



Wind Power North Two Limited

Balblair Wind Farm

Environmental Impact Assessment Report (Volume 2)

Chapter 7 - Ornithology

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7 ORNITHOLOGY

7.1 Introduction

7.1.1 This chapter of the Environmental Impact Assessment (EIA) Report considers the potential for significant effects on Important Ornithological Features (IOFs) associated with the construction, operation and decommissioning of the proposed Development.

7.1.2 The specific objectives of the chapter are to:

- describe the ornithological baseline and identify IOFs;
- describe the assessment methodology, assumptions and significance criteria used in completing the assessment;
- describe the potential effects, including direct, indirect, and cumulative effects;
- describe additional mitigation measures proposed to address potentially significant effects;
- assess the residual effects remaining following the implementation of any additional mitigation measures; and
- outline those measures included as part of the proposed Development that will conserve, restore and enhance biodiversity in accordance with National Planning Policy (NPF) 4, Policy 3: Biodiversity, together with any long-term monitoring required to monitor the implementation and efficacy of such measures.

7.1.3 The assessment has been carried out by MacArthur Green. All staff contributing to this chapter have undergraduate and/or postgraduate degrees in relevant subjects, have extensive professional ornithological impact assessment experience, hold professional membership of and/or abide by the Chartered Institute of Ecology and Environmental (CIEEM) Code of Conduct.

7.1.4 This chapter is supported by the following Figures and Technical Appendices which are referenced throughout the chapter:

- **Volume 3a Figures:**
 - **Figure 7.1: Flight Activity Survey Vantage Points and Viewsheds**
 - **Figure 7.2: Scarce Breeding Bird Study and Survey Areas**
 - **Figure 7.3: Black Grouse Study and Survey Areas**
 - **Figure 7.4: Breeding Wader and Wintering Bird Study and Survey Areas**
 - **Figure 7.5: Ornithological Designated Sites within 20 km**
 - **Figure 7.6: Flight Activity: Curlew and Golden Plover**
 - **Figure 7.7: Flight Activity: Greylag Goose, Pink-footed Goose and Whooper Swan**
 - **Figure 7.8: Flight Activity: Merlin, Osprey and Peregrine**
 - **Figure 7.9: Flight Activity: Red Kite**
 - **Figure 7.10: Raptor Activity (April 2022 to May 2024)**
 - **Figure 7.11: Breeding Wader Registrations (April 2022 to May 2024)**
 - **Figure 7.12: Migratory Waterfowl Activity (April 2022 to May 2024)**

- **Volume 4** Technical Appendices:
 - **Technical Appendix 7.1: Ornithology Assessment Methodology**
 - **Technical Appendix 7.2: Ornithology (including Annexes A to E)**
 - **Technical Appendix 7.4 Shadow Habitats Regulations Appraisal**
 - **Technical Appendix 8.6: Outline Biodiversity Enhancement Management Plan**
- **Volume 5** Confidential Volume:
 - **Confidential Technical Appendix 7.3: Confidential Ornithology**
 - **Figure: 7.3.1: Black Grouse Lek Locations and Activity (April 2022 to May 2024)**
 - **Figure 7.3.2: Hen Harrier Nest Location and Breeding Activity (April 2022 to May 2024)**
 - **Figure 7.3.3: Red Kite Nest Location and Breeding Activity (April 2022 to May 2024)**
 - **Figure 7.3.4: Red-throated and Black-throated Diver Nest Location and Breeding Activity (April 2022 to May 2024)**
 - **Figure 7.3.5: Osprey Nest Location and Breeding Activity (April 2022 to May 2024)**
 - **Figure 7.3.6 Breeding Greenshank Observations (April 2022 to May 2024)**

7.1.5 Environmentally sensitive bird information (as defined in SNH 2016 and NatureScot 2023) is summarised to an imprecise resolution within this chapter and is further detailed within Figures and Technical Appendices presented within Confidential **Volume 5**.

7.1.6 The information presented within Confidential **Volume 5** will not be made publicly available but will be provided to the Scottish Government, The Highland Council (THC), NatureScot and RSPB Scotland, which each have a duty to consider such information in their own appraisals of the proposed Development.

7.2 Relevant legislation, policy and guidance

7.2.1 The following key pieces of legislation, policy and guidance, of relevance to ornithological features, have been referred to during the undertaking of baseline studies and the design and assessment of the proposed Development:

Legislation

- The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (as amended), hereafter the 'EIA Regulations';
- Environmental Impact Assessment Directive 2014/52/EU;
- Directive 2009/147/EC on the Conservation of Wild Birds (hereafter the 'Birds Directive');
- The Conservation (Natural Habitats &c.) Regulations 1994 (as amended) and the Conservation of Habitats and Species Regulations 2017 (hereafter the 'Habitat Regulations');
- The Wildlife and Countryside Act 1981 (as amended); and
- The Nature Conservation (Scotland) Act 2004 (as amended).

Policy

- Tackling the Nature Emergency – Scottish biodiversity strategy to 2045 (Scottish Government, 2023a);
- National Planning Framework 4 ('NPF4') (Scottish Government, 2023b);

Guidance

- Environmental impact assessment: NatureScot (SNH 2016a, 2018a, 2018b, NatureScot 2024a), CIEEM (2018) and Scottish Government (2017);
- Designated sites: SNH (2016b);
- Collision risk modelling: SNH (2000, 2018c), Band *et al.* (2007);
- Cumulative assessment: SNH (2018d);
- Bird populations/species-specific guidance: Stanbury *et al.* (2021, 2024), SNH (2017), Wilson *et al.* (2015);
- Construction and birds: SNH (2016c), Goodship & Furness (2022); and
- Planning and biodiversity: Scottish Government (2023) and THC (2024).

7.3 Consultation undertaken

7.3.1 **Table 7.1** provides a summary of the consultations undertaken in relation to ornithological matters which have informed the approach to baseline studies and the design and assessment of the proposed Development.

Table 7.1: Summary of consultation responses relevant to this chapter

Consultee	Issues Raised	Response/Action Take
Statutory Consultee (s)		
Scottish Government Energy Consents Unit (ECU) <i>EIA Scoping Opinion</i> 28 June 2024	The requirements of Policy 3(b) of NPF4, whereby biodiversity enhancements are to be provided in addition to any proposed mitigation, should be taken note of.	An Outline Biodiversity Enhancement Management Plan (OBEMP) is presented as Technical Appendix 8.6 . It details biodiversity enhancement measures of relevance to ornithological features detailed within this chapter, and ecological features detailed within Chapter 8: Ecology , and which are proposed as part of the proposed Development, to be finalised and agreed in consultation with THC, NatureScot and other relevant stakeholders.
	Recommended that decisions on baseline ornithological surveys should be made following discussions with NatureScot and RSPB Scotland.	NatureScot and RSPB Scotland were requested to comment on the scope of baseline ornithological. See below.

Consultee	Issues Raised	Response/Action Take
<p>The Highland Council (THC)</p> <p><i>EIA Scoping Request Response</i></p> <p>27 May 2024</p>	<p>An EIA Report chapter covering ornithology will be required. This must provide a baseline survey of the birds on site and established which species are present on the site, and where.</p>	<p>The scope of baseline surveys has been agreed in consultation with NatureScot (see below). Details of survey methods and findings are summarised within this chapter, with full details presented within Technical Appendix 7.2 and Confidential Technical Appendix 7.3.</p>
	<p>The presence of protected bird species such as Schedule 1 birds must be included and considered. Refer to any comments from NatureScot and RSPB in this respect.</p>	<p>Details of the presence and distribution of protected bird species is presented in Confidential Technical Appendix 7.3 and consideration of the potential for significant effects upon such species is presented within this chapter.</p>
	<p>An assessment of the impacts to birds through collision, disturbance, and displacement from foraging/ breeding/roosting habitat will be required for both the proposed Development site and cumulatively with other proposals.</p>	<p>This is presented in Section 7.8 and Section 7.11 for IOFs scoped into the assessment.</p>
	<p>The EIA Report should be clear on the survey methods and any deviations from guidance on ornithology matters.</p>	<p>Details of survey methods and findings are summarised within this chapter, with full details presented within Technical Appendix 7.2.</p> <p>Any potential limitations to the assessment that have arisen from the approach to baseline studies are detailed in Section 7.4. No substantial limitations are considered to have occurred.</p>
	<p>If an Appropriate Assessment is likely to be required, the provision of a Shadow Habitats Regulation Appraisal (HRA) is encouraged.</p>	<p>A shadow HRA of the proposed Development is presented as Technical Appendix 7.4.</p>
<p>NatureScot</p> <p><i>EIA Scoping Request Response</i></p> <p>08 May 2024</p>	<p>In relation to the Strath Carnaig & Strath Fleet Moors SPA, the following was requested:</p> <ul style="list-style-type: none"> • A Breeding Bird Protection Plan robust to protect hen harrier, even if species is not recorded; and • A Shadow HRA 	<p>A BDMP would form part of the Proposed Development, as embedded industry standard good practice (see Section 7.6).</p> <p>A shadow HRA of the proposed Development, in relation to the Carnaig and Strath Fleet Moors SPA, is presented as Technical Appendix 7.4.</p>

Consultee	Issues Raised	Response/Action Take
	<p>In relation to the Dornoch Firth & Loch Fleet SPA, the following was requested:</p> <ul style="list-style-type: none"> • Greylag goose is scoped-in; • Survey work to provide good data representation at peak goose movements are likely to occur. 	<p>Details of survey methods and findings are summarised within this chapter, with full details presented within Technical Appendix 7.2.</p> <p>Greylag goose is scoped-into assessment and a shadow HRA of the proposed Development, in relation to the Dornoch Firth and Loch Fleet SPA, is presented as Technical Appendix 7.4.</p>
<p>NatureScot</p> <p><i>Baseline Ornithological Survey Scoping</i> 20 October 2023</p>	<p>Agreed with a refined baseline ornithology survey approach, comprising two breeding season and one non-breeding season, with additional breeding raptor checks (two weeks apart in April-May).</p>	<p>Baseline surveys have comprised 18 months of survey (2022 and 2023 breeding seasons and 2022/2023 non-breeding season) plus additional searches for hen harrier in April and May 2024, as advised.</p> <p>Details of survey methods and findings are summarised within this chapter, with full details presented within Technical Appendix 7.2 and Confidential Technical Appendix 7.3.</p>
Non-Statutory Consultee(s)		
<p>Royal Society for the Protection of Birds (RSPB) Scotland</p>	<p>Commented on the requirement for consideration of the potential for impacts on:</p> <ul style="list-style-type: none"> • Strath Carnaig and Strath Fleet Moors SPA and SSSI; and • Lairg and Strath Brora Lochs SPA and SSSI. <p>In the absence of detailed survey results being presented, RSPB could not agree to the 18-month baseline survey period and IOFs proposed to be scoped-out of assessment.</p>	<p>A shadow HRA of the proposed Development, in relation to the Strath Carnaig & Strath Fleet Moors SPA (and SSSI) ,Lairg and Strath Bora Lochs SPA (and SSSI) and Dornoch Firth & Loch Fleet SPA (and Ramsar site) , is presented as Technical Appendix 7.4.</p> <p>The scope of baseline surveys has been agreed in consultation with NatureScot (see above). Details of survey methods and findings are summarised within this chapter, with full details presented within Technical Appendix 7.2 and Confidential Technical Appendix 7.3.</p> <p>Justification for the scoping-out of IOFs from detailed assessment is presented in Section 7.4 (Table 7.2 and Table 7.3).</p>

Consultee	Issues Raised	Response/Action Take
	<p>Commented that detailed information on baseline ornithological surveys, results and analysis should be presented within the EIA Report.</p>	<p>Details of survey methods and findings are summarised within this chapter, with full details presented within Technical Appendix 7.2 and Confidential Technical Appendix 7.3. Inputs and results of collision risk analysis are presented in Technical Appendix 7.2, Annex E.</p>
	<p>Commented on the requirement for pre-construction surveys to inform mitigation requirements.</p>	<p>A BDMP will form part of the proposed Development, as embedded industry standard good practice, and which will include for pre-construction surveys (see Section 7.6).</p>
	<p>Recommended consideration of ornithological impacts when choosing the location of the anemometer mast.</p>	<p>An anemometer (met) mast does not form part of the proposed Development.</p>
	<p>Commented on the requirement for a cumulative assessment at the relevant NHZ and Strath Carnaig and Strath Fleet Moors SPA level.</p>	<p>For IOFs scoped into assessment, the consideration of potentially significant cumulative effects at the appropriate regional population is considered in Section 7.11. A shadow HRA of the proposed Development, in relation to the Carnaig and Strath Fleet Moors SPA, is presented as Technical Appendix 7.4.</p>
	<p>Commented that any turbines not covered by a vantage point viewshed by 500 m should be removed or further survey effort carried out.</p>	<p>Justification for concluding that there are no limitations for assessment due to survey coverage gaps is presented in Section 7.4.</p>
	<p>Commented the Proposed Development should an outline BEMP, which includes measures that will aim to achieve significant biodiversity enhancement at the Site. The BEMP must include a comprehensive monitoring programme for any habitat improvements, migrating and breeding birds on the Site and future use of the Site by breeding raptors, divers and waders.</p>	<p>An OBEMP, of relevance to this chapter and Chapter 8 is presented as Technical Appendix 8.6 and which details biodiversity enhancement measures, and monitoring methods proposed as part of the proposed Development, to be finalised and agreed in consultation with THC, NatureScot and other relevant stakeholders.</p>

7.4 Approach to Assessment

Scope of Assessment

7.4.1 The assessment presented within this chapter considers the following main potential impacts upon ornithological features associated with onshore renewable energy developments:

- Direct habitat loss – temporary and permanent habitat loss, due to land take and activities during the construction, operational maintenance and decommissioning of development infrastructure;
- Disturbance/displacement – the avoidance of birds from the area occupied by development infrastructure and working areas and therefore the further indirect loss of habitats during construction, operation, and decommissioning; and
- Collision mortality – the risk of mortality resulting from collision or interaction with turbine arrays during operation.

7.4.2 The potential for significant effects is considered as a result of the proposed Development alone and where appropriate and sufficient information is available, cumulatively with other relevant developments.

Shared Infrastructure

7.4.3 The design of the proposed Development has sought to minimise the potential for impacts upon sensitive ornithological and ecological features through the use of a shared access track route with the adjacent proposed Garvary wind farm¹ from the A836 to the Garvary Indicative Borrow Pit in the proposed Development (Refer to **Figure 2.1**). The proposed Development will share the Garvary wind farm construction compound (located near the Site entrance off the A836).

7.4.4 An assessment of impacts upon IOFs from these shared infrastructure components, i.e. along the shared element of the access track route and at the locations of the proposed Garvary construction compound and borrow pit BP2 location, has therefore already been undertaken for the Garvary wind farm²; informed by baseline survey information collected for the Garvary wind farm between March 2017 and February 2019, and the 2022 breeding season³.

7.4.5 Baseline survey data collected for the Garvary wind farm, which includes breeding bird information at or otherwise along these shared infrastructure components from within the most recent five-year period, is considered sufficiently contemporary for decision making purposes in relation to Garvary wind farm (still under determination at the time of writing) and the proposed Development.

7.4.6 Baseline information collected for the Garvary wind farm, where this is publicly available², and the conclusions of assessment for the Garvary wind farm (as presented within chapter 5 of the Garvary wind farm EIA Report⁴), are therefore referred to within this

¹ The Scottish Government Energy Consents Unit (ECU) Reference: ECU00003251 and Planning and Environmental Appeals Division (DPEA) Case Reference: WIN-270-20.

² See Chapter 5 (associated publicly available Figures and Technical Appendices) of the Garvary Wind Farm EIA Report (dated March 2021) and Chapter 5 of the Additional Information (AI) Report (dated November 2022).

³ Over three breeding seasons (2017, 2018 and 2022) and two non-breeding seasons (2017/18 and 2018/19).

⁴ Assessment based on the most recent infrastructure layout of the proposed Garvary Wind Farm.

chapter when assessing the worst case scenario that the shared infrastructure is constructed as part of the proposed Development..

Decommissioning

- 7.4.7 At the end of the proposed Development’s operational lifetime, turbines and relevant ancillary infrastructure would be removed from Site, subject to any application being made and granted to extend the operational life or repower the consented turbines.
- 7.4.8 Whilst future ornithological baseline conditions cannot be accurately known at that stage, given the nature of decommissioning works, potential effects on ornithological features associated with the decommissioning the proposed Development can be reasonably concluded as being of equal or lesser significance to construction disturbance/displacement effects, over a reduced timeframe.
- 7.4.9 Potential effects from decommissioning works are therefore not assessed explicitly within this chapter, but considered alongside construction phase effects.

Features/matters scoped out of further assessment

- 7.4.10 **Table 7.2** presents the ornithological features and/or matters that are scoped out of further assessment, together with appropriate justification. Where a change has occurred since EIA scoping, this is stated and justified.

Table 7.2: Features/matters scoped out of further assessment.

Receptor/matter	Phase	Justification	Change since EIA Scoping?
Common and/or low conservation species not recognised in statute as requiring special conservation measures (i.e., not listed as Annex 1 ⁵ / Schedule 1 ⁶ species).	Construction & Operation	Unlikelihood of significant effects as per industry standard guidance (SNH 2017 and 2018, NatureScot 2024a and CIEEM., 2018).	Unchanged. NatureScot agreed that (subject to further information becoming available) the scope of IOFs to be included within the assessment was appropriate.
Common and/or low conservation species not included in non-statutory lists (i.e. not listed as Amber or Red-listed Birds of Conservation Concern, BoCC species), showing birds whose populations are at some risk either	Construction & Operation	Unlikelihood of significant effects as per industry standard guidance (SNH 2017 and 2018, NatureScot 2024a and CIEEM 2018).	As above.

⁵ Species listed on Annex 1 of Directive 2009/147/EC of the European Parliament (the ‘Birds Directive’).

⁶ Species listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended).

Receptor/matter	Phase	Justification	Change since EIA Scoping?
generally or in parts of their range			
Passerine species, not generally considered to be at risk from wind farm developments (SNH 2017), unless being particularly rare or vulnerable at a national level.	Construction & Operation	Not considered to be at risk from wind farm developments (SNH, 2017 and 2018, NatureScot 2024a).	As above.
Caithness and Sutherland Peatlands SPA (underpinned by Grudie Peatlands SSSI and Caithness and Sutherland Peatlands Ramsar site)	Construction & Operation	Located approximately 10.7 km from the nearest proposed turbine location, but c. 7 km from the proposed Development at its nearest point (access track). Potential for connectivity and Likely Significant Effects (LSE) considered unlikely due to spatial separation and absence of impact pathway.	Unchanged. Proposed Development not identified as having Likely Significant Effects (LSEs) by NatureScot as the statutory nature conservation advisor at Scoping. A shadow HRA is presented as Technical Appendix 7.4.
Moray Firth SPA	Construction & Operation	Located approximately 19.5 km from the nearest proposed turbine location and beyond potential connectivity distances for qualifying features (SNH, 2016b).	Unchanged. Proposed Development not identified as having likely significant effects by NatureScot as the statutory nature conservation advisor at Scoping. A shadow HRA is presented as Technical Appendix 7.4.
All Dornoch Firth and Loch Fleet SPA qualifying features, with the exception of non-breeding Icelandic greylag goose	Construction & Operation	Located approximately 12.0 km from the nearest proposed turbine location and beyond potential connectivity	Potential for likely significant effects upon greylag goose only scoped-in, advised by NatureScot as the statutory nature

Receptor/matter	Phase	Justification	Change since EIA Scoping?
		distances for qualifying features, with the exception of greylag goose (SNH, 2016b).	conservation advisor. Connectivity for osprey is considered unlikely, given the proposed Development is located beyond the core foraging range for the species, and that there are closer foraging opportunities to the Site (e.g. in Loch Shin or Kyle of Sutherland), than the SPA for locally breeding birds. A shadow HRA is presented as Technical Appendix 7.4.
Morangie Forest SPA	Construction & Operation	Located approximately 16.5 km from the nearest proposed turbine location and considered sufficiently distant to preclude the potential for likely significant effects upon qualifying features.	Unchanged. Proposed Development not identified as having likely significant effects by NatureScot as the statutory nature conservation advisor at Scoping. A shadow HRA is presented as Technical Appendix 7.4.
Lairg and Strath Borra Lochs SPA	Construction & Operation	Located approximately 9.63 km from the nearest proposed turbine location. Whilst within potential connectivity distances for the designations black-throated diver qualifying feature (less than 10 km; SNH 2016b), there are no waterbodies suitable for the species within the Site and no flight	Unchanged. The proposed Development was not identified as having likely significant effects by NatureScot as the statutory nature conservation advisor at Scoping. Potentially significant effects on black-throated diver are also scoped-out of assessment due

Receptor/matter	Phase	Justification	Change since EIA Scoping?
		<p>activity recorded over the Site.</p> <p>In review of baseline survey work undertaken for the consented and constructed Lairg to Loch Buidhe 132 kV Overhead Line (Energy Consents Unit Reference: ECU00001763), it is understood that that breeding black-throated divers nesting on the Lairg and Strath Borra Lochs SPA lochs, typically fly directly from these breeding lochs to Loch Shin to feed. As such flight activity would be expected to occur to far to the north of the Site and outwith the risk of collision with the proposed Development.</p>	<p>to very low levels of activity recorded.</p> <p>A shadow HRA is presented as Technical Appendix 7.4.</p>
<p>Target bird species recorded during baseline surveys but not scoped in</p>	<p>Construction & Operation</p>	<p>Unlikely potential for significant effects at species relevant wider countryside population levels due to low levels of activity recorded and absence of/ very small collision mortality risks predicted.</p>	<p>Potentially significant effects on the following IOFs are scoped-out following the completion of baseline studies:</p> <ul style="list-style-type: none"> - Black-throated diver - Curlew - Golden eagle - Golden plover - Goshawk - Greenshank - Lapwing - Merlin - Osprey - Peregrine

Receptor/matter	Phase	Justification	Change since EIA Scoping?
			<ul style="list-style-type: none"> - Pink-footed goose - Red-throated diver - Short-eared owl - Whooper swan
Black grouse	Construction	Implementation of industry standard good practice measures to avoid the potential for disturbance at lek sites.	Scoped-out, for construction phase only, after implementation of standard good practice measures (see Section 7.6).
Turbine/Infrastructure Lighting	Operation	The location of the proposed Development does not fall into any of the greater risk scenarios for birds and artificial lighting, as set out within NatureScot guidance (2024).	Scoped-out following review of completed baseline studies.

Features/matters scoped into further assessment

7.4.11 **Table 7.3** presents the features/matters that are scoped into further assessment, together with appropriate justification. Where a change has occurred since EIA scoping, this is clearly stated and justified.

Table 7.3: Features/matters scoped into further assessment

Receptor/matter	Phase	Justification	Change since EIA Scoping?
Dornoch Firth and Loch Fleet SPA (Icelandic greylag goose)	Construction & Operation	Located approximately 12.0 km from the nearest proposed turbine location and therefore within potential connectivity distance for greylag goose (core non-breeding season foraging range of 20 km; SNH, 2016b).	Unchanged. Greylag goose scoped into assessment and A shadow HRA is presented as Technical Appendix 7.4..

Receptor/matter	Phase	Justification	Change since EIA Scoping?
Strath Carnaig and Strath Fleet Moors SPA	Construction & Operation	Located approximately 1.69 km from the nearest proposed turbine location and therefore within potential connectivity distance for hen harrier (core breeding season foraging range of 2km SNH, 2016b).	Unchanged. A shadow HRA is presented as Technical Appendix 7.4 .
Black grouse	Operation (Displacement/Disturbance)	Lek sites recorded during baseline surveys located within 500 m of a proposed turbine locations.	Unchanged.
Hen harrier	Construction & Operation (Disturbance/Displacement)	Breeding activity recorded within 750 m of an access track route section.	Unchanged.
Red kite	Construction & Operation (Disturbance/Displacement and Collision Mortality Risks)	Breeding activity recorded locally during baseline surveys (over 500 m from the proposed Development) and collision mortality risks estimated.	Unchanged.

Baseline Methodology

7.4.12 Baseline ornithology conditions have been established from the following sources:

- Ornithological field surveys undertaken from April 2022 to August 2023 and April and May 2024; and
- Desk study review of existing ornithological information from key sources.

Desk Study

7.4.13 The following key sources have been consulted for existing ornithological information to inform the design and assessment of the proposed Development:

- NatureScot SiteLink website⁷;
- Publicly available planning application documentation for the adjacent developments:

⁷ Available at: <https://sitelink.nature.scot/home>

- the Garvary wind farm, which included survey areas out to 2 km of the developments site boundary⁸ and which encompass the majority of the Application site and study areas adopted for the proposed Development (see below);
- the Lairg to Loch Buidhe 132kV Overhead Line (OHL), which included a field study survey area primarily for flight activity and black-throated diver⁹ that overlaps with the northern extent of study areas adopted for the proposed Development;
- Highland Raptor Study Group (HRSG), for records of Schedule 1 breeding and roosting raptors and owls, and short-eared owl within 2 km of the Application Boundary, extended to 6 km for eagle species (most recent 10 years); and
- RSPB Data Unit, for ornithological records within 2km of the Application Boundary, extended to 6 km for eagle species (most recent 10 years).

7.4.14 Additional peer-reviewed literature has also been referred to and is referenced where relevant.

Field Surveys

7.4.15 Baseline ornithology surveys following NatureScot guidance (SNH 2017) and refined in consultation with NatureScot (see **Table 7.1**) have provided coverage of two consecutive breeding seasons (2022 and 2023), a single non-breeding season (2022/2023), with additional surveys for hen harrier undertaken during the 2024 breeding season:

- Flight activity surveys: April 2022 to August 2023 from two Vantage Point (VP) locations (**Figure 7.1**); minimum of 36 hours per season, per VP;
- Scarce¹⁰ breeding bird surveys: 2022 and 2023 breeding seasons, and in 2024 breeding season for hen harrier, 2km survey area (**Figure 7.2**);
- Black grouse surveys: April and May 2022 and 2023, 1.5 km survey area (**Figure 7.3**);
- Breeding wader surveys: April to July 2022 and 2023, 500 m survey area (**Figure 7.3**); and
- Winter walkover surveys: 2022/2023 non-breeding season, 500 m survey area (**Figure 7.3**).

7.4.16 Survey areas were based on preliminary turbine locations, applicable at the time of survey completion.

Assessment Methodology

7.4.17 The assessment of potentially significant effects upon ornithological features has been undertaken following the principles of CIEEM guidance (2018).

7.4.18 The assessment methodology, including criteria for assessing sensitivity of features, magnitude of change as well as overall significance criteria, is detailed in **Technical Appendix 7.1: Ornithology Assessment Methodology**.

⁸ See Figure 5.1b of the Garvary Wind Farm EIA Report (March 2021) and Figure 5.3 of the Garvary Wind Farm Additional Information (AI) Report (November 2022).

⁹ See Figure 6.1 to of the Lairg to Loch Buidhe Reinforcement EIA Report (January 2019)

¹⁰ Scarce breeding birds are those listed on Annex 1 of the EU Birds Directive and/or Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) and in the case of the proposed Development consists of any raptor, diver or owl species listed on Annex 1 and/or Schedule 1.

Study Areas

- 7.4.19 The ornithology assessment and gathering of baseline information considers the following study areas which are based on the proposed Development's final infrastructure layout (including shared infrastructure with the proposed Garvary wind farm):
- Collision mortality risks: a Collision Risk Analysis Area (CRAA) created using a 500 m buffer around proposed turbine locations, to identify "at collision risk" flight activity and estimate collision mortality risks (as per SNH 2017; see **Figure 7.1**);
 - Scarce Breeding Bird (SBB) study area: a 2 km buffer around proposed turbine locations (extended to 6 km for eagle species) and 800 m buffer around all other infrastructure (extended to 1 km for eagle species) (SNH 2017; see **Figure 7.2**);
 - Black Grouse study area: a 1.5 km buffer around proposed turbine locations and 750 m buffer around all other infrastructure (SNH 2017; see **Figure 7.3**); and
 - Breeding Upland Wader and Wintering Bird Study Area: a 500 m buffer around all infrastructure (SNH 2017; see **Figure 7.4**).
- 7.4.20 To determine potential for connectivity with designated sites, a 20 km study area around proposed turbine locations has been used (see **Figure 7.5**), based on the greatest core foraging range for qualifying ornithological features of SPAs, listed in NatureScot guidance (SNH 2016b).

Cumulative Assessment

- 7.4.21 The potential for significant cumulative effects to IOFs have been considered within this chapter with reference to NatureScot guidance (SNH 2018a and 2018b) and are assessed, where appropriate, for the proposed Development in-combination with:
- Existing wind farm developments, either operational or under construction;
 - Consented wind farm developments, awaiting implementation; and
 - Wind farm applications awaiting determination within the planning process with design information in the public domain.
- 7.4.22 The potential for significant cumulative effects and scope of assessment presented takes into account the inclusion of mitigation and/or enhancement measures included as part of the proposed Development and as relevant for in-combination developments.
- 7.4.23 Other specific relevant developments are also considered where these have been specifically raised by consultees at Scoping and where predicted effects in-combination may likely be significant.
- 7.4.24 As per SNH guidance (2018d) the Natural Heritage Zone (NHZ) regional level is generally considered practical and appropriate for breeding bird species not connected to a designated site. In this case the relevant NHZ is NHZ 5 'The Peatlands of Caithness and Sutherland' within which the Proposed Development is located. Where an alternative geographical area is considered more appropriate for a particular species, this is justified within the assessment. A detailed assessment of the potential for significant cumulative effects, in-combination with projects that are at the pre-Planning stage (i.e. Scoping) are not included as detailed impact assessment is yet to be carried out for such projects, or baseline information presented, and so any meaningful information to inform a cumulative assessment is not available. The potential for significant cumulative effects with the proposed Development would therefore be undertaken as appropriate, as part of planning applications for these developments, in line with standard EIA practice.

Difficulties and Uncertainties

- 7.4.25 No substantial limitations to baseline studies or assessment presented within this chapter have been identified.
- 7.4.26 Limitations do exist with regard to the knowledge base on how some species, and the populations to which they belong, react to impacts associated with onshore wind farms and construction activities. A precautionary approach is therefore taken in these circumstances, and as such it is considered that these limitations do not affect the robustness of the assessment presented.
- 7.4.27 Following the completion of baseline ornithological surveys, Stanbury *et. al* (2021) issued an addendum to the Birds of Conservation Concern (BoCC) 5 list in September 2024 (Stanbury *et al.* 2024). This addendum has reclassified common gull and great black-backed gull as Red list species (previously Amber list species) and which would now include them as target species for survey and recording during onshore wind farm surveys as recommended in NatureScot guidance (SNH 2017). Common and great black-backed gulls were however only infrequently noted during baseline surveys and so would not have been scoped in as an IOFs (due to the absence of potentially significant effects).
- 7.4.28 Survey methods have followed NatureScot guidance (SNH 2017) and site-specific survey effort has been agreed in consultation with NatureScot (see **Table 7.1**). In general, weather conditions were appropriate for the surveys, but where not, surveys were suspended and/or additional surveys undertaken (refer to **Technical Appendix 7.2**).
- 7.4.29 In some instances, ornithological field survey coverage has not provided full coverage of study areas adopted for the purposes of assessment. This primarily occurs in small peripheral areas to the east and north of turbines T3 and T6, and to the west at/along locations of shared infrastructure components with the Garvary wind farm (refer to **Figures 7.2 to 7.4**).
- 7.4.30 Study areas adopted for the purposes of assessment are however considered precautionary, and extend to distances beyond the proposed Development, where impacts as a result of the proposed Development would not be predicted i.e. beyond disturbance distances specified in current industry guidance (Goodship and Furness 2022). Survey coverage in general, with the exception of those for breeding waders and winter walkovers, has been achieved out to industry advised bird species disturbance distances from proposed Development turbine locations.
- 7.4.31 Within parts of the study areas where survey coverage has not been obtained, the presence and distribution of bird species considered a priority for assessment when considering the development of onshore wind farms in Scotland (SNH 2018), has been extensively and recently established by existing sources. This includes from existing records held by the HRSG and RSPB Data Unit, and during baseline studies (including field surveys) to inform the adjacent proposed Garvary wind farm¹¹ and the (now operational) Lairg to Loch Buidhe 132 kV OHL, for which the survey areas overlap extensively with the northern extent of study areas for the proposed Development.

¹¹ See Figures 5.1b to 5.15 of the Garvary Wind Farm EIA Report (March 2011) and 5.2a, 5.2b and 5.3 of the Garvary Wind Farm AI Report (November 2022).

- 7.4.32 These studies and sources do not identify study areas adopted for the proposed Development as being important for non-breeding birds, consistent with other sources (including Mitchell 2012), and existing records held by the HRSG and RSPB Data Unit.
- 7.4.33 These studies also identify that in parts of study areas where survey coverage has not been obtained, only a narrow range of species considered a priority for assessment when considering onshore wind farms in Scotland (SNH 2018) are known to occur.
- 7.4.34 It is acknowledged that the exact locations of breeding species established to be present in the study areas adopted for the proposed Development and not subject to survey coverage during, may change between years, i.e. in some years nest sites of species including short-eared owl, curlew, golden plover, greenshank, merlin and the locations of lekking black grouse may be present within these peripheral parts of study areas adopted and/or closer to the proposed Development. However, it would not be reasonably expected that the number of breeding pairs or lekking birds, upon which impacts from the proposed Development would occur, would vary substantially. This is acknowledged within the assessment when assigning effect magnitude and a precautionary approach adopted where appropriate.
- 7.4.35 It has previously been commented upon (see **Table 7.1**) that the location of turbine T3 is located just outside viewshed coverage (at and below 20 m above ground level) of VPs adopted during baseline flight activity surveys. Visibility of the turbine location is however achieved at the rotor sweep height i.e. at 40 m above ground level. Extensive coverage of open moorland habitats immediately adjacent to the turbine location has also been obtained at both 20 m and 40 m above the ground (see **Figure 7.1**).
- 7.4.36 Survey coverage and flight activity information at the location of turbine T3 and to the north of its location, has also been obtained during baseline surveys for the Garvary wind farm, including recently during 2022 (and also between March 2017 and February 2019)¹². Surveys for the Garvary wind farm identified relative low levels of species activity in this area¹³.
- 7.4.37 It is therefore considered that flight activity recorded, provide a sufficiently representative picture of target species presence and the pattern and level of “at collision risk” flight activity during the baseline survey period, for the purpose of estimating collision mortality risks using the NatureScot collision risk model (Band *et al.*, 2007).

7.5 Existing environment

Ornithological Designated Sites

- 7.5.1 The Application Boundary does not form part of any statutory designated site for nature conservation with ornithological qualifying features.
- 7.5.2 Within 20 km of the proposed Development turbine locations, there are six SPAs, seven SSSIs and two Ramsar sites with ornithological qualifying features (**Figure 7.5**) as summarised in **Table 7.4**.

¹² See Figure 5.2 of the Garvary Wind Farm EIA Report (March 2021) and Figures 5.2 and 5.2b of the Garvary Wind Farm AI Report (November 2022).

¹³ See Figures 5.6 to 5.15 of the Garvary Wind Farm EIA Report (March 2021) and Figures 5.4a and 5.4b of the Garvary Wind Farm AI Report (November 2022).

Table 7.4: Ornithological designated sites within 20 km of the proposed Development

Designation	Distance ¹⁴	Ornithological Qualifying Features	Qualifying features with potential connectivity to Site based on core foraging range (SNH, 2016b)
Strath Carnaig and Strath Fleet Moors SPA/SSSI	1.6 km	Breeding <ul style="list-style-type: none"> Hen harrier 	Breeding <ul style="list-style-type: none"> Hen harrier
Lairg and Strath Brora Lochs SPA/SSSI	9.6 km	Breeding <ul style="list-style-type: none"> Black-throated diver 	Breeding <ul style="list-style-type: none"> Black-throated diver
Caithness and Sutherland Peatlands SPA/Ramsar site	10.7 km	Breeding <ul style="list-style-type: none"> Black-throated diver Common scoter Dunlin Golden eagle Golden plover Greenshank Hen harrier Merlin Red-throated diver Short-eared owl Wigeon Wood sandpiper 	None. Potential connectivity not advised by NatureScot (see Table 7.1).
Grudie Peatlands SSSI	10.7 km	Breeding <ul style="list-style-type: none"> Dunlin Golden plover Greenshank 	None.
Dornoch Firth and Loch Fleet SPA/Ramsar site	12.0 km	Breeding <ul style="list-style-type: none"> Osprey Non-breeding <ul style="list-style-type: none"> Bar-tailed godwit Greylag goose Wigeon Waterbird assemblage ¹⁵	Greylag goose (non-breeding) Connectivity for osprey is considered unlikely, given the proposed Development is located beyond the core foraging range for the species, and that there are closer foraging opportunities to the Site (e.g. in Loch Shin or Kyle of Sutherland), than the

¹⁴ Distance to the nearest proposed Development turbine location.

¹⁵ Assemblage citation includes curlew, teal, scaup, redshank, wigeon, greylag goose, bar-tailed godwit, dunlin and oystercatcher.

Designation	Distance ¹⁴	Ornithological Qualifying Features	Qualifying features with potential connectivity to Site based on core foraging range (SNH, 2016b)
			SPA for locally breeding birds.
Dornoch Firth SSSI	12.0 km	Non-breeding <ul style="list-style-type: none"> Bar-tailed godwit Whooper swan Wigeon	None.
Mound Alderwoods SSSI	12.1 km	Breeding bird assemblage ¹⁶	Assemblage species not listed as potentially at risk of impacts from onshore wind farms (SNH 2018a).
Loch Fleet SSSI	14.4 km	Breeding bird assemblage ¹⁷ Non-breeding <ul style="list-style-type: none"> Eider 	None. Considered sufficiently distant from the proposed Development and/or species not listed as potentially at risk of impacts from onshore wind farms.
Morangie Forest SPA	16.5 km	Breeding <ul style="list-style-type: none"> Capercaillie 	None. Beyond typical natal dispersal distances (5 km; Fletcher and Baines 2020) Potential connectivity not advised by NatureScot (see Table 7.1).
Moray Firth SPA	19.5 km	Non-breeding <ul style="list-style-type: none"> Common scoter Eider Goldeneye Great northern diver Long-tailed duck Red-breasted merganser Red-throated diver Scaup 	None. Potential connectivity not advised by NatureScot (see Table 7.1).

¹⁶ Assemblage citation includes red-breasted merganser, teal, water rail, snipe, redshank, cuckoo, grasshopper warbler, sedge warbler and shelduck.

¹⁷ Assemblage citation includes ringed plover, oystercatcher, shelduck, eider, Arctic tern, common tern, little tern, wheatear, sedge warbler, reed bunting, osprey, Scottish crossbill, tree creeper and great spotted woodpecker.

Designation	Distance ¹⁴	Ornithological Qualifying Features	Qualifying features with potential connectivity to Site based on core foraging range (SNH, 2016b)
		<ul style="list-style-type: none"> • Shag • Slavonia grebe • Velvet scoter Breeding: <ul style="list-style-type: none"> • Shag 	
Morrich More SSSI	19.9 km	Breeding bird assemblage ¹⁸ Non-breeding <ul style="list-style-type: none"> • Bar-tailed godwit • Curlew • Teal • Wigeon 	None.

Flight Activity

- 7.5.3 A summary of all target species recorded during flight activity surveys between April 2022 and August 2023 (inclusive) is presented in **Table 7.5**. This summarises all flights observed during the flight activity baseline survey period regardless of the location of the flights in relation to proposed wind turbine locations.
- 7.5.4 Flight lines of all target species recorded are illustrated in **Figures 7.6 to 7.9**. For further details of the flight activity surveys, refer to **Technical Appendix 7.2**.
- 7.5.5 A summary of the collision risk model results is presented in
- 7.5.6 Table 7.6, with detailed analysis presented in **Technical Appendix 7.2, Annex E**. It should be noted that analysis for the proposed Development is based on a turbine specification with a hub height of 112 m and rotor diameter of 136 m (blade length of 68 m). This has the effect of capturing flight activity at both the lowest and highest points of the rotor sweep areas for the 180 m and 200 m turbine tip heights of the proposed Development across the entirety of the CRAA and is considered precautionary.
- 7.5.7 No 'at collision risk' flight activity was recorded for golden plover or merlin and so collision mortality risks are not presented for these species in
- 7.5.8 Table 7.6.
- 7.5.9 It is also NatureScot's current advice¹⁹ that in light of the high avoidance rate recommended for pink-footed goose (99.8%; SNH 2018c), the estimation of collision mortality risks for the species is only required where a development has connectivity with a designated site where the species is a qualifying interest. The proposed Development

¹⁸ Assemblage citation includes shelduck, ringed plover, snipe, curlew, redshank and linnet.

has no potential for connectivity with any designated site where pink-footed goose forms a cited qualifying interest. Collision mortality risks are therefore not presented in

- 7.5.10 Table 7.6 or considered likely to be significant for the species.
- 7.5.11 Estimated collision risks for curlew and golden plover are also considered to be very small, less than one bird over the operational lifetime of the proposed Development (30 years), and therefore highly unlikely to be significant in the context of the EIA Regulations or contribute materially to potentially significant cumulative risks for the species respective regional populations.
- 7.5.12 The potential for significant collision mortality risks to curlew, golden plover, merlin and pink-footed goose are therefore **scoped out** of assessment.

Table 7.5: Target species flight activity summary

Species	Total No. of flights	Total bird seconds ²⁰
Curlew	12	384
Golden plover	3	127
Greylag goose	3	1,208
Merlin	1	51
Osprey	1	139
Peregrine falcon	1	143
Pink-footed goose	5	17,774
Red kite	17	1,972
Whooper swan	1	1,204

Table 7.6: Estimated collision mortality risks

Species	Mean breeding season	Mean non-breeding season	Mean annual	No. of years per collision
Curlew	0.017	0.000	0.017	59.04
Greylag goose	0.000	0.003	0.003	314.96
Osprey	0.013	0.000	0.013	79.64
Peregrine falcon	0.019	0.000	0.019	51.41

²⁰ Bird seconds are calculated for each observation as the product of flight duration and number of individuals recorded for each flight. This has then been summed to provide the total bird seconds for each species recorded over the entire survey period.

Red kite	0.027	0.000	0.027	37.05
Whooper swan	0.000	0.155	0.155	6.46

Black grouse

- 7.5.13 Baseline surveys identified four lek sites over the survey period, as summarised in **Table 7.7** below and shown on **Confidential Figure 7.3.1**. Three locations were recorded within the Black Grouse study area²¹.
- 7.5.14 Additional lek sites within proximity to the proposed Development are also reported from from baseline surveys for the adjacent Garvary wind farm:
- In 2017 five lek sites were recorded all supporting single males²². One of these lek sites is identified as being located within the study area for the proposed Development, northeast of turbine location T3, with all others located to the north or south of the study area;
 - In 2018, four lek sites were recorded all supporting single males²². One of these lek sites is identified as being located within the study area for the proposed Development, northeast of turbine location T3, with all others located to the north or south of the study area;
 - In 2022, seven lek sites were recorded supporting between one and four males and a peak population of 14 males estimated for the survey area adopted for the Garvary wind farm . The locations of black grouse leks in 2022 have not been made publicly available²³, but at least a single lek location was detailed as being within 500 m of an access track section (and assumed shared access track section with the proposed Development).
- 7.5.15 Lek sites recorded during baseline surveys for the Garvary wind farm were not found to be consistently used/and or varied in their precise location between survey years, with the local lekking male population considered to be relatively mobile between lek sites.
- 7.5.16 No additional records within the study area were returned by the RSPB Data Unit for the most recent 10-year period.
- 7.5.17 The proposed Development will not result in the direct loss of habitats at black grouse lek sites identified during baseline surveys (**Confidential Figure 7.3.1**) or existing available information.
- 7.5.18 It is however, NatureScot's standard advice that:
- A buffer of at least 500 m between black grouse leks and turbines should be provided to minimise the risk of displacement during wind farm operation; and
 - A 750 m buffer is applied around black grouse leks, where no construction activity is permitted before 9am in the months of April and May, to avoid causing disturbance to lekking birds, during the sensitive breeding season (NatureScot 2024a).

²¹ A 1.5 km buffer around proposed turbine locations and 750 m buffer around all other proposed Development infrastructure.

²² See Figure 5.4 of the Garvary Wind Farm EIA Report (March 2021).

²³ No leks recorded within 500m of the shared access track route during baseline surveys presented within the Garvary Wind Farm EIA Report (Figure 5.4). Lek locations kept confidential in the Garvary Wind Farm AI Report, but presence from 2022 breeding season surveys referred to in Chapter 5, paragraph 5.1.101 of AI Report Chapter 5.

- 7.5.19 On the basis of NatureScot's standard advice (NatureScot 2024a), the proposed Development will, as part of industry standard good practice, include for a Bird Disturbance Management Plan (BDMP) that will contain specific measures to avoid the potential for disturbance of black grouse at their lek sites during construction works and where relevant during operational maintenance works (see **Section 7.6**). The BDMP would be informed by pre-commencement surveys, to identify the presence of lek sites within 750 m of the construction working areas for the proposed Development in accordance with NatureScot's standard advice (NatureScot 2024a).
- 7.5.20 Potentially significant construction phase effects upon black grouse both as a result of the proposed Development or in-combination with any other development are therefore not predicted to occur and are not considered further within the assessment.
- 7.5.21 However, as it has not been possible to avoid the locating of turbines within 500 m of all recorded or otherwise known lekking areas, the potential for significant operational effects upon black grouse is **scoped into the assessment**.

Table 7.7: Black grouse lek status from baseline surveys (2022 and 2023) – attendance counts

Lek	Distance to nearest turbine	Distance to nearest infrastructure	2022	2023
BK_1	1.6 km	1.3 m (access track section)	1 male	2 males
BK_2	1.4 km	1.2 m (access track section)	2 males	<i>n.c</i>
BK_3	422 m	342 m (cranepad)	1 male	3-5 males
BK_4	1.3 km	1.3 m (cranepad)	<i>n.c</i>	2 males

Raptors

Golden eagle

- 7.5.22 Golden eagles were infrequently recorded during the baseline survey period. This comprised a small number of observations made during scarce breeding bird surveys in April 2023 and April 2024, including unaged, immature and sub-adult birds (**Figure 7.10**).
- 7.5.23 No evidence of breeding/roosting birds was recorded within the SBB survey area over the baseline survey period (see **Figure 7.2**) and no collision mortality risks for the species have been predicted (no flight activity recorded during flight activity surveys).
- 7.5.24 In consultation, the HRSG returned information relating to a single golden eagle breeding range within the search area requested. This comprised a record of successful breeding attempt at a nest site newly recorded in 2024 and located within the SBB study area²⁴. The nest site is located 4.2 km from the nearest proposed Development turbine and proposed Development at its nearest point. The HRSG commented that no nesting was

²⁴ A 2 km buffer around proposed turbine locations (extended to 6 km for eagle species) and 800 m buffer around all other proposed Development infrastructure (extended to 1 km for eagle species).

proved for the range in previous years, but could have been missed as the 2024 nest was new.

- 7.5.25 The RSPB Data Unit also returned a single golden eagle record of a non-breeding bird in 2015, over 4 km from the nearest proposed Development turbine location.
- 7.5.26 The locations of the nest site and non-breeding record are beyond disturbance buffers recommended for the species (1 km; Goodship and Furness 2022) and baseline surveys have not identified the Application Boundary as being important for adult breeding or non-breeding golden eagles (including potentially establishing breeding birds).
- 7.5.27 Baseline surveys for the adjacent Garvary wind farm also reported low levels of golden eagle activity and found no evidence of breeding or roosting within survey areas adopted for the development²⁵ and which extend over much of the Application Boundary and the northern extent of the SBB study area²⁶.
- 7.5.28 Considering the species' low level of activity recorded during baseline surveys, the absence of any known breeding sites within the SBB study area, the very low likelihood of collision risk, and that baseline studies do not identify the Application Boundary as forming an important part of any occupied breeding range, **golden eagle is scoped out of the assessment.**

Goshawk

- 7.5.29 A single observation of goshawk was made over the course of baseline surveys, this comprised a single bird in May 2023 (**Figure 7.10**). No evidence of breeding was recorded and the SBB study area supports relatively limited woodland cover suitable for nest building.
- 7.5.30 No flight activity was recorded during flight activity survey and therefore collision mortality risks have not been predicted for the species.
- 7.5.31 No species records were returned by RSPB Data Unit or the HRSG within the SBB study area.
- 7.5.32 Similarly low levels of species activity were reported from surveys for the adjacent Garvary wind farm, and no evidence of breeding was found including within woodland habitat along the shared access track route²⁷.
- 7.5.33 Considering this species' limited recorded presence within the Application Boundary and wider SBB study area and the very low likelihood of collision, **goshawk is scoped out of the assessment.**

Hen harrier

- 7.5.34 No hen harrier breeding evidence was recorded within the SBB study area in 2022 (no species observations) or 2023.
- 7.5.35 In 2024, a hen harrier breeding attempt was recorded within the SBB study area, over 938 m from the nearest proposed turbine location, but within 500 m (343 m) of an access

²⁵ See Paragraphs 5.1.118 to 5.1.120 of the Garvary Wind Farm AI Report (November 2022).

²⁶ See Figure 5.1b of the Garvary Wind Farm EIA Report (March 2021) and Figure 5.3 of the Garvary Wind Farm AI Report (November 2022).

²⁷ See Paragraph 5.1.124 of the Garvary Wind Farm AI Report (November 2022).

track section, and approximately 1.9 km from the Strath Carnaig and Strath Fleet Moors SPA/SSSI (see **Confidential Technical Appendix 7.3** and **Confidential Figure 7.3.2**). The outcome of the breeding attempt was unknown.

- 7.5.36 Single pairs of hen harrier were also reported from baseline surveys undertaken for the adjacent Garvary wind farm (in 2017, 2018 and 2022), although the locations of breeding birds are not publicly available. The locations of nest sites were however found to vary between years²⁸, and included a nesting location within 500 m of a proposed access track section (and assumed shared access track section in the absence of confidential information being made publicly available).
- 7.5.37 The RSPB Data Unit returned two observation records from 2015 of hen harrier in the north-eastern extent of the SBB study area, but which were not specified as breeding records. No records from the most recent species national census (in 2023) were returned from within the study area (or within 2km of the Application Boundary) and the HRSG confirmed it does not hold any breeding records for the search area within the last 10 years.
- 7.5.38 No observations of hen harrier were recorded during the 2022/2023 non-breeding season and the HRSG and RSPB Data Unit do not report the known presence of any communal roosts within the SBB study area, or within 2km of the Application Boundary.
- 7.5.39 The breeding pair recorded in 2024 within the SBB study area is considered to comprise part of the species wider countryside population, as their nesting location is beyond the advised 1 km distance for alternative nest sites for pairs within the SPA (as per SNH 2016b).
- 7.5.40 In some years, given the variability of nest sites in the area, should birds choose to nest in other parts of the SBB study area, this may be within the range for alternative nest sites for pairs within the SPA. Use of the Site by birds originating from the SPA, e.g. for foraging, is also considered based on the species core foraging range of 2km, set out in NatureScot guidance (SNH 2016b).
- 7.5.41 Baseline flight activity surveys completed do not predict a collision mortality risk for the species, and the species is generally considered as being of low sensitivity to turbine collisions, due to their predominant low level foraging flight behavior (Madders and Whitfield 2006).
- 7.5.42 Considering the species' presence within the SBB study area and within recommended disturbance buffers for the species to the proposed Development (access track section) in some years (500 - 750 m; Goodship and Furness 2022) **hen harrier is scoped into the assessment.**
- 7.5.43 A shadow HRA of the proposed Development, in relation to the Strath Carnaig and Strath Fleet Moors SPA/SSSI, is also presented **as Technical Appendix 7.4.**

²⁸ As per Paragraph 5.1.128 of the Garvary Wind Farm AI Report (November 2022) "*The nearest nest sites to the Proposed Development [Garvary Wind Farm] were recorded in 2017 and in 2022, approximately 1.29 km from the nearest turbine location in 2017, with a single nest site recorded within 500m of a proposed access track section in 2022*"

Merlin

- 7.5.44 A single observation of merlin was made over the course of baseline surveys, this comprised a single bird in May 2023 (**Figure 7.8**). No evidence of breeding was identified and the single flight recorded during flight activity surveys was not subsequently identified as being 'at collision risk' to the Proposed Development. Collision mortality risks have therefore not been predicted for the species (see **Table 7.5** and **Figure 7.8**).
- 7.5.45 Breeding merlin were also reported from baseline studies for the adjacent Garvary wind farm, this included two pairs in 2017 and 2018 and a single pair in 2022 (total of five nest sites), which were primarily recorded within proximity to the developments proposed turbine locations²⁹.
- 7.5.46 No existing records were returned by RSPB Data Unit or the HRSG within the SBB study area, or within 2km of the Application Boundary.
- 7.5.47 Whilst it is possible that pairs recorded during baseline surveys for the Garvary wind farm, may in some years chose nest sites closer proposed Development, this is unlikely to be a frequent occurrence in the absence of any regular activity recorded for the species during the baseline survey period for the proposed Development.
- 7.5.48 Considering this species' very limited presence within the Application Boundary and SBB study area, together with the very low likelihood of collision, **merlin is scoped out of the assessment.**

Osprey

- 7.5.49 Scarce breeding bird surveys in 2023 and 2024 identified the presence of an occupied osprey nest site to the west of the SBB study area (see **Confidential Technical Appendix 7.3** and **Confidential Figure 7.3.5**).
- 7.5.50 The nest site was confirmed to be successful in fledging chicks in 2023 and is located approximately 3.6 km from the proposed Development at its nearest point (nearest turbine location) and therefore beyond disturbance buffers recommended for the species (350-750 m; Goodship and Furness 2022).
- 7.5.51 Baseline surveys for the Garvary wind farm in 2022 also reported the presence of a recently established nest site within 5 km of that development's nearest proposed wind turbine and which may be consistent with that recorded for the proposed Development³⁰.
- 7.5.52 The HRSG also returned records relating to five osprey breeding sites within the search area requested, of which no sites are located within the SBB study area and the nearest located over 2 km to the south of the proposed Development at its nearest point.
- 7.5.53 No existing records were returned by the RSPB Data Unit.
- 7.5.54 Surveys did not identify the presence of any regularly used foraging corridors over the Site, and proposed turbine locations are not considered to lie directly between the active nest site recorded during surveys in 2023 and 2024, or breeding sites returned by the HRSG and nearest potential foraging locations for pairs in the Kyle of Sutherland.

²⁹ As per Paragraph 5.1.143 of the Garvary Wind Farm AI Report (November 2022) "*Three nest sites, one from each survey year, were within 500m of proposed wind turbine locations.*"

³⁰ See Chapter 5, paragraph 5.1.134, of the Garvary Wind Farm AI Report (November 2022).

- 7.5.55 The single flight recorded during flight activity surveys, results in a predicted mortality risk of approximately one bird every 79 years (see **Table 7.5,**
- 7.5.56 **Table 7.6 and Figure 7.8).**
- 7.5.57 Considering this species' low level of activity, the spatial separation of identified breeding sites from the proposed Development and very low predicted collision mortality risk, **osprey is scoped out of the assessment.**

Peregrine falcon

- 7.5.58 A small number of observations of peregrine were recorded over the course of baseline surveys (**Figure 7.8 and 7.10).**
- 7.5.59 A single flight recorded during flight activity surveys resulted in a predicted mortality risk of approximately one bird every 51 years (see **Table 7.5,**
- 7.5.60 **Table 7.6 and Figure 7.8).**
- 7.5.61 No evidence of breeding was identified during baseline surveys and the RSPB Data Unit and HRSG did not return any existing records within 2km of the Application Boundary.
- 7.5.62 Very low levels of species activity were reported during baseline surveys for the Garvary wind farm, and no breeding sites were identified in any survey year³¹.
- 7.5.63 Considering this species' very limited presence within the SBB study area and the low level of predicted collision mortality risk, **peregrine is scoped out of the assessment.**

Red kite

- 7.5.64 Scarce breeding bird surveys recorded a red kite nest site, located to the south of the Application Boundary, over 3.3 km from the proposed Development (nearest turbine location; see **Confidential Technical Appendix 7.3 and Confidential Figure 7.3.3).**
- 7.5.65 No evidence of communal roosting was recorded during surveys, and the RSPB Data Unit and HRSG did not return records of such within the SBB study area.
- 7.5.66 A total of 17 flights were recorded during flight activity surveys and the NatureScot collision risk model predicts a mean collision risk of approximately one bird every 37 years (see
- 7.5.67 **Table 7.6 and Figure 7.9).**
- 7.5.68 Only low levels of activity were reported from baseline studies for the Garvary wind farm, with no nest sites reported.
- 7.5.69 Considering this species' known breeding presence locally and predicted collision mortality risk, **red kite is scoped into the assessment.**

Divers

Red-throated diver

- 7.5.70 Observations of single red-throated divers were made over several visits in April 2022, on a lochan within the SBB study area, approximately 1.3 km from the proposed

³¹ See Chapter 5, paragraphs 5.1.147 – 5.1.149, of the Garvary Wind Farm AI Report (November 2022).

Development at its nearest point (access track section; see **Confidential Technical Appendix 7.3** and **Figure 7.3.4**). No breeding evidence was however recorded during later visits in the 2022 breeding season, and no observations were made of the species over the 2023 and 2024 survey periods.

- 7.5.71 No flight activity was recorded during flight activity surveys and proposed Development turbine locations are not considered to lie between the lochan with recorded species presence in 2022 and direct flight routes to the nearest potential foraging opportunities in the Kyle of Sutherland or Loch Shin.
- 7.5.72 Red-throated diver are known to breed within the wider area, with baseline surveys for the Garvary wind farm reporting three breeding attempts within 1km of that developments site boundary in 2022.
- 7.5.73 Considering the limited activity recorded, spatial separation of suitable breeding lochans from Proposed Development infrastructure and the very low likelihood of collision risk or barrier effects, **red-throated diver is scoped out of the assessment.**

Black-throated diver

- 7.5.74 A small number of black-throated diver observations were made during baseline surveys in the 2022, 2023 and 2024 breeding seasons, comprising individuals on the Kyle of Sutherland (see **Confidential Figure 7.3.4**). No nest sites or successful breeding attempts were recorded within SBB study area. The Application Boundary does not support any larger waterbodies (or smaller pools next to larger lochs), which are typically suitable for breeding black-throated diver (Gilbert *et al.* 1998).
- 7.5.75 In its response to the EIA Scoping report, RSPB Scotland commented that it holds historic records of black-throated divers breeding on lochans located to the north and north-east of the Application Boundary; although no records were returned from the RSPB Data Unit within 2 km of the Application Boundary within the most recent 10-year period. Records referred to are therefore likely to be more distant from the proposed Development and outwith the SBB study area.
- 7.5.76 No flight activity of black-throated diver was recorded during flight activity surveys. Should breeding take place in the wider local area, including within the component lochans of the Lairg and Strath Brora Lochs SPA/SSSI, far to the north of the Application Boundary, proposed turbine locations are not considered to be located within the most direct commuting routes between potentially suitable waterbodies and alternative feeding locations, e.g. in the Kyle of Sutherland or Loch Shi. The flight activity of black-throated divers nesting on the component lochs of the Lairg and Strath Borra Lochs SPA, studied as part of the constructed Lairg to Loch Buidhe 132 kV Overhead Line (Energy Consents Unit Reference: ECU00001763), was typically shown to be direct from the breeding lochs to Loch Shin to feed. As such flight activity of black-throated divers breeding within the SPA and/or further to the north/north-east of the Application Boundary, would reasonably be expected to also occur further to the north of the Application Boundary and outwith the risk of collision with the proposed Development. The proposed Development would similarly not be considered to represent a barrier to foraging birds.
- 7.5.77 Considering this species' limited activity recorded, spatial separation of suitable breeding lochans from proposed Development infrastructure and the very low likelihood of collision risk or barrier effects, **black-throated diver is scoped out of the assessment.**

7.5.78 A shadow HRA of the proposed Development, in relation to the Lairg and Strath Bora Lochs SPA is however presented as **Technical Appendix 7.4**.

Waders

7.5.79 **Table 7.8** below provides a summary of the estimated numbers of target breeding wader territories (i.e. Annex I, Schedule 1 and/or BoCC Red-listed as per Stanbury *et al.* 2021 and 2024) recorded in 2022 and 2023 within the Upland Breeding Wader study area³² and within 500 m of Proposed Development turbine locations.

7.5.80 Species registrations are illustrated on **Figure 7.11**, with greenshank (Schedule 1 species) breeding activity illustrated on **Confidential Figure 7.3.6**. Small numbers of breeding oystercatcher, snipe and common sandpiper were also recorded over the course of surveys.

7.5.81 Overall the Application Boundary, particularly the area within proximity to proposed turbine locations, was found to be of relatively low importance for breeding waders, with only small numbers of territories recorded. These species have therefore been identified as features that would benefit from the proposed Development through the finalisation and implementation of a BEMP, and which would result in the enhancement of nesting and foraging habitats within the Application Boundary, including in areas away from operational infrastructure (see **Technical Appendix 8.6**).

Table 7.8: Breeding wader territories – 2022 and 2024

Species	2022		2023	
	Total within 500 m Study Area	Total within 500 m of proposed turbines	Total within 500 m Study Area	Total within 500 m of proposed turbines
Curlew	1	0	1	1
Golden plover	1	1	0	0
Greenshank	1	0	0	0
Lapwing	0	0	1	0

Curlew

7.5.82 Curlew breeding activity was recorded primarily to the southeast and southwest of the Proposed Development (**Figure 7.11**). A single territory recorded within the study area in each year and suggesting the Application Boundary is of low importance for breeding birds (**Table 7.8**).

7.5.83 A small number of territories (up to two) were also recorded within 500 m of the shared access track route during baseline surveys for the Garvary wind farm³³.

³² A 500 m buffer around all proposed Development infrastructure.

³³ Garvary Wind Farm EIA Report Figure 5.5: Distribution of other key breeding birds (March 2021). Not recorded within proximity to the access track during surveys in 2022 presented within the AI Report.

- 7.5.84 Flight activity surveys recorded a total three flights (**Table 7.5** and **Figure 7.6**), with the NatureScot collision risk model predicting a mean collision mortality risk of one bird every 59 years (
- 7.5.85 Table 7.6).
- 7.5.86 Considering this species' low level of breeding activity within the study area, the very small collision risk predicted and positive habitat enhancement to be provided by the proposed Development **curlew is scoped out of the assessment.**

Golden Plover

- 7.5.87 Only a small number of breeding golden plover were recorded during baseline surveys (**Table 7.8** and **Figure 7.11**), with a single territory recorded within the study area in 2022.
- 7.5.88 Small numbers (two³⁴ to six³⁵ pairs) were also recorded within 500 m of the shared access track route during baseline surveys for the Garvary wind farm.
- 7.5.89 Flight activity surveys recorded a total of three flights (**Table 7.5** and **Figure 7.6**) which were not 'at collision risk'. No collision mortality risks have therefore been predicted.
- 7.5.90 Considering this species' low level of breeding activity within the study area, the low likelihood of collision and positive habitat enhancement to be provided by the proposed Development, **golden plover is scoped out of the assessment.**

Greenshank

- 7.5.91 Greenshank were recorded breeding within the study area (**Table 7.8** and **Confidential Figure 7.3.6**), with the majority of recorded breeding locations occurring to the north of the Application Boundary.
- 7.5.92 No flight activity was recorded during flight activity surveys and no collision mortality risks have therefore been predicted.
- 7.5.93 Goodship & Furness (2022) recommend a disturbance buffer of 300-500 m for greenshank. No proposed Development turbines are located within 500 m of any greenshank territory recorded, a single territory is however, located within 500m of an access track section.
- 7.5.94 Greenshank is listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended). The proposed Development's BDMP will therefore inherently include for species-specific restrictions during the construction works to enable legislative compliance and avoid (or otherwise minimise) the disturbance to nesting greenshank (see **Section 7.6**).
- 7.5.95 Considering the relatively low level of greenshank activity recorded during the baseline surveys, the limited extent of development proposed within 500 m of breeding locations recorded, the low likelihood of collision and positive habitat enhancement to be provided by the proposed Development, **greenshank is scoped out of the assessment.**

³⁴ Garvary Wind Farm AI Report Figure 5.5a: Moorland Breeding Bird Survey Results (2022). (November 2022)

³⁵ Garvary Wind Farm EIA Report Figure 5.3: Distribution of breeding Golden Plover. (November 2022)

Lapwing

- 7.5.96 A lapwing territory was recorded within the study area in 2023, to the south of an access track section near to Loch Laisgain (**Table 7.8** and **Figure 7.11**).
- 7.5.97 A single lapwing territory was also recorded within 500m of the shared access track route during baseline surveys for the Garvary wind farm³⁶.
- 7.5.98 No flight activity was recorded, and no collision mortality risks have therefore been predicted.
- 7.5.99 Considering the species' low level of presence within the study area, low likelihood of collision risk and positive habitat enhancement to be provided by the proposed Development, **lapwing is scoped out of the assessment.**

Wildfowl

Greylag and pink-footed goose

- 7.5.100 The Wintering Bird study area does not overlap with areas of known importance for non-breeding migratory pink-footed or greylag goose (as per Mitchell 2012; see **Figure 7.5**). Habitats within the Application Boundary, primarily comprising open upland moorland are also unsuitable foraging habitats for both species.
- 7.5.101 No observations of roosting flocks of greylag or pink-footed goose were recorded within the study area, but a small number of greylag geese were recorded in April 2023 on the Kyle of Sutherland (**Figure 7.12**).
- 7.5.102 Small numbers of greylag geese were recorded in flight in April 2022 (**Table 7.5** and **Figure 7.7**), with the NatureScot collision risk model predicting a collision mortality risk of approximately one bird every 314 years (
- 7.5.103 Table 7.6).
- 7.5.104 Flock movements of pink-footed goose were also recorded in spring 2023 and 2024 (**Table 7.5** and **Figure 7.7**). However, as pink-footed goose is not identified as a qualifying interest of any statutory designated Site for the species within 20km of the Site (See **Table 7.4**), and due to the species robust population and high avoidance rate of turbines (SNH 2018c), estimates of collision mortality risks for pink-footed goose are not required as per NatureScot's current advice¹⁹.
- 7.5.105 Considering the species' limited presence within the study area and very small **pink-footed goose is scoped out of the assessment.**
- 7.5.106 **Greylag goose is scoped into the assessment** (see **Table 7.2**) due to the potential for significant collision risks and connectivity with the Dornoch Firth and Loch Fleet SPA/Ramsar site.
- 7.5.107 A shadow HRA of the proposed Development in relation to the Dornoch Firth and Loch Fleet SPA/Ramsar site qualifying greylag goose population is also presented as **Technical Appendix 7.4.**

³⁶ Garvary Wind Farm AI Report (November 2022) Figure 5.5a: Moorland Breeding Bird Survey Results (2022). Not recorded within proximity to the access track during surveys between 2017-2019 presented within the EIA Report.

Whooper swan

- 7.5.108 Observations of whooper swan were recorded in spring 2023; a single flight of 28 birds (**Table 7.5** and **Figure 7.7**) and a small flock of three immature birds on the Kyle of Sutherland (**Figure 7.12**).
- 7.5.109 The single flight of 28 birds recorded resulted in the NatureScot collision risk model predicting a collision mortality risk of one bird every 6.46 years (
- 7.5.110 Table 7.6). No regular flight activity was however recorded.
- 7.5.111 Considering the species' overall limited presence within the Study Area and absence of any regularly used flight activity corridors being identified, **whooper swan is scoped out of the assessment.**

Additional species

- 7.5.112 Observations of additional species recorded during baseline surveys are detailed in **Technical Appendix 7.2**.
- 7.5.113 Breeding short-eared owl were also reported from baseline surveys for the adjacent Garvary wind farm, with two pairs recorded in 2017 and a single pair reported in 2022. The locations of nesting birds were considered to be variable³⁷, being located closer to Garvary wind farm development infrastructure in some years.
- 7.5.114 No observations of breeding short-eared owl were however made during two full consecutive years of breeding season surveys for the proposed Development (2022 and 2023) and suggests the Application Boundary and wider SBB study area are not of any regular importance for the species and the potential for significant effects is scoped-out of consideration within this chapter. No existing species records were returned by the RSPB Data Unit or HRSG within 2 km of the Application Boundary.
- 7.5.115 Small numbers of breeding dunlin (up to two pairs) were also recorded within 500 m of the shared access track during baseline surveys for the Garvary wind farm³⁸.
- 7.5.116 Based on the low levels of activity recorded for all other additional species, the potential importance of the Application Boundary and significant effects, for any other species sensitive to onshore wind farm impacts, as listed on Annex 1 of NatureScot guidance (SNH 2018a), is not identified and **scoped out of assessment.**

Scoped-in IOFs

- 7.5.117 The assessment of potentially significant effects is undertaken for scoped-in features of medium or high Nature Conservation Importance (NCI) (see **Technical Appendix 7.1** for criteria), as established through baseline studies (i.e., the IOFs). Summaries of the NCI and conservation status of the scoped-in IOFs are presented in **Table 7.9** and **Table 7.10**.

³⁷ See Paragraph 5.1.138 of the Garvary Wind Farm AI Report (November 2022).

³⁸ Garvary Wind Farm EIA Report Figure 5.5 (March 2021): Distribution of other key breeding birds. Not recorded within proximity to the access track during surveys in 2022 presented within the AI Report.

Table 7.9: Summary of scoped in IOFs

IOF	NCI	Justification
Black grouse	Medium	BoCC Red list. Priority bird species for assessment (SNH 2018a).
Greylag goose	High	SPA qualifying feature with potential connectivity to the Site. Regularly occurring migratory species. Priority bird species for assessment (SNH 2018a).
Hen harrier	Medium	SPA qualifying feature with potential connectivity to the Site. BoCC Red list. Annex 1, Schedule 1/1A listed. Priority bird species for assessment (SNH 2018a).
Red kite	Medium	Annex 1, Schedule 1/1A listed. Priority bird species for assessment (SNH 2018a).

Table 7.10 Conservation status of scoped-in IOFs.

IOF	Conservation status	Justification
Black grouse	BoCC Red list	<p>Black grouse is Red-listed due to historical population declines in the UK between 1800 and 1995, without substantial recent recovery. It also qualifies due to a severe decline in the UK breeding population size of >50 % over 25 years.</p> <p>Breeding numbers in the UK declined by 80 % between 1991 and 2004. Sim <i>et al.</i> (2008) estimated there to be 5,078 male black grouse in the UK in 2005, with approximately two-thirds of these occurring in Scotland. Forrester <i>et al.</i> (2012) has subsequently estimated that in Scotland there are around 3,550 to 5,750 lekking males, representing about 71 % of the British population.</p> <p>In Scotland the breeding range is contracting, and numbers are declining, though the rate of decline varies regionally, being higher in southwestern Scotland (-49 %) compared to north Scotland (-16 %). Evidence therefore suggests that the national and regional populations are in unfavourable conservation status.</p> <p>The most recently estimated regional NHZ 5 population presented by Wilson <i>et al.</i> (2015) is 30 displaying males based on the national survey in 2005 (range 12 to 49).</p>

IOF	Conservation status	Justification
Greylag goose	Schedule 1 (Breeding) BoCC Amber list	<p>Mitchell <i>et al.</i> (2010) estimates a north and west Scotland breeding (British) greylag goose population of 34,500 birds. The breeding (British) greylag goose population is considered to be in favourable conservation status with a marked 21% increase between 2008/09 and 2018/19.</p> <p>The increasing numbers of British/Irish greylag geese in wintering areas make assessing the abundance of the migratory Icelandic population present in Britain difficult.</p> <p>In 2020, following adjustments for the number of British/Irish greylag geese likely to be included in wintering counts, a population estimate of 60,061 Icelandic greylag geese was derived for Britain, representing a decrease of 18.1% compared to a previous estimate of 73,355 in 2019 (Bridges <i>et al.</i>, 2021). Approximately 75% of the count was attributed to wintering sites in Scotland.</p> <p>The wintering (Icelandic) greylag goose population is also considered to be in favourable conservation status (although there has been a slight decline noted in recent years).</p> <p>The cited qualifying greylag goose population for the Dornoch Firth and Loch Fleet SPA is 1,146 individuals, based on the five-year period of 1989/90 – 1993/9 (NatureScot, 1997) and the population is currently assessed as being Favourable Maintained.</p> <p>Regional NHZ population estimated for greylag goose have not been published.</p>
Hen harrier	BoCC Red list	<p>Hen harrier is a Red-listed BoCC, due to historical population declines in the UK and without substantial recent recovery.</p> <p>The results of the most recent species census in 2023 reported by RSPB (2024) do indicate some population increases, with the UK and Isle of Man population estimated to be 691 territorial pairs; a 20% increase from the 545 pairs reported in the last species census in 2016.</p> <p>529 of those territorial pairs reported in the 2023 census were from Scotland, representing 77% of the UK and Isle of Man population, with the west Highlands, Hebrides and Orkney supporting the majority of breeding pairs.</p> <p>The NHZ 5 population was most recently estimated by Wilson <i>et al.</i> (2015) from the results of the species census in 2010, this reported an NHZ 5 population of 38 breeding</p>

IOF	Conservation status	Justification
		<p>pairs (range 35-40), with a national population of 501 pairs (range 430 to 557). Fielding <i>et al.</i> (2011) also in the species most recently published favourable conservation assessment, concluded that although 76% of the area of NHZ 5 contains suitable hen harrier habitat, and fledgling rate is above 1.2 young per breeding attempt (NHZ 5 = 2.02 fledgling rate) and more than 44.1% of the surveyed habitat is occupied (NHZ 5 = 63.6% occupation), the population conservation status in NHZ 5 (at the time of assessment) was unfavourable, as the population density is below the density threshold criterion of 2.12 pairs per 100 km² (NHZ 5 = 1.78 pairs per 100 km²).</p> <p>Whilst there has been some recent recovery of the UK population, the previously estimated NHZ 5 population of 38 breeding pairs (Wilson <i>et al.</i> 2015) and an assigned unfavourable conservation status, is likely to remain appropriate for the purposes of assessment.</p> <p>The adjacent Strath Carnaig and Strath Fleet Moors SPA, which qualifies under Article 4.1 of the Wild Birds Directive by providing habitat for around 12 pairs of hen harrier (mean value between 2002-2004), was most recently assessed as Unfavourable Declining in July 2021.</p>
Red kite	BoCC Green list	<p>Woodward <i>et al.</i> (2020) estimated the red kite UK breeding population to be 4,400 pairs (based on 2017 data), with the species included on the BoCC Green list (Stanbury <i>et al.</i> 2021) indicating that the population is in favourable conservation status.</p> <p>Following re-introduction efforts in Scotland, previous NHZ population estimates published by Wilson <i>et al.</i> (2015) based on a Scottish population of 253 pairs reported to the Scottish Raptor Monitoring Scheme (SRMS) in 2013, are considered outdated, with the SRMS reporting 298 of a total of 396 known ranges checked in Scotland being occupied by breeding pairs in 2020 (Challis <i>et al.</i> 2023).</p> <p>In the absence of more recently published NHZ population estimates for red kite, a combination of the Sutherland and Ross-shire SRMS regions is considered the most appropriate area from which to derive a regional population estimate for the purposes of assessment³⁹. The most recently published</p>

³⁹ And which is consistent with the approach taken for the adjacent Garvary Wind Farm.

IOF	Conservation status	Justification
		<p>SRMS annual reports for 2022, 2021 and 2020 (Challis <i>et al.</i> 2023 and 2022) report 30, 26 and 22 ranges respectively occupied by breeding pairs within these regions (of the 34, 33 and 27 ranges checked respectively).</p> <p>This suggests a relatively stable, but growing NHZ 5 population, which is likely to have a favourable conservation status.</p>

Future baseline

- 7.5.118 In the absence of the proposed Development, assuming the continuation of current land management practices within and around the Application Boundary (predominately upland moorland habitat used for sheep grazing, with small areas of woodland/plantation), bird populations recorded within and in proximity to the Application Boundary during baseline studies are likely to continue to be present in similar abundances and distributions to those described in the current baseline.
- 7.5.119 Any changes in numbers and diversity of species are likely to be a reflection of their wider population trends and influences such as climate change (e.g., delayed breeding, reduced or increased breeding success depending on the species range, Pearce-Higgins (2021), rather than site-specific factors.

7.6 Embedded mitigation

- 7.6.1 The potential for significant effects upon ornithological features has been avoided in so far as has been possible through scheme design.
- 7.6.2 The proposed Development also would be constructed, operated and decommissioned in accordance with standard industry good practice, including measures to enable the legislative protection of wild birds and safeguard sensitive bird species (SNH 2016c), including those listed on Schedule A1, 1 and 1A of the Wildlife and Countryside Act 1981 (see **Section 7.4**) and black grouse (NatureScot 2024a).

Design Considerations

- 7.6.3 The following specific ornithological constraints buffers, identified with reference to Goodship and Furness (2022), have been adopted in so far as has been possible during scheme design to avoid the potential for disturbance-displacement of IOFs, whilst retaining a viable scheme and meaningful contribution to renewable energy targets:
- Avoidance of infrastructure within 500 m of known Schedule 1 species' breeding sites; and
 - Avoidance of turbines within 500 m of known black grouse lek locations.
- 7.6.4 Full details of design consideration and design evolution are presented in **Chapter 3: Site Selection and Alternatives Considered**.

Good Practice Measures

7.6.5 This chapter has also been prepared on the basis that the following industry standard good practice measures, of specific relevance to ornithological features, will form part of the proposed Development:

- To ensure all reasonable precautions are taken to avoid disturbance to birds and comply with environmental legislation, prior to construction, decommissioning and where relevant during the operation of the proposed Development, the Applicant (or subsequent operator of the proposed Development) will appoint a suitably qualified ECoW who will advise its appointed contractors on all ornithological (and ecological) matters (with the assistance of a suitably qualified/licenced ornithologist if required). The ECoW will be present during the construction and decommissioning periods as required, and will carry out monitoring of works and briefings with regards to any ornithological sensitivities to the appointed contractors;
- Any disturbance areas around permanent infrastructure and/or construction compounds during construction will be temporary and land will be reinstated or restored before the construction period ends in accordance with the proposed Development's Construction Environmental Management Plan (CEMP), based on the Outline CEMP presented in **Technical Appendix 4.1**;
- Borrow pits will be excavated as required during the construction period and will be reprofiled at the end of the construction period in accordance with the CEMP; and,
- A BDMP will be prepared and implemented for the proposed Development, which will detail good practice and species-specific measures to be implemented during construction, decommissioning and where relevant during operational maintenance activities, to enable legislative compliance and safeguard sensitive bird species including those listed on Schedule A1, 1 and 1A of the Wildlife and Countryside Act 1981 (as amended). The BDMP shall be informed by information obtained during baseline studies, pre-commencement surveys, consultation with third-party recording groups and industry good practice.

Black Grouse

7.6.6 In accordance with NatureScot standard advice (2024), the BDMP will include species-specific measures to avoid the potential for disturbance to black grouse at their lek sites.

7.6.7 This will include for pre-commencement surveys for lekking black grouse during the main black grouse lekking season, following methodology provided by Gilbert *et al.* (1998) and NatureScot (SNH 2017), in order to provide an up to date understanding of where black grouse are lekking within 750 m of the proposed Development.

7.6.8 Should pre-construction surveys record lekking black grouse within 750 m of any proposed working areas (or should lekking black grouse be identified on the Site by any site personnel), construction activities would be restricted within a 750 m disturbance zone until a risk assessment is undertaken. The risk assessment would consider the likelihood and possible implications of the associated construction activities on the lek and set out necessary measures to ensure that no disturbance occurs.

7.6.9 The ECoW will oversee the implementation of the above species-specific measures for black grouse as part of the proposed Development's BDMP.

7.7 Biodiversity Enhancement Management Plan (BEMP)

- 7.7.1 This chapter has also been prepared in view of the requirements of NPF4 Policy 3 and the finalisation and implementation of a BEMP as part of the Proposed Development, based on the OBEMP submitted as **Technical Appendix 8.6**.
- 7.7.2 The BEMP will be finalised post consent on the basis of the OBEMP in consultation with the appointed advisory group, relevant landowners, THC, NatureScot and other stakeholders prior to the commissioning of the Proposed Development.
- 7.7.3 It is anticipated that the BEMP would also be finalised and implemented in conjunction with habitat management measures proposed as part of any adjacent relevant wind farm developments, which would enable a place-based approach to the delivery of biodiversity enhancement, as promoted within THC guidance (2024).
- 7.7.4 Specifically in relation to ornithological features, the OBEMP should be taken as the commitment of the proposed Development to ensure the enhancement and maintenance of habitats within the Site for IOFs, through peatland and heathland restoration (including the extensive removal of self-seeding conifers) and riparian planting.
- 7.7.5 This will provide improved habitats for species including black grouse, ground-nesting waders and hen harrier, and increase habitat connectivity around and away from operational infrastructure.

7.8 Predicted effects

- 7.8.1 This section presents an assessment of potentially significant effects on IOFs scoped into assessment (see **Table 7.3**).
- 7.8.2 A shadow HRA of the proposed Development in relation to the following relevant European sites, located within 20 km of the proposed Development, and which follows the current proforma for recording HRAs recommended by NatureScot (NatureScot 2023) is presented as **Technical Appendix 7.4**:
- Strath Carnaig and Strath Fleet Moors Special Protection Area (SPA);
 - Lairg and Strath Brora Lochs SPA;
 - Caithness and Sutherland Peatlands SPA and Ramsar site;
 - Dornoch Firth and Loch Fleet SPA and Ramsar site;
 - Morangie Forest SPA; and
 - Moray Firth SPA.
- 7.8.3 No adverse effects on the integrity of any European site scoped into the shadow HRA are predicted.

Black grouse

- 7.8.4 The potential for significant construction phase effects upon black grouse, including during the construction of shared infrastructure with the Garvary wind farm, are scoped-out on the basis of the implementation of industry standard good practice measures (see **Section 7.6**). This will avoid the potential for disturbance to lekking males, informed through pre-commencement surveys.

- 7.8.5 The potential for significant operational effects as a result of collision mortality risks for black grouse are also scoped out in the absence of collision risks with turbine blades being predicted for the species.
- 7.8.6 Additional mitigation is however outlined for black grouse to minimise the potential for collisions with other development infrastructure as set out in **Section 7.9**.

Potential operational effects (disturbance/displacement)

- 7.8.7 **Impact:** wind farm operation may cause some displacement of lekking, breeding and foraging black grouse from areas close to turbines and other infrastructure.
- 7.8.8 **Sensitivity:** medium NCI (**Table 7.9**) and unfavourable conservation status (**Table 7.10**). Consequently, black grouse sensitivity in the context of the Black grouse study area and for the purposes of assessment is considered to be medium-high.
- 7.8.9 **Magnitude of impact:** A review of the impact of wind farms on grouse species by Coppes *et al.* (2020) found that lekking black grouse in Scotland and Austria may be affected by infrastructure at up to distances of 500 m, with indications that impacts may continue over larger distances in some instances. Earlier evidence from Austria has also suggested that black grouse leks may be adversely affected by wind farms, although it is not clear what the exact causes may be (Zeiler & Grünschachner-Berger 2009).
- 7.8.10 A study by Zwart *et al.* (2015) of several Scottish wind farm sites did however find no evidence in the change in abundance of lekking males at operational wind farm sites following construction. The study did report that some lek locations moved locally following construction, but that this may have been due to several factors, including the response to provision of positive habitat management measures for the species away from operational infrastructure (Zwart *et al.* 2015). This study also reported evidence of frequent use of habitats within wind farm sites, including beneath operational turbines (Zwart *et al.* 2015).
- 7.8.11 Whilst there is conflicting evidence for species displacement from wind farms within different parts of the species range, NatureScot generally advocates that a turbine-free buffer of up to 500 m around black grouse lek sites should be applied as standard practice, to avoid the potential for operational displacement of lekking black grouse (NatureScot 2024a).
- 7.8.12 Of the four lek locations recorded during the baseline survey period, one location (BK_3) that supported between one and five males, is located within 500 m of one proposed turbine location (**Table 7.7** and **Confidential Figure 7.3.1**), and so it is possible that this lekking area may become less attractive to lekking birds due to the presence of operational infrastructure.
- 7.8.13 During baseline surveys, males at BK_3 were however recorded lekking at a number of points in relatively close proximity to one another, predominantly beyond 500 m from the nearest proposed turbine locations. Lekking males were also recorded at a number of other locations in this general area, typically within 1-2 km of one another (see **Confidential Figure 7.3.1**). A further lek site supporting a single male in 2017 and 2018 was also reported during baseline surveys for the Garvary wind farm, to the northeast turbine T3 for the proposed Development.

- 7.8.14 In the evidence summarised above from studies at other wind farms, including those in Scotland, it is unclear whether the presence of operational turbines would result in the loss of any males from the lekking population or result in redistribution of lekking away from turbines. The distribution of lekking locations recorded during baseline surveys would however suggest that males are likely to be mobile here and, may be linked; studies have shown that single males or males in low density populations, as is considered likely to be the case at the Site and within the wider NHZ 5 (see **Table 7.10**), do not generally have fixed lek sites, and are more mobile; most likely to increase chances of securing a mating by locating females (Warren *et al.* 2015 and 2017 and SNH 2017).
- 7.8.15 The five lekking males present at BK_3 and additional male recorded at a lek site to the northeast of turbine T3 during earlier surveys for the Garvary wind farm, represents around 20% of the estimated NHZ 5 population estimate of 30 males (Wilson *et al.* 2015). Whilst operational displacement (and loss to the population), should it occur, may represent a medium and potentially long-term impact, in this case breeding males are more likely to relocate to alternative lekking locations nearby, rather than be lost from the local or regional lek population.
- 7.8.16 Black grouse is also identified as a species for which positive habitat management measures can be delivered as part of the proposed Development, through the enhancement of nesting, foraging and brood rearing habitats and increased habitat connectivity within and around the Site, away from operational infrastructure. Further details are presented in the OBEMP (**Technical Appendix 8.6**), and which would be finalised post-consent, in consultation with THC, NatureScot and other relevant stakeholders.
- 7.8.17 Industry standard good practice mitigation measures are outlined in **Section 7.6** for implementation as part of the BDMP during the operational phase of the Proposed Development, and which would avoid the potential for disturbance to lekking birds during operational maintenance works.
- 7.8.18 **Significance of effect:** the effect on the regional NHZ 5 black grouse population as a result of operational disturbance is therefore considered to be at worst no more than **Minor** adverse and which is **Not Significant** in the context of the EIA regulations.

Greylag goose

- 7.8.19 The potential for significant construction and operational phase disturbance/displacement effects upon greylag goose, including during the construction and operation of shared infrastructure with the Garvary wind farm, are scoped-out in the absence of habitats within the Wintering Bird study area being suitable for the species.

Potential Operational Effects (Collision Mortality)

- 7.8.20 **Impact:** birds that utilise the airspace within the Proposed Development at potential collision heights may be at risk of collision with turbines, thereby increasing the annual mortality rate of the population above background levels.
- 7.8.21 **Sensitivity:** high NCI (**Table 7.9**) and favourable conservation status (**Table 7.10**), overall medium-high sensitivity.

- 7.8.22 **Magnitude of impact:** a very low level of greylag goose flight activity was recorded over the baseline survey period, with a mean non-breeding collision rate of 0.003 predicted for the proposed Development (or bird one every 315.94 non-breeding seasons).
- 7.8.23 Regional NHZ population estimates for Icelandic greylag geese have not been published, and so effects are considered at both the recently estimated Scottish population scale, and Dornoch Firth and Loch Fleet SPA population scale (see **Table 7.9**).
- 7.8.24 The predicted collision mortality risk for the proposed Development represents an indiscernible proportion of the most recently estimated Icelandic population in Scotland (45,046 birds, based on 75% of the estimated wintering population in Britain, see **Table 7.9**) and Dornoch Firth and Loch Fleet SPA citation population (1,146 birds, see **Table 7.9**) and is considered to be of Negligible but long-term magnitude.
- 7.8.25 Given the very low level of flight activity, no barrier effects are predicted.
- 7.8.26 **Significance of effect:** The effect on the Scottish and Dornoch Firth and Loch Fleet SPA migratory populations, as a result of operational collision mortality risks, is therefore considered to be Negligible and Not Significant in the context of the EIA Regulations.

Hen harrier

Potential Construction Effects (Disturbance/Displacement)

- 7.8.27 **Impact:** breeding or foraging hen harrier may be displaced from construction working areas by construction disturbance.
- 7.8.28 **Sensitivity:** High NCI (**Table 7.9**) and unfavourable conservation status (**Table 7.10**), therefore overall high sensitivity.
- 7.8.29 **Magnitude of Impact:** baseline surveys recorded a single hen harrier breeding attempt within the SBB study area in 2024 with the likely nest site located over 750 m from the nearest proposed turbine locations, but within 500m of an access track section (see **Confidential Technical Appendix 7.3** and **Confidential Figure 7.3.2**).
- 7.8.30 No pairs were recorded breeding within the SBB study area 2022 or 2023, although single pairs of were recorded within proximity to the Garvary wind farm development in 2017, 2018 and 2022, with exact nesting locations being variable.
- 7.8.31 The Application Boundary is not identified as being important for non-breeding birds and no non-breeding roost sites have been identified within the SBB study area.
- 7.8.32 Hen harrier is listed on Schedule 1 (and 1A) of the Wildlife and Countryside Act 1981 (as amended). The proposed Development's BDMP will therefore inherently include for species-specific restrictions during the construction works, including during the construction of shared infrastructure, to enable legislative compliance and avoid (or otherwise minimise) the disturbance to breeding hen harriers (see **Section 7.6**). This would include for the avoidance of activity within a 750 m buffer of any identified active nest sites during the species' breeding season (April to July), in accordance with current recommended guidance (Goodship and Furness, 2022).
- 7.8.33 Disturbance to breeding pairs, at or near their nest sites, and their dependent young, would therefore not occur over the course of construction works.

- 7.8.34 Baseline flight activity surveys in 2022 and 2023, recorded no hen harrier flight activity, which suggests that in years where pairs nest outside of the SBB study area, habitats within the vicinity of proposed Development turbine locations, do not form important foraging areas for breeding birds, including pairs from the nearby SPA.
- 7.8.35 Breeding hen harrier are stated to have a core foraging range of 2 km (SNH, 2016b). As such, in some years where pairs choose nesting sites in closer proximity to the proposed Development, including within the SBB study area, habitats within the Application Boundary may provide closer foraging opportunities for provisioning adult birds and the potential for displacement.
- 7.8.36 Foraging displacement would however only likely affect a single pair, or up to two pairs (assuming the pair recorded in proximity to an access track section of the Garvary wind farm during baseline studies for that development is a different pair),, representing between 3 and 7% of the most recently estimated regional NHZ 5 population (38 pairs as per Wilson *et al.* 2015). Impacts would be short term and would likely only impact a small extent of a pair's foraging range, based on the local availability of alternative moorland foraging habitats and that construction activity would not take place simultaneously across the whole Application Boundary. This would not be considered to impact upon the productivity of any individual territory.
- 7.8.37 The impact on potential foraging loss to breeding hen harrier is therefore predicted to be at worst of low to medium and short-term magnitude, depending on the location of nest sites chosen.
- 7.8.38 **Significance of Effect:** the effect on the regional NHZ 5 breeding hen harrier population as a result of construction is therefore considered to be no more than **Minor** adverse and **Not Significant** in the context of the EIA Regulations.

Potential Operational Effects (Disturbance/Displacement)

- 7.8.39 **Impact:** hen harrier may be at risk of displacement from foraging habitat, thereby impacting on productivity, fitness and survival rates.
- 7.8.40 **Sensitivity:** high.
- 7.8.41 **Magnitude of Impact:** Evidence suggests that hen harriers are not sensitive to displacement around operational wind farms. Studies conducted at Irish and Scottish wind farms (Madden and Porter 2007; Robson 2012; Haworth and Fielding 2013) have all recorded harrier flights close to turbines. At Ben Aketil and Edinbane Wind Farms, harrier activity increased post-construction within a 500 m turbine buffer (Haworth and Fielding 2013). Haworth and Fielding (2013) and Pearce-Higgins *et al.* (2012) concluded that there was no evidence for displacement impacts on hen harrier from operational wind farms.
- 7.8.42 Haworth and Fielding (2013) also present several examples, from within the UK, where harriers have been recorded nesting close to operating turbines. For example, at the Cruach Mhor Wind Farm in Argyll, harriers were first recorded nesting during the construction year (2003) and nesting has continued within a mean distance of 284 m to the closest turbine (range 131 – 476 m, 2003-2009) (ScottishPower Renewables 2009, cited in Haworth and Fielding 2013). At the Paul's Hill Wind Farm, nesting harrier numbers near the wind farm site were similar during operation (mean 2.4, 2006-2010) to before construction (mean 2.6, 1991-2003), and were higher during construction (mean 4.5,

2004-2005), with one nest located within 110 m of construction activities (Forrest *et al.* 2011 cited in Haworth and Fielding 2013).

- 7.8.43 Whitfield and Madders (2006) concluded from a review of previous studies that if displacement of foraging hen harriers occurs, then it will likely be limited to within 100 m of wind turbines, if it occurs at all. Haworth and Fielding (2013) found no clear evidence of hen harrier foraging displacement at distances beyond 100 m from turbines at wind farms in Scotland, concluding their review '*even if the effects of wind farms are much larger than the available evidence suggests it is highly unlikely that these effects would result in significant population level effects*'.
- 7.8.44 Based on the evidence presented, it is considered that a 100 m displacement distance is likely to be a reasonable extent of possible impacts on hen harrier activity around turbines at the proposed Development. This would likely only impact on a very small part of the foraging range of a single breeding pair of hen harrier in some years, where pairs adopt nesting sites in closer proximity to turbine locations, and which would not be considered to impact upon the productivity of the pair's territory.
- 7.8.45 The proposed Development's BDMP would also include for species-specific restrictions during the operational maintenance works to enable legislative compliance and avoid (or otherwise minimise) the disturbance to nesting hen harrier (see **Section 7.6**). As for construction works, this would similarly include for the avoidance of scheduled operational maintenance activity within 750 m of identified active nest sites during the species breeding season (April to July) in accordance with current recommended guidance (Goodship and Furness, 2022).
- 7.8.46 Positive habitat management measures to be delivered as part of the proposed Development, would also serve to enhance foraging habitat for hen harriers, away from operational infrastructure. Further details are presented in the OBEMP (**Technical Appendix 8.6**), and which would be finalised post-consent, in consultation with THC, NatureScot and other relevant stakeholders.
- 7.8.47 The impact on potential foraging loss to breeding hen harrier during the operational phase is therefore predicted to be at worst of **Negligible** and medium to long-term magnitude, depending on the location of nest sites chosen.
- 7.8.48 **Significance of Effect:** the effect from operational displacement is considered to be no more than **Minor** adverse and therefore **Not Significant** in the context of the EIA Regulations.

Red kite

Potential Construction Effects (Disturbance/Displacement)

- 7.8.49 **Impact:** breeding or foraging red kite may be displaced from construction working areas by construction disturbance.
- 7.8.50 **Sensitivity:** medium NCI (**Table 7.9**) and favourable conservation status (**Table 7.10**), therefore considered to have an overall medium sensitivity.
- 7.8.51 **Magnitude of impact:** baseline studies identified a single red kite breeding site, located outside of the SBB study area, over 3.3 km from the nearest proposed Development

infrastructure (access track section) and therefore beyond the upper disturbance buffer considered likely for breeding red kite (Goodship and Furness 2022).

- 7.8.52 No communal roosting locations for the species were identified within the SBB study area.
- 7.8.53 Red kite is listed on Schedule 1 (and 1A) of the Wildlife and Countryside Act 1981 (as amended). The proposed Development's BDMP will therefore inherently include species-specific restrictions to enable legislative compliance and avoid (or otherwise minimise) the disturbance to any nesting red kite over the course of construction works (see **Section 7.6**). This would include for the avoidance of activity within a 300 m buffer of an active red kite nest during the species' breeding season (April to July), which is in accordance with current guidance (Goodship and Furness, 2022).
- 7.8.54 Red kites usually forage within 3 km of their nest sites but can forage up to 6 km (Hardey *et al.*, 2013). Much of the red kite activity recorded within the Application Boundary is therefore most likely related to birds that breed locally, including those at the breeding site to the south of the Proposed Development identified during baseline surveys. Some activity may however be reasonably attributed to juvenile or non-breeding adults which may range across much wider area.
- 7.8.55 Red kites are generally accepted as being opportunistic foragers and scavengers and can often be found nesting close to human habitation and infrastructure. Any temporary displacement of breeding or non-breeding foraging birds from within proximity to construction works is therefore unlikely to result in a measurable adverse impact.
- 7.8.56 Overall, construction impacts to red kite would therefore be of negligible and short-term magnitude.
- 7.8.57 **Significance of effect:** the construction effect on the regional red kite population is considered to be **Negligible** and **Not Significant** in the context of the EIA regulations.

Potential Operational Effects (Disturbance/Displacement)

- 7.8.58 **Impact:** red kite may be at risk of displacement from foraging and nesting habitat due to the presence of operational infrastructure, thereby impacting on productivity, fitness and survival rates.
- 7.8.59 **Sensitivity:** medium sensitivity.
- 7.8.60 **Magnitude of effect:** Current evidence suggests that red kites do not exhibit a strong degree of displacement from operational wind farms in Scotland (Duffy and Urquhart, 2014 and SNH, 2018b).
- 7.8.61 Overall operational impacts, including barrier effects, to red kite are concluded as being of no more than negligible and but potentially of long-term magnitude, and there will continue to be sufficient available foraging habitat and nesting opportunities surrounding the Proposed Development.
- 7.8.62 **Significance of effect:** the operational displacement effect on the regional red kite population is considered to be **Negligible** and **Not Significant** in the context of the EIA regulations.

Potential Operational Effects (Collision Mortality)

- 7.8.63 **Impact:** birds that utilise the airspace within the Proposed Development at potential collision heights may be at risk of collision with turbines, thereby increasing the annual mortality rate of the population above background levels.
- 7.8.64 **Sensitivity:** medium.
- 7.8.65 **Magnitude of Impact:** the NatureScot CRM predicts an annual collision mortality risk of 0.027, or approximately one bird every 37 years and therefore not occurring over the operational lifetime of the proposed Development (see
- 7.8.66 Table 7.6).
- 7.8.67 Given the continued relatively high productivity of breeding pairs reported for the Scottish population (1.3 young fledged per pair laying eggs in 2022, Challis *et al.*, 2023), previous population modelling elsewhere in Scotland (Samson *et al.*, 2016) has demonstrated that the growth of regional red kite populations is unlikely to be affected by the very small predicted increase in annual baseline mortality, such as predicted for the proposed Development (even where constrained by other significant anthropogenic sources e.g. persecution events or other onshore wind farms).
- 7.8.68 Given the very small predicted increase in additional mortality, which would unlikely be measurable at the regional population level, an impact of Negligible and long-term magnitude is predicted.
- 7.8.69 **Significance of effect:** the collision risk effect on the regional red kite breeding population is concluded to be **Negligible** and **Not Significant** in the context of the EIA regulations.

7.9 Additional mitigation

- 7.9.1 No significant construction phase effects are predicted for any IOF, and therefore no additional mitigation measures are required.

Mitigation during operation

- 7.9.2 Additional measures, are however proposed for black grouse, to reduce the potential for collision risks with other operational infrastructure.

Black Grouse Collision Risks

- 7.9.3 Any fencing installed as part of proposed Development, either temporary or longer term will be marked to increase their visibility to black grouse and reduce the potential for this species' collisions with such infrastructure.
- 7.9.4 In addition a trial of turbine base marking (e.g. with droppers) is also proposed, to be agreed in consultation with THC, NatureScot and other relevant stakeholders, to further reduce the potential of collision risks for this species and inform future industry standard good practice.

7.10 Assessment of Residual Effects

7.10.1 Following additional mitigation measures detailed above, the residual effect of collision mortality risks for black grouse is considered to be **Negligible** and **Not Significant** in the context of the EIA regulations.

7.11 Cumulative effects

7.11.1 Based on the conclusions of the assessment presented in **Section 7.5**, embedded mitigation measures set out in **Section 7.6**, additional mitigation measures set out in **Section 7.9** the proposed Development is not predicted to have any significant effects on the respective regional populations of any IOF.

7.11.2 The proposed Development will also include for a BEMP, based on the OBEMP submitted as **Technical Appendix 8.6** and which will provide long-term positive habitat management measures for species that may be disturbed/displaced during operation, in areas away from operational infrastructure. Such measures are considered to more than offset the potential for adverse operational impacts, upon any IOF, over the proposed Development's operational lifetime.

7.11.3 The potential for the proposed Development to materially contribute to significant effects for any IOF, at a regional level, in-combination with any other wind farm development is therefore considered very unlikely and scoped-out of further consideration.

7.11.4 The potential for significant cumulative effects at a local project level is however considered further, in relation to the construction and operational use of the joint access track route with the adjacent Garvary wind farm and relevant overhead lines development (OHL).

Shared Infrastructure

7.11.5 For the purposes of this cumulative assessment, construction works for the proposed Development and the proposed Garvary wind farm may either take place concurrently, once the shared access track route is constructed, or in isolation, whereby the construction timeframes of the two proposed developments do not overlap.

7.11.6 For the latter, the temporal extent over which disturbance effects to IOFs may occur would be prolonged. Such effects would however remain temporary, occurring over an approximate period of 48⁴⁰ months and across up to five breeding seasons.

7.11.7 Baseline information from the periods March 2017 to February 2019 and the 2022 breeding season, presented within chapter 5 of the Garvary wind farm EIA Report and Additional Information Report (AI Report), details the presence of the following breeding features within 500 m of the shared access track route:

- black grouse (one lek site recorded in 2022⁴¹);

⁴⁰ 24 months for the proposed Garvary Wind Farm and 24 months for the Proposed Development.

⁴¹ No leks recorded within 500m of the access track route during baseline surveys presented within the Garvary Wind Farm EIA Report (see Figure 5.4 of the Garvary Wind Farm EIA Report). Lek locations kept confidential in the Garvary Wind Farm AI Report, but presence from 2022 breeding season surveys referred to at paragraph 5.1.101 of Garvary Wind Farm AI Report Chapter 5.

- curlew (up to two pairs⁴²);
- dunlin (up to two pairs⁴²);
- golden plover (two⁴³ to six⁴⁴ pairs);
- hen harrier (up to one pair in some years⁴⁵);
- lapwing (up to one pair⁴⁶); and
- short-eared owl (up to one pair⁴⁷).

7.11.8 The number of breeding territories of all species is very small. In a scenario where construction works for the Garvary wind farm are commenced first, shared infrastructure (and wider Garvary wind farm development) would be constructed and subsequently operated in accordance with industry standard good practice, as set out in chapter 5 of the Garvary wind farm AI Report. This will include for the finalisation and implementation of a Breeding Bird Protection Plan (BBPP) in consultation with NatureScot and which will avoid the potential for adverse disturbance/displacement effects upon sensitive ornithological features along the shared access track route.

7.11.9 In a scenario where construction works for the proposed Development are commenced first, industry standard good practice measures contained of a Bird Disturbance Management Plan (BDMP; see **Section 7.6**), will also form part of the proposed Development.

7.11.10 The potential for significant adverse disturbance/displacement effects upon ornithological features along the shared access track route as a result of cumulative interactions between the development, will therefore be avoided.

Overhead Line Connections

7.11.11 In consultation (see **Table 7.1**), RSPB Scotland recommended that the assessment should include consideration of the potential for cumulative effects associated with overhead line grid connections, including the consented Lairg to Loch Buidhe and the proposed Spittal to Loch Buidhe to Beauly 400 kV Overhead Line (OHL), together with the grid connection of the proposed Development to either the existing or proposed Loch Buidhe Substation.

7.11.12 It is assumed for the purpose of assessment that the grid connection for the proposed Development would be underground along the side of the shared access track route with no potential for in-combination operational collision or displacement effects.

⁴² Garvary Wind Farm EIA Report Figure 5.5: Distribution of other key breeding birds. Not recorded within proximity to the access track during surveys in 2022 presented within the Garvary Wind Farm AI Report.

⁴³ Garvary Wind Farm AI Report Figure 5.5a: Moorland Breeding Bird Survey Results (2022).

⁴⁴ Garvary Wind Farm EIA Report Figure 5.3: Distribution of breeding Golden Plover.

⁴⁵ Breeding locations kept confidential in the EIA Report and AI Report, but presence from 2022 breeding season surveys in proximity to access track section referred to at paragraph 5.1.128 of Garvary Wind Farm AI Report Chapter 5.

⁴⁶ Garvary Wind Farm AI Report Figure 5.5a: Moorland Breeding Bird Survey Results (2022). Not recorded within proximity to the access track during surveys between 2017-2019 presented within the Garvary Wind Farm EIA Report.

⁴⁷ Not recorded within proximity to the access track during surveys between 2017-2019 presented within the Garvary Wind Farm EIA Report (see Garvary Wind Farm EIA Report Figure 5.5). Breeding location kept confidential in the Garvary Wind Farm AI Report, but presence from 2022 breeding season surveys within proximity to the access track referred to at paragraph 5.1.138 of Garvary Wind Farm AI Report Chapter 5.

- 7.11.13 A formal planning application for the Spittal to Loch Buidhe to Beauly 400 kV OHL has not yet been submitted, nor the detailed findings of any baseline ornithological studies undertaken to inform the alignment of the route made publicly available. The potential for cumulative effects with the proposed Development would therefore be assessed, where appropriate, as part of the Spittal to Loch Buidhe to Beauly OHL's own planning application.
- 7.11.14 Where potentially significant effects on IOFs are identified, either as a result of each development alone, or cumulatively, it would be expected that the developments would include for additional appropriate mitigation measures to be agreed and implemented in consultation with relevant stakeholders, by way of a suitable worded condition. This may include the installation of bird diverters at key locations along the OHL, as is generally standard practice, to reduce the potential for collision risk mortality.
- 7.11.15 In relation to the Lairg to Loch Buidhe OHL, construction works for the project have now been completed. As such, there is no potential for significant cumulative construction disturbance/displacement effects.
- 7.11.16 In review of planning documentation publicly available for the Lairg to Loch Buidhe OHL, a quantitative assessment of operational effects upon all recorded ornithological features is not presented.
- 7.11.17 Effects due to collision risks are described more qualitatively, with the exception of black-throated diver. The potential for operational displacement/disturbance effects⁴⁸ were also scoped-out of assessment for the project, on the basis that the level of these effects would be too low to be significant. It is understood this was not disputed by relevant consultees.
- 7.11.18 The potential for significant cumulative collision risk effects with the Lairg-Loch Buidhe reinforcement project have therefore been considered in so far as is possible, for those IOFs scoped into assessment of both development and which comprises only red kite.
- 7.11.19 Collision risks for red kite associated with the Lairg-Loch Buidhe reinforcement project, are stated to be low⁴⁹, on the basis of the flight activity recorded and species behavioral characteristics. Mitigation measures for the project were also outlined, comprising suitably placed bird diverters to reduce the likelihood of collisions taking place, primarily for black-throated diver, but considered appropriate in reducing collisions risks for additional species.
- 7.11.20 Assuming the implementation of mitigation for the OHL, in accordance with Condition 13 of the project's Deemed Planning Permission, the potential for significant cumulative risks with the proposed Development are very unlikely and concluded as non-significant in the context of the EIA regulations.

7.12 Summary of effects

- 7.12.1 The following provides a summary of the conclusions of the impact assessment with respect to each IOF taking into consideration embedded and any additional mitigation measures.

⁴⁸ Disturbance effects arising from noise and visual effects associated with the wires, and activity of site personnel. Paragraph 6.2.7 of the Lairg to Loch Buidhe Reinforcement EIA Report (January 2019).

⁴⁹ Table 6.6. of the Lairg to Loch Buidhe Reinforcement EIA Report (January 2019).

Table 7.10: Summary of effects

Potential impact	Pre-mitigation		Mitigation	Residual effect
	Effect	Significance		Significance
<i>Construction Phase</i>				
Hen harrier	Disturbance/ Displacement	Minor Adverse Not Significant	No additional mitigation required. Embedded measures to be set out in a BDMP to enable legislative compliance (see Section 7.6).	Not Significant
Red kite	Disturbance/ Displacement	Negligible Not Significant		Not Significant
<i>Operational Phase</i>				
Black grouse	Disturbance/ Displacement	Minor Adverse Not Significant	No additional mitigation required. Embedded measures to be set out in a BDMP to enable legislative compliance (see Section 7.6).	Not Significant
Hen harrier	Disturbance/ Displacement	Minor Adverse Not Significant		Not Significant
Red kite	Disturbance/ Displacement	Negligible Not Significant		Not Significant
Red kite	Collision mortality	Negligible Not Significant	No additional mitigation required.	Not Significant
Greylag goose	Collision mortality	Negligible Not Significant	No additional mitigation required.	Not Significant
<i>Decommissioning Phase</i>				
Hen harrier	Disturbance/ Displacement	Minor Adverse Not Significant	No additional mitigation required. Embedded measures to be set out in a BDMP to enable legislative compliance (see Section 7.6).	Not Significant
Red kite	Disturbance/ Displacement	Negligible Not Significant		Not Significant

7.13 References

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