding habitats. Most gull activity is highly mobile, opportunistic and centred on offsite foraging areas, such as agricultural land, urban environments, landfill sites and large lowland waterbodies.

- 9.9.169 Black-headed gull bred on one occasion within the Proposed Development area, with three nests recorded adjacent to the Walshaw Dean Lower Reservoir. However, breeding was not recorded in subsequent years despite full coverage breeding bird surveys, indicating that the site does not support a regular or established breeding population. The 2022 nesting location lies outside the operational infrastructure footprint and would not be affected by turbine presence or associated infrastructure. Furthermore, black-headed gull breeding in Yorkshire is predominantly concentrated at coastal and wetland sites and larger waterbodies, with ample breeding habitat available within the wider landscape.
- 9.9.170 Given this behavioural ecology, the presence of an operational wind farm within a relatively small section of the Pennine uplands is unlikely to result in a meaningful disturbance or displacement for gulls. As with whooper swan and pink-footed goose, gulls are capable of easily altering flight lines to route around turbine arrays. The Proposed Development occupies a limited geographic footprint and the South Pennines provides extensive alternative commuting airspace with no need for prolonged detours or energetically costly rerouting.
- 9.9.171 Although a small proportion of gulls forage on the reservoirs within the study area, this resource is neither unique nor limiting at the population level. There is abundant foraging habitat across the South Pennines, including reservoirs, farmland, river valleys and anthropogenic food sources. Any localised displacement of commuting or foraging gulls away from the Turbine Area would therefore have no measurable impact on their wintering or passage populations.
- 9.9.172 On this basis, operational disturbance and displacement of black-headed gull, common gull, great black-backed gull, herring gull and lesser black-backed gull is assessed as adverse, direct and indirect, potentially permanent, long-term, frequent but of small impact magnitude, and thus **not significant** in EIA terms.

Competition from Birds Displaced by the Proposed Development

North Pennine Moors SPA

- 9.9.173 During the operation and maintenance phase, the presence of turbines and associated infrastructure within the Turbine Area could result in the ongoing avoidance, or redistribution of some birds, away from parts of the Proposed Development site. One potential pathway requiring consideration is whether any

such long-term displacement could lead to birds relocating into the North Pennine Moors SPA and thereby increasing competitive pressure on its qualifying features.

- 9.9.174 As set out in NatureScot guidance on assessing functional connectivity with SPAs, population-level effects via displacement or competition require that displaced individuals move into areas that are regularly and functionally used by a significant proportion of the SPA population, such that density-dependent effects or resource limitation could occur. The North Pennine Moors SPA lies approximately 18.9km from the Turbine Area, with the closest operational infrastructure (Bradford West Cable Corridor and Western Access Route) located at distances of approximately 9.5km and 14.3km respectively. These distances substantially exceed the recognised core foraging ranges of all SPA qualifying species (hen harrier: 2km; merlin: 5km; peregrine: 2km; golden plover: 3km).
- 9.9.175 Given these separation distances, it is highly unlikely that birds displaced during operation would relocate preferentially into the North Pennine Moors SPA rather than remaining within, or redistributing across, the extensive areas of suitable upland habitat immediately surrounding the Proposed Development. The wider South Pennines comprise large tracts of blanket bog, heath and upland grassland both within the South Pennine Moors Phase 2 SPA and outside the SPA network, providing ample alternative nesting and foraging habitat capable of accommodating any redistribution of birds without increasing competitive pressure within the North Pennine Moors SPA.
- 9.9.176 Operational displacement effects, where they occur, are expected to be gradual, spatially diffuse and limited in extent, rather than resulting in large-scale or directional movements of birds towards distant designated sites. There is no evidence to suggest that the presence of an operational wind farm at this distance would drive sustained increases in territory density, prey competition or reduced breeding success for qualifying species within the North Pennine Moors SPA.
- 9.9.177 On this basis, while competition from birds displaced by the Proposed Development has been considered as a precautionary impact pathway during operation and maintenance, the effects have been assessed as being adverse, indirect and long-term, but highly limited in spatial extent and unlikely to be permanent. The impact magnitude is assessed as negligible. The resultant effect on the North Pennine Moors SPA during operation and maintenance is therefore **not significant** in EIA terms.

Decommissioning

- 9.9.178 After a period of approximately 35 years of operation, decommissioning will commence.
- 9.9.179 This is anticipated to include the following activities:

- Dismantling and removal of wind turbines;
- Demolition and removal of the substation compound, including dismantling and removal of electrical infrastructure; and
- Removal of other above-ground infrastructure, with the exception of turbine foundations and access tracks which are likely to remain in-situ. Underground elements such as cabling is also likely to remain in situ.

9.9.180 In ecological terms, decommissioning typically mirrors many of the impact pathways associated with the construction phase, most notably disturbance and displacement effects and temporary habitat alteration. However, the impact magnitude and spatial extent of decommissioning impacts are generally expected to be lower than those arising during construction, because:

- Infrastructure removal requires fewer groundworks than initial construction;
- Activities occur in a landscape already modified by the operational wind farm; and
- There is no equivalent to major land-take (e.g. new track building, excavation of foundations, creation of compounds etc.) required during construction.

9.9.181 Despite these differences, decommissioning would involve the mobilisation of heavy plant, increased personnel movement and the reinstatement of disturbed areas, all of which have the potential to disturb sensitive ornithological features if undertaken during key breeding or non-breeding periods. Disturbance sources during decommissioning would be broadly comparable to those identified for construction i.e. visual disturbance, noise, vibration and changes in human activity levels; albeit for shorter durations and with reduced spatial concentration.

Habitat Loss and Alteration

9.9.182 In contrast to the construction phase, the decommissioning of the Proposed Development would not introduce any new permanent land take. Instead, works would focus on dismantling turbines and associated infrastructure, removing ancillary structures, and reinstating above ground surfaces, with the likely retention of hardstandings and access tracks (with associated soil berms at the edges/seeding to be agreed at the ES stage). As a result, decommissioning is expected to involve only localised and temporary vegetation disturbance, primarily restricted to the immediate vicinity of existing infrastructure footprints and possibly of some access routes.

9.9.183 Although ground disturbance would occur during turbine dismantling, these effects are limited in extent and duration. The vegetation affected would typically be areas

previously modified by operational infrastructure and therefore of reduced ecological sensitivity when compared to undisturbed blanket bog or heath. As such, the impact magnitude of temporary habitat alteration during decommissioning is assessed as small, and the associated ecological effect as adverse, direct, temporary, and short-term, but **not significant** in EIA terms for all IOFs.

Importantly, the decommissioning stage also provides an opportunity for long-term beneficial effects through habitat reinstatement. As described in the embedded environmental measures section of this Chapter (**Section 9.6**), the Proposed Development includes a clear and formal commitment to implementing a comprehensive Habitat Restoration Plan following cessation of operations. This plan requires the removal of the majority of the operational infrastructure and the reinstatement of affected habitats to a condition consistent with the ecological character, conservation objectives and landscape qualities of the South Pennine Moors Phase 2 SPA and the South Pennine Moors SSSI.

Restoration would aim not only to return land to a semi-natural state but, where feasible, to enhance the quality and ecological function of reinstated habitats for key ornithological features, including breeding waders, raptors, owls and upland passerines. Restoration methods being discussed may include re-establishing hydrological function in blanket bog, re-profiling and re-vegetating track edges, and allowing natural regeneration of moorland vegetation communities. However, all restoration design and implementation would be undertaken in consultation with Natural England and other statutory consultees, ensuring alignment with the SPA/SSSI's conservation objectives and long-term habitat condition targets. These restoration measures will be confirmed in the ES.

- 9.9.184 Taking into account the temporary nature of habitat disturbance, the limited spatial extent of groundworks, and the committed reinstatement and enhancement measures (currently being agreed with Natural England); habitat loss and alteration effects during the decommissioning phase are therefore currently assessed as **not significant** in EIA terms, with the potential for long-term beneficial effects across the SPA/SSSI once restoration is complete. However, as the detailed restoration proposals are not yet defined, further assessment of restoration as part of the decommissioning process, will be provided within the ES.

Disturbance/Displacement

- 9.9.185 Most ornithological features identified as sensitive to disturbance during construction (e.g. ground-nesting waders, raptors, owls) show similar behavioural responses to human disturbance irrespective of whether activities occur during construction or decommissioning. Consequently, the same key pathways of disturbance and displacement apply during decommissioning.

- 9.9.186 However, two factors reduce the overall risk profile relative to construction: (1) reduced intensity and shorter duration of activities compared to initial construction and (2) established site habituation; many species would have adjusted to the presence of wind farm infrastructure and associated management activities during the operation and maintenance period.
- 9.9.187 Nevertheless, significant sensitivities remain. If decommissioning works occur during the breeding season for key species, particularly golden plover, dunlin, merlin, hen harrier, short-eared owl, curlew, lapwing, snipe, redshank and oystercatcher, disturbance may lead to reduced breeding success, nest desertion or displacement from territories. For non-breeding species such as wintering hen harrier, disturbance to foraging patterns may occur if works coincide with the core winter use period.
- 9.9.188 The extent of effects would depend on timing as well as the degree to which the wind farm is used by birds. The continued application of the BPP secured through an oDEMP would aim to limit disturbance and displacement effects wherever possible (**Section 9.6**). With these measures in place, the impact magnitude related to disturbance during decommissioning is anticipated to be small to medium, and substantially lower than during construction. For most ornithological features, the effect is therefore assessed as **not significant** in EIA terms.
- 9.9.189 However, for the most disturbance-sensitive features (ground nesting waders and raptors and wintering hen harrier), adverse, direct, temporary, short-term but **likely significant adverse effects** at their respective level of geographic importance cannot be entirely ruled out if decommissioning coincides with core breeding and non-breeding periods and/or works occur within core breeding and non-breeding areas. Such effects would mirror (but be lesser than) those described for construction.

Effects Related to the Bradford West Cable Corridor/Western Access Route

- 9.9.190 At the time of preparing this PEIR, ornithological field surveys had not yet been completed along the Bradford West Cable Corridor or the remaining northern section of the Western Access Route. A full programme of habitat survey walkovers is proposed for completion in 2026.
- 9.9.191 However, in order to provide initial transparency on potential effects across the entire Order Limits, a qualitative preliminary assessment has been undertaken for these unsurveyed areas. This assessment draws on aerial imagery, habitat mapping, surrounding survey data, and professional judgement, using the precautionary approach required at the PEIR stage.

Bradford West Cable Corridor

- 9.9.192 The Bradford West Cable Corridor exhibits a distinct ecological gradient, from high-value upland moorland at its western end (adjacent to the Turbine Area and the South Pennine Moors Phase 2 SPA/SSSI) to a predominantly lowland agricultural landscape across the central and eastern sections. Based on this, the potential for significant ornithological effects varies accordingly.
- 9.9.193 In the western moorland–farmland transition near Hill House Edge Lane, foraging and breeding activity by curlew, lapwing, snipe, merlin, short-eared owl and golden plover is plausible. Furthermore, enclosed pasture fields (particularly in this area) have the potential to support foraging golden plover particularly during the incubation period. Any construction-phase disturbance in this area could temporarily displace such species, but effects are expected to be limited in extent compared with those within the Turbine Area, where core territories are located. Operational effects along this short upland section are similarly expected to be minor, given the peripheral and low-density use predicted for these habitats.
- 9.9.194 Along the majority of the corridor, the baseline is dominated by improved/semi-improved pasture, arable farmland, hedgerows and scattered woodland blocks. These habitats largely support a lowland farmland and edge-woodland assemblage, including widespread passerines and foraging raptors such as kestrel, buzzard and red kite. For these species, the construction of a buried cable route is expected to result in short-term localised disturbance, with no significant long-term operational displacement anticipated. Occasional use by barn owl or other nocturnal raptors is possible, but again, the impact magnitude would likely be small.
- 9.9.195 Overall, based on the predicted baseline, no significant adverse effects along most of the Bradford West Cable Corridor are likely, but this conclusion remains provisional pending verification following the collection of additional baseline information from habitat walkover surveys (see Paragraph 9.5.56).

Un-surveyed section of the Western Access Route

- 9.9.196 The northern, un-surveyed part of the Western Access Route comprises a mosaic of moorland-edge grazing land, and improved pasture. Although situated outside the SPA boundary, this landscape remains within the functional range of several moorland-associated species. Based on the predicted baseline, this area may support breeding lapwing, curlew, snipe and redshank, though likely at lower densities than within the open moorland of the Turbine Area.
- 9.9.197 Construction and decommissioning of the access route through this area could lead to habitat loss and alteration and localised temporary disturbance to these species during the breeding season. This may also displace birds from nesting close to the access track during the operation and maintenance phase.

9.9.198 Functional use of this land by SPA/SSSI assemblage species remains plausible, and the impact magnitude could therefore be relatively high. Therefore, significant effects cannot be ruled out. Confirmation of habitat suitability and species presence will be determined during the 2026 habitat walkover surveys (see Paragraph 9.5.56).

Additional Mitigation

9.9.199 Given the findings of the PEIR, the Proposed Development has the potential to result in likely significant effects on ornithological features, including effects at the international scale on the South Pennine Moors Phase 2 SPA. In recognition of the sensitivity and international importance of the upland breeding bird assemblage, the Applicant is developing an extensive mitigation and compensation package, in consultation with Natural England and other relevant stakeholders.

9.9.200 Development of a detailed Habitat Mitigation and Compensation Strategy is ongoing and is required to address the direct loss of habitat as a result of the Proposed Development and also any indirect losses which may occur through habitat degradation. This will be developed for submission as part of the ES. Habitat mitigation will also be supported through BNG requirements, further design and confirmation of the approach is required prior to submission of the ES. This will be supported by a oLEMP and oOEMP as described in **Section 9.6**.

9.9.201 The mitigation will also need to consider the designated features of the South Pennine Moors SAC, as described **Chapter 8: Biodiversity**.

9.9.202 This package will include detailed measures to avoid, reduce and where unavoidable, compensate for collision-related mortality, disturbance/displacement and habitat loss and alteration associated with the Proposed Development. The compensation measures will be designed to go above and beyond the footprint of the habitat loss, reflecting the strategic and ecological importance of the study area for upland breeding waders and raptors. Where possible, compensation land will be comparable in character, elevation and habitat potential to the existing study area, with the intention of delivering landscape-scale benefits to the SPA/SSSI bird populations.

9.9.203 The comprehensive Habitat Mitigation and Compensation Strategy is expected to include a combination of onsite and offsite biodiversity approaches which will seek to enhance retained habitats, increasing their ecological value and resilience; as well as aiming to offset and compensate for habitat losses through habitat creation and enhancement. The detailed Habitat Mitigation and Compensation Strategy will be developed and submitted as part of the ES. The consideration of potential compensation land is ongoing. Further details of this will be provided as part of the

ES, following consultation with Natural England and other relevant consultees such as RSPB and Yorkshire Wildlife Trust.

- 9.9.204 In addition, the Applicant proposes a transition in land management to support ornithological objectives. While driven grouse moor management would cease, the existing gamekeeping workforce is proposed to be retained and re-tasked as 'Wind Farm Rangers'. These staff would undertake a programme of land and habitat management beneficial to SPA/SSSI birds, potentially including heather management, continued predator control, peatland restoration, controlled grazing regimes and monitoring. This approach aims to retain local expertise while realigning management activities toward conservation outcomes.
- 9.9.205 In addition, the Applicant proposes to develop a long-term ornithological monitoring programme, incorporating comparative control sites, to be implemented both prior to construction and post-construction. Surveys of control sites would commence in parallel with the pre-construction ornithological surveys for the Proposed Development, enabling a robust baseline dataset to be established against which any subsequent changes within the Turbine Area and associated infrastructure can be assessed.
- 9.9.206 Control sites would be selected within the wider South Pennine uplands, where practicable, and would be comparable in terms of habitat type, elevation, land management history and baseline ornithological interest. The simultaneous collection of data within the Proposed Development area and at control locations would allow differentiation between project-related effects and broader background trends driven by factors such as climate change, land-use practices or regional population fluctuations.
- 9.9.207 The comparative monitoring programme would then continue as part of the post-construction monitoring strategy, with a particular focus on key SPA/SSSI qualifying and assemblage species. Monitoring would be undertaken over a multi-year period to capture both short-term responses and longer-term population trends. The results of the baseline and post-construction comparative monitoring would inform an adaptive management framework, enabling mitigation, compensation and land management measures to be reviewed and refined where necessary in consultation with Natural England and other relevant stakeholders such as CMBC, RSPB and Yorkshire Wildlife Trust.
- 9.9.208 The commitment to integrated baseline, comparative control site and post-construction monitoring would be intended to complement the proposed mitigation and compensation package by providing a transparent, evidence-led framework for ongoing management and learning. It would also contribute to addressing recognised evidence gaps in the understanding of upland wind farm effects on breeding birds, delivering wider scientific value beyond the Proposed Development

and supporting improved future practice in comparable upland environments in the UK where similar conflicts would arise.

9.9.209 The details of the mitigation/compensation, including spatial design, delivery mechanisms, monitoring, adaptive management and long-term governance, will be developed in partnership with Natural England and other key stakeholders (such as RSPB and Yorkshire Wildlife Trust) and will be presented in the ES. The ES will therefore report a comprehensive and implementable package of measures proportionate to the scale of predicted impacts and consistent with statutory requirements for the protection and restoration of important upland bird populations.

Residual Effects

9.9.210 In the absence of defined additional mitigation/compensation (beyond the aforementioned embedded environmental measures) having been defined and agreed with consultees at the PEIR stage, the assessment of effects presented in this Preliminary Environmental Assessment, remains the most precautionary basis for determining significant effects. As such, all significant adverse effects remain as identified in the Preliminary Environmental Assessment, including those assessed as significant at the local, regional, national and international scales for a range of ornithology features (including SPA/SSSI bird species).

9.9.211 It is expected that the extensive mitigation/ compensation package under development would seek to avoid, reduce or compensate the impact magnitude, where practicable. However, until that package is finalised, the residual effects cannot be determined and remain as reported in the Preliminary Environmental Assessment.

9.9.212 A full assessment of effects, reflecting the finalised mitigation/compensation as well as any enhancement proposals, will be provided in the ES, consistent with the detailed design of the Proposed Development and the outcomes of consultation with statutory and non-statutory bodies.

Next Steps

9.9.213 Where the Preliminary Environmental Assessment indicates that the Proposed Development is likely to give rise to significant effects on ornithological features, this section outlines the next steps that will be undertaken to refine and complete the assessment to be reported in the ES.

9.9.214 Next steps include:

- 1) Completion of all outstanding baseline studies – this will include the completion of habitat walkover surveys for the Bradford West Cable Corridor and un-surveyed section of the Western Access Route, 2025/26 non-breeding transect

surveys across the Turbine Area, and hen harrier roost surveys within land adjacent to Gorple Reservoir (where anecdotally recorded roosts have been historically recorded);

- 2) Further elaboration and quantification of the impact assessment – the ES will refine and update impact assessments using the finalised turbine layout and candidate specifications. This will include greater quantification of predicted effects, informed by the completed baseline dataset and the final design parameters. This will include where relevant:
 - a) Final quantification and estimation of the number of breeding pairs potentially affected by habitat loss, disturbance/displacement and functional habitat loss;
 - b) Further assessment of noise and visual (i.e. lighting) related effects, including the spatial extent of predicted construction and operational noise contours and their overlap with sensitive breeding and foraging areas;
 - c) Quantification of temporary and permanent displacement, including refinement of assumptions regarding disturbance distances, barrier effects and changes in habitat availability;
 - d) A full CRM assessment once the candidate turbine specifications are confirmed, with results integrated into the overall assessment of operational effects; and
 - e) Further assessment of indirect habitat degradation pathways, including potential effects arising from dust deposition, nitrogen deposition, changes in air quality, water quality and pollution risk during construction and operation and maintenance. This will consider the extent to which such pathways could alter vegetation condition, invertebrate prey availability and overall habitat suitability for sensitive ornithological features.
- 3) Development of a mitigation/compensation strategy – as outlined above, will be included in the ES and will present the mitigation/ compensation proposals, developed in consultation with relevant stakeholders.

9.9.215 The ES will therefore present a full, quantified and evidence-based assessment of significance, informed by the completed baseline data, project refinements and a mitigation/compensation package.

9.10 Conclusions

- 9.10.1 **Table 9-13** presents a summary of the preliminary assessment of likely significant effects, with further information. It also includes the next steps to be undertaken as part of the Environmental Impact Assessment.
- 9.10.2 It is important to emphasise that the identification of likely significant effects within this PEIR represents a preliminary and precautionary position at an interim stage of the assessment process. The conclusions presented are based on a worst-case scenario, embedded environmental measures assumed at this stage, and the absence of detailed collision risk modelling and finalised mitigation design.
- 9.10.3 The identification of likely significant effects does not represent the final predicted effect of the Proposed Development. Rather, it indicates that further detailed assessment is required as the design evolves, additional survey data are analysed, CRM is completed, and further mitigation and compensation measures are developed and secured. As the project progresses, refinement of turbine layout, construction methodologies, mitigation and compensation strategies, habitat management proposals and operational controls will inform a more detailed assessment of magnitude and significance.
- 9.10.4 Accordingly, the conclusions presented within this PEIR should be understood as part of an iterative EIA process. The final ES will incorporate updated modelling, refined design parameters and more detail on mitigation and compensation measures, which may materially alter the magnitude and significance of effects currently identified.

Table 9-13: Summary of Preliminary Assessment of Likely Significant Effects

Element	Preliminary assessment of Likely Significant Effect	Additional Mitigation	Residual Effect	Further Information/ Next Steps
Construction – habitat loss and alteration	<p>Likely significant adverse effects on:</p> <ul style="list-style-type: none"> • South Pennine Moors Phase 2 SPA and South Pennine Moors SSSI; • Merlin; • Golden plover; • Other waders – curlew, dunlin, lapwing, oystercatcher, redshank, snipe; • Other raptors/owls – barn owl, hen harrier, kestrel, marsh harrier, peregrine, red kite, short-eared owl; • Gamebirds – red grouse; and • Breeding passerines and relatives – meadow pipit and skylark. <p>Likely significant adverse effects arising from permanent and temporary loss and degradation of breeding and foraging habitats within the Turbine Area, Access Routes and Cable Corridor.</p>	<p>Extensive mitigation and compensation package under development, including habitat restoration, peatland recovery, land management change and landscape-scale compensation.</p>	<p>Residual effects cannot yet be determined and remain as reported as per the preliminary assessment.</p>	<p>Final quantification and estimation of the number of breeding pairs potentially affected by habitat loss and functional habitat loss; refinement of habitat degradation pathways (dust, nitrogen, hydrology); integration of completed baseline surveys; detailed mitigation/compensation design to be reported in ES.</p>
Construction – disturbance and displacement	<p>Likely significant adverse effects on:</p> <ul style="list-style-type: none"> • South Pennine Moors Phase 2 SPA and South Pennine Moors SSSI; 	<p>Additional mitigation to be developed through ES.</p>	<p>Residual effects cannot yet be determined</p>	<p>Further quantification of disturbance distances using noise modelling; refinement of displacement assumptions;</p>

Element	Preliminary assessment of Likely Significant Effect	Additional Mitigation	Residual Effect	Further Information/ Next Steps
	<ul style="list-style-type: none"> • Merlin; • Golden plover; • Other waders – common sandpiper, curlew, dunlin, lapwing, oystercatcher, redshank, snipe; • Other raptors/owls – hen harrier, kestrel, marsh harrier, peregrine, red kite, short-eared owl; • Waterfowl – graylag goose, mallard; and • Grouse – red grouse. <p>Likely significant adverse effects due to noise, visual disturbance and human activity within core breeding and/or non-breeding areas.</p>		and remain as reported as per the preliminary assessment.	assessment of number of breeding pairs affected.
Construction – competition from displaced birds (North Pennine Moors SPA)	Considered as a precautionary pathway. Effects assessed as not significant due to large separation distances and lack of functional connectivity at the PEIR stage.	No additional mitigation required.	Not significant.	No further assessment required beyond confirmation in ES.
Operation – habitat loss and alteration	Likely significant adverse effects on: <ul style="list-style-type: none"> • South Pennine Moors Phase 2 SPA and South Pennine Moors SSSI; 	Habitat restoration and land management	Residual effects cannot yet be determined	Finalisation of land management strategy; integration with mitigation/compensation package; assessment of long-term habitat change.

Element	Preliminary assessment of Likely Significant Effect	Additional Mitigation	Residual Effect	Further Information/ Next Steps
	<ul style="list-style-type: none"> • Merlin; • Golden plover; • Other waders – common sandpipers, curlew, dunlin, lapwing, little ringed plover, oystercatcher, redshank, snipe; • Other raptors/owls – barn owl, goshawk, hen harrier, kestrel, marsh harrier, peregrine, red kite, short-eared owl; • Waterfowl – greylag goose, mallard; • Gamebirds – red grouse; • Breeding passerines and relatives – all species (apart from scrub/woodland species) including dipper, grey wagtail, meadow pipit, skylark, stonechat, wheatear, whinchat etc. <p>Likely significant adverse effects arising from changes in land management across the Walshaw Moor Estate.</p>	<p>transition forming part of Habitat Mitigation and Compensation Strategy to be developed and submitted as part of the ES; long-term monitoring and adaptive management.</p>	<p>and remain as reported as per the preliminary assessment.</p>	

Element	Preliminary assessment of Likely Significant Effect	Additional Mitigation	Residual Effect	Further Information/ Next Steps
	<p>Significant beneficial effects likely for woodland/scrub priority breeding passerines.</p>			
<p>Operation – disturbance and displacement</p>	<p>Significant adverse effects on:</p> <ul style="list-style-type: none"> • South Pennine Moors Phase 2 SPA and South Pennine Moors SSSI; • Merlin; • Golden plover; • Other waders – common sandpiper, curlew, dunlin, lapwing, oystercatcher, redshank, snipe; and • Other raptors/owls – hen harrier, kestrel, marsh harrier, peregrine, red kite, short-eared owl <p>Likely significant adverse effects due to turbine presence, barrier effects and behavioural avoidance. Other species assessed as not significant</p>	<p>A detailed Habitat Mitigation and Compensation Strategy will be developed and submitted as part of the ES. Long-term monitoring and adaptive management</p>	<p>Residual effects cannot yet be determined and remain as reported as per the preliminary assessment.</p>	<p>Refinement of displacement modelling; integration of CRM outputs; comparative control site monitoring.</p>
<p>Operation – death/injury through collision with turbines</p>	<p>Likely significant adverse effects on:</p> <ul style="list-style-type: none"> • South Pennine Moors Phase 2 SPA and South Pennine Moors SSSI; • Merlin; 	<p>Mitigation to be determined upon completion of CRM; turbine</p>	<p>Residual effects cannot yet be determined and remain</p>	<p>Full quantitative CRM once turbine specifications confirmed; population level significance testing.</p>

Element	Preliminary assessment of Likely Significant Effect	Additional Mitigation	Residual Effect	Further Information/ Next Steps
	<ul style="list-style-type: none"> • Golden plover; • Other waders – curlew, dunlin, lapwing, oystercatcher, redshank, snipe; • Other raptors/owls – goshawk, hen harrier, hobby, kestrel, marsh harrier, peregrine, red kite, short-eared owl; • Waterfowl – greylag goose, mallard, pink-footed goose, whooper swan; • Gamebirds – red grouse; and • Gulls – black-headed gull, common gull, great black-backed gull, herring gull, lesser black-backed gull. 	specification dependent measures to be defined.	as reported as per the preliminary assessment.	
Operation – competition from displaced birds (North Pennine Moors SPA)	Assessed as not significant due to lack of functional connectivity, large separation distances and availability of alternative habitat across the South Pennines.	No additional mitigation required.	Not significant.	Confirmed in ES with reference to final design and baseline.

Element	Preliminary assessment of Likely Significant Effect	Additional Mitigation	Residual Effect	Further Information/ Next Steps
Decommissioning – all impact pathways	<p>Habitat loss and alteration effects during the decommissioning phase are assessed as not significant, with the potential for long-term beneficial effects through habitat reinstatement (to be agreed) across the SPA/SSSI once restoration is complete. Generally considered to be not significant, with potential for short-term disturbance if works coincide with sensitive periods.</p> <p>For the most disturbance-sensitive features (e.g. ground nesting waders and raptors and wintering hen harrier); likely significant adverse effects at their respective sensitivities cannot be entirely ruled out (such effects mirror construction impacts but are also expected to be generally lesser in terms of the activities undertaken).</p>	<p>No additional mitigation agreed at this point (any additional to be developed through the ES). Embedded mitigation will include; timing controls and habitat reinstatement (secured through oDEMP and additional Habitat Restoration Plan).</p>	<p>Residual effects cannot yet be fully determined as the restoration plan has not been agreed – therefore further assessment of decommissioning at ES will be required.</p>	<p>Detailed reinstatement and restoration proposals to be presented in ES.</p>

