

Chapter 7: Ornithology

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Confidential Annex

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7. Ornithology

7.1. Executive Summary

- 7.1.1. This Ornithology chapter of the Environmental Impact Assessment Report (EIAR) assesses the likely significant effects of the Proposed Varied Development with respect to ornithology.
- 7.1.2. The ornithological impact assessment (OIA) presented in this chapter considers only likely changes to the conclusions of the Consented Development. Where there is unlikely to be a change to effects to any of the Important Ornithological Features (IOFs) previously considered, these are scoped out of the OIA for the Proposed Varied Development.
- 7.1.3. No significant effects on IOFs were identified for the Consented Development, either alone or cumulatively. Updated desk study data were obtained in September 2025 and, based on this information and the baseline established for the 2021 EIAR, it is considered that the assessment of effects of the Consented Development alone on previously identified IOFs will largely remain unchanged for the Proposed Varied Development.
- 7.1.4. However, as collision risk will change due to the alteration of turbine height and associated geometry, revised Collision Risk Modelling (CRM) has been completed to inform a revised assessment of potential collision risk arising from the Proposed Varied Development. Additionally, given that new collision risk data are available from other developments, the cumulative collision risk has also been re-assessed for relevant IOFs.
- 7.1.5. Four species were scoped into the CRM completed for the Consented Development, namely golden plover (*Pluvialis apricaria*), dunlin (*Calidris alpina*), greenshank (*Tringa nebularia*) and golden eagle (*Aquila chrysaetos*). However, as the minimum air gap (the distance from the ground to the lowest turbine blade sweep) for the Proposed Varied Development is larger than that for the Consented Development, all golden plover and dunlin flights recorded during baseline surveys were below potential collision height (PCH). Therefore, these two species were scoped out of the updated CRM for the Proposed Varied Development, which included greenshank and golden eagle only.
- 7.1.6. Collision risk to all four species is predicted to be lower for the Proposed Varied Development compared to the Consented Development, which will result in a minor reduction in the magnitude of collision risk effects, which will remain non-significant in EIA terms.
- 7.1.7. All four species are qualifying features of the adjacent Caithness and Sutherland Peatlands Special Protection Area (SPA) and Ramsar site, while all except golden eagle are also notified features of the adjacent Grudie Peatlands Site of Special Scientific Interest (SSSI). As such, there will be a minor reduction in the magnitude of effects on features of these designated sites. No adverse effects on site integrity are predicted for

the Proposed Varied Development, which is consistent with the conclusions of the Habitats Regulations Appraisal (HRA) completed for the Consented Development.

- 7.1.8. No additional IOFs were considered to be at increased risk of collision mortality due to the change in turbine parameters, such as increased tip height, for the Proposed Varied Development.
- 7.1.9. An updated cumulative collision risk assessment has also been completed for greenshank and golden eagle, using the revised CRM results for the Proposed Varied Development and CRM results from other developments in the surrounding area. No significant cumulative effects were identified for either species.
- 7.1.10. Although no significant effects on IOFs were predicted for either the Consented Development or the Proposed Varied Development, mitigation and enhancement measures for breeding wader species delivered via the Habitat Management Plan (HMP) and secured through planning conditions for the Consented Development remain appropriate and effective for the Proposed Varied Development.

7.2. Introduction

- 7.2.1. This chapter of the Environmental Impact Assessment (EIA) Report assesses potential effects of the Proposed Varied Development with respect to ornithology. It updates **Chapter 9: Ornithology** of the **2021 EIAR** for the Consented Development (Planning Reference ECU00001930), which should be read in conjunction with this chapter, as well as **Technical Appendices 8.9: Deer Management Plan** and **8.10: Outline HMP** of the **2021 EIAR**.
- 7.2.2. This chapter should also be read in conjunction with the development description provided in **Chapter 2: Design Iteration and Proposed Development**, and with respect to relevant parts of **Chapter 6: Ecology**, which details the effects of the Proposed Varied Development on habitats and evaluates whether the ecological mitigation and enhancements for the Consented Development, including the Deer Management Plan and Outline HMP, are adequate for the Proposed Varied Development in terms of ecological receptors.
- 7.2.3. In this chapter, receptors are referred to as ornithological features, to accord with the Chartered Institute of Ecology and Environmental Management (CIEEM) (2018) guidance on Ecological Impact Assessment (EclA). "*Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine*" Version 1.3 - updated September 2024. Potential effects on European sites of ornithological importance are considered with regard to the HRA process, where required.
- 7.2.4. This chapter has been informed by the desk study and field surveys completed for the Consented Development planning submission, the results of which are considered to be representative of the baseline ornithology for the Proposed Varied Development. As such, no additional field surveys have been completed to inform this planning

submission. Updated desk-based study has been completed where relevant to capture any additional information available for IOFs.

- 7.2.5. The chapter has been prepared by RPS Consulting Services Ltd (RPS). The lead author is an ornithologist who is a Full Member of the Chartered Institute of Ecology and Environmental Management (MCIEEM) and has over 12 years consultancy experience, working predominantly on OIAs and onshore wind farm developments.

7.3. Scope of Assessment

- 7.3.1. A S36C Scoping Report for the Proposed Varied Development (“the Scoping Report”) was submitted to statutory consultees for their consideration in June 2025. The Scoping Report set out the rationale to assess or scope out ornithological features based on the potential impacts of the Proposed Varied Development due to changes from the Consented Development.
- 7.3.2. As detailed in Chapter 2, the Proposed Varied Development only differs from the Consented Development in terms of a modest increase in size of infrastructure, with a proposed increase in the hub height of all 18 turbines, resulting in an increase in maximum tip height from 149.90m to 200m. There would also be a minor change in the nominal maximum rotor diameter of the turbines from 136m to 138m. The increased turbine hub height changes will require minor increases to the areas of the hardstanding and foundation requirements for each turbine.
- 7.3.3. As detailed in the Scoping Report, no significant effects on IOFs were identified for the Consented Development, either alone or cumulatively and it is considered that the assessment of effects of the Consented Development alone on previously identified IOFs will largely remain unchanged.
- 7.3.4. However, estimated collision risk will change due to the alteration of turbine height and geometry. Therefore, although it was considered unlikely that this would result in any significant changes to predicted collision risk effects on IOFs, revised CRM has been completed to inform a revised assessment of potential collision risk arising from the Proposed Varied Development. Additionally, given that new collision risk data are available from other developments, the cumulative collision risk has also been re-assessed.
- 7.3.5. Considering that the baseline ornithology data for the Consented Development is still considered to be valid, the relatively limited changes made for the Proposed Varied Development, and the mitigation and enhancements proposed in the 2021 EIAR and included in the Planning Conditions of the 2023 consent, only collision risk has been ‘scoped in’ to the assessment for the Varied Development. All other ornithological issues have been ‘scoped out.’ This is in line with NatureScot (2024a) guidance on dealing with proposals for the variation of Section 36 wind farm consents, which states that: *“For birds, in the majority of cases where the number and location of turbines are not changing, all that will be needed is a re-working of the collision risk model, rather than new survey work. Revised collision risk calculations should be presented in the EIA*

report and, where appropriate, in-combination with other wind farm developments.” As detailed in section 7.4, NatureScot confirmed that they were content with this approach.

7.3.6. Relevant mitigation proposed in the planning submission for the Consented Development has been secured through appropriately worded planning conditions to the Section 36 Planning Consent. Consultee comments on the Proposed Varied Development and relevant planning conditions associated with the Consented Development are provided in the following sections of this document. The ornithological baseline for the Consented Development and a summary of the predicted effects of the Consented Development on IOFs are also provided for context.

7.3.7. Further to the above, the Scope of this assessment and document is to:

- Summarise the previously collected baseline information used to support the Consented Development’s planning submission;
- Undertake CRM based on the new turbine parameters for the Proposed Varied Development;
- Undertake a revised assessment of the predicted collision risk effects of the Proposed Varied Development, both alone and cumulatively with surrounding developments, on IOFs; and
- Summarise any changes in predicted collision risk effects on IOFs arising from the Proposed Varied Development compared with the Consented Development.

7.4. Consultations

7.4.1. Scoping Opinion comments with relevance to ornithology that were received in 2019-20 for the Consented Development are detailed in **Chapter 7: Ornithology** of the **2021 EIAR** and were fully addressed in that chapter. The comments are also included in the Scoping Report for the Proposed Varied Development and are not repeated here.

7.4.2. Scoping Opinion comments with relevance to ornithology that were received in 2025 in response to the Proposed Varied Development Scoping Report submitted for the Proposed Varied Development are summarised in **Table 7.1**.

7.4.3. Further consultation with The Highland Council (THC) took place in August 2025 to clarify their Scoping Opinion comments regarding the validity of the ornithology data. This is also summarised in **Table 7.1**.

Table 7.1: Summary of Scoping Opinion comments with relevance to ornithology received for the Proposed Varied Development.

Consultee and Date	Issue Raised	Response
Proposed Varied Development Scoping Opinion – 13 August 2025		

Consultee and Date	Issue Raised	Response
NatureScot (14 July 2025)	Stated that they were content with the proposed approach for the Ornithology chapter outlined by the Applicant in the Scoping Report and welcomed reference to NatureScot (2024a) guidance on dealing with proposals for the variation of section 36 wind farm consents.	Noted. The approach outlined in the Scoping Report for the Proposed Varied Development was followed when producing this chapter and NatureScot (2024a) guidance was referred to.
THC (25 July 2025)	Advised that the presence of birds listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) (W&CA) and qualifying interests of SPAs and other areas designated for ornithological interests must be included and considered as part of the planning application process, not as an issue that can be considered at a later stage. Noted that consent given without due consideration to these species may breach European Directives with the possibility of consequential delays or the project being halted by the European Commission (EC). Further advised that any comments from NatureScot and the Royal Society for the Protection of birds (RSPB) should be referred to in this respect.	As described in section 7.3 of this chapter, it is considered that, in terms of potential impacts on ornithological features, the only change between the Proposed Varied Development and Consented Development would be due to changes in collision risk (both from the Proposed Varied Development alone and cumulatively with other developments). This has been considered in sections 7.9 and 7.12 of this chapter, with all relevant species considered, including those listed on Schedule 1 of the W&CA and qualifying features of protected sites with potential connectivity to the Site. As summarised in this Table, Scoping Opinion comments from both NatureScot and the RSPB have been taken into account when completing the OIA presented in this chapter.
	Advised that an assessment of the impacts to birds through collision, disturbance, and displacement from foraging / breeding / roosting habitat will be required for both the Proposed Varied Development alone and cumulatively with other proposals. Further	As noted above, in terms of potential impacts on ornithological features, the only change between the Proposed Varied Development and Consented Development would be due to changes in collision risk, which is considered in section 7.9 of this chapter for the Proposed Varied Development alone and section 7.12 for cumulative impacts.

Consultee and Date	Issue Raised	Response
	advised that the EIAR should be clear on the survey methods and any deviations from guidance on ornithology matters.	<p>As described in section 7.3, potential disturbance and displacement impacts have been scoped out of the OIA.</p> <p>Survey methods, including any limitations, were detailed in Technical Appendix 9.1 of the 2021 EIAR for the Consented Development and are not repeated here as there have been no changes. However, a summary of the completed baseline surveys is presented in section 7.6 of this chapter.</p>
	Stated that the ornithological data are considered out of date, with surveys being undertaken in 2019 and 2020, and that NatureScot (2025a) guidance advises that data should not be greater than five years old. Stated their expectation that all relevant data should be submitted within the EIAR, including flight map data and a full assessment of collision risks.	<p>As detailed in the Scoping Report, the approach for the OIA for the Proposed Varied Development follows NatureScot (2024a) guidance on proposals for the variation of section 36 wind farm consents, which states that, <i>“For birds, in the majority of cases where the number and location of turbines are not changing, all that will be needed is a re-working of the collision risk model, rather than new survey work.”</i> This, rather than the 2025a NatureScot guidance is considered to be relevant in this instance, because the latter largely relates to proposed new developments.</p> <p>In their Scoping Opinion comments (detailed above), NatureScot confirmed their agreement with this approach and did not recommend any further surveys. Therefore, all relevant survey data and flight line maps are included in Technical Appendix 9.1 of the 2021 EIAR for the Consented Development and are not repeated here.</p> <p>However, updated desk study records were obtained from the Highland Raptor Study Group (HRSG) (see section 7.6 of this chapter) and revised CRM has been completed for the Proposed Varied Development (see section 7.9 of this chapter).</p> <p>The Applicant confirmed the intended approach to defer to NatureScot and proceed with the EIA assessment (as described in the Scoping Report) by email to THC on 15 August 2025. THC responded on 22 August 2025 and further details on this are provided at the bottom of this table.</p>
	Stated their expectation that the EIAR should include any cumulative assessments for the Proposed Varied Development,	An updated cumulative collision risk assessment for the Proposed Varied Development is included in section 7.12 of this chapter. All relevant developments

Consultee and Date	Issue Raised	Response
	considering any developments that may impact upon the same ecological receptors either in the planning system, under construction or operational. Advised that THC is not aware of any recent projects that are not yet in the public domain which may be pertinent to the assessment of impacts.	with available collision risk data were included in the assessment. Potential cumulative effects on ornithological features due to other impacts are considered to be the same as for the Consented Development (see section 9.10 of the 2021 EIAR).
RSPB (25 July 2025)	<p><u>Ornithological surveys and assessment</u></p> <p>Noted that, due to the nature of the Proposed Varied Development, it is considered that the assessment of effects on previously identified IOFs will not change, apart from the collision risk calculations. Confirmed that they would generally agree and would therefore welcome an updated collision risk analysis presented in the EIAR.</p> <p>Further noted that this would be undertaken using data presented in the 2021 EIAR for the Consented Development, which was collected between 2018 and 2020, and is therefore more than five years old, which is not in line with NatureScot (2025) guidance on bird survey methods to inform OIAs for onshore wind farms and highlighted their concern that no further bird surveys are proposed.</p> <p>Acknowledged that, as highlighted in the Scoping Report, NatureScot (2024a) guidance on proposals for the variation of section 36 wind farm consents states that “For</p>	<p>In their Scoping Opinion comments (detailed above), NatureScot confirmed their agreement with the approach proposed in the Scoping Report to update the CRM and did not recommend any further surveys.</p> <p>It should also be noted that the (2025a) NatureScot guidance on bird survey methods to inform OIAs for onshore wind farms cited by the RSPB largely relates to new developments, whereas their 2024a guidance specifically relates to proposals for the variation of section 36 wind farm consents. The Applicant believes the latter is the correct guidance to follow in this instance.</p> <p>As noted by the RSPB, the white-tailed eagle nest, which is over 2km from the Proposed Varied Development, was reported in the 2021 EIAR for the Consented Development and considered at that stage. As such, the ornithological baseline has not changed since then in that this nest site was not identified since submission of the 2021 EIAR. Although it is acknowledged that breeding did not take place until 2021, which is after the baseline surveys, the territory was occupied by white-tailed eagles in 2020, when the pair rebuilt the nest (but were not thought to have laid eggs), which overlaps with the 2020 baseline surveys, when (as reported in the 2021 EIAR) very low levels of flight activity were recorded. Updated raptor records were obtained from the HRSG. These records indicate that the nest site used in 2022-24 may have been slightly further away from the Proposed Varied Development than the 2021 nest site, while the 2025 nest sites was over 5km away (see section 7.6 of this chapter for further details). White-tailed eagles may have 1-11 nest sites within their breeding range, up to 3km apart (Hardey <i>et al.</i>, 2013).</p>

Consultee and Date	Issue Raised	Response
	<p><i>birds, in the majority of cases where the number and location of turbines are not changing, all that will be needed is a re-working of the collision risk model, rather than new survey work.</i>", but recommended that updated baseline data are collected over a minimum of one year.</p> <p>Stated that this was due to their understanding that the ornithological baseline has changed, specifically with regards to white-tailed eagle (<i>Haliaeetus albicilla</i>). Noted that this is a species susceptible to turbine collisions, with at least eight such incidents in Scotland, advising that a robust assessment of impacts on this species is therefore required.</p> <p>Noted the presence, as highlighted in the RSPB consultation response (dated 17 September 2021) to the Consented Development, and reported in the 2021 EIAR, of a newly established white-tailed eagle territory within the wider area, with breeding recorded for the first time in 2021. Further noted that the Proposed Varied Development is located between this nest site and a number of suitable feeding lochs such as Loch Shin.</p>	<p>As noted by the RSPB, although birds can forage over large distances, their core foraging range from the nest is 5km, whereas Loch Shin is located approximately 8km from the 2021 nest and over 6km from the 2025 nest site¹. Although white-tailed eagles could still forage there and at lochs within the Caithness and Sutherland Peatlands SPA, all nest sites are located to the north of the Proposed Varied Development, and there is no evidence to suggest that the birds would need to (or selectively) cross the Site to reach foraging areas to the east. Additionally, white-tailed eagles do not forage exclusively on fish and waterbirds, but will also take mammalian prey. For example, prey remains at a number of white-tailed eagle nests in Scotland, including one in Sutherland, have been analysed for NatureScot. The results show that, in addition to various bird species, the pair in Sutherland preyed on a range of mammal species, including lambs, roe deer fawns, mountain hare and rabbit, but relatively few fish remains were found (Grant, 2021; 2023; 2024). Thus, although waterbirds may form an important part of their diet, it is likely that the pair within 6km of the Site may also forage on mammals, and suitable habitat for mammalian prey is present around the nest sites and wider area, so it is considered unlikely that birds would forage exclusively to the east.</p> <p>It is also worth noting that, since dead deer, grallochs and young can provide food for both golden eagle and white-tailed eagle, as part of the HMP management measures, a suitable area will be identified to leave deer stalking grallochs or carcasses outwith the Site to minimise the potential for eagle species to be attracted onto the Site to scavenge on deer remains, thus reducing potential collision risk.</p> <p>According to Wilson <i>et al.</i> (2015), the white-tailed eagle breeding population in Natural Heritage Zone (NHZ) 5 (the Peatlands of Caithness and Sutherland), within which the Proposed Varied Development is located, comprised just one pair in 2013. However, the authors noted that the Scottish population of white-</p>

¹ The 2025 nest location was provided at low (1km) resolution, meaning the exact location is unknown

Consultee and Date	Issue Raised	Response
	<p>Advised that, although NatureScot (2016a) guidance states that the core foraging distance of breeding white-tailed eagles is 5km, with a maximum range of 13km, breeding birds are known to range much further if there are no neighbouring territorial pairs and when populations are sparse or expanding as in Sutherland. Further advised that birds will fly 10-20km to exploit the easiest sources of food available at different times of the year, and raised concerns that the white-tailed eagle pair could cross the turbine array to hunt at lochs within the Caithness and Sutherland Peatlands SPA and at Loch Shin, which could increase the likelihood of collision.</p> <p>Recommended that the HRSG is contacted for further information about this pair of white-tailed eagles, and that further flight activity surveys are undertaken to inform the collision risk assessment for the Proposed Varied Development.</p>	<p>tailed eagle is expanding and many of their NHZ population estimates for this species may quickly become outdated. Although it is possible that flight activity levels could increase in future as birds expand their range, thus increasing collision risk, NHZ 5 does not appear to be a core area for the species and there is no suitable nesting habitat on Site. Additionally, if numbers of breeding pairs within NHZ 5 do increase, a collision would represent a smaller proportion of the population. Thus, it is considered unlikely that there would be a population-level effect due to collisions. This is supported by the results of a modelling study of the reintroduced Scottish white-tailed eagle population (Sansom <i>et al.</i>, 2016), which found that, although potential additional mortality caused by illegal killing and collisions with wind turbines resulted in a reduction in population growth, this was not to the extent that it caused a population decline.</p>
	<p><u>Cumulative Assessment</u></p> <p>Welcomed that the S36c submission will provide a revised cumulative collision risk assessment and recommended that this should include the grid connection for the Proposed Varied Development itself, the Allt an Tuir Renewable Energy Park and the Balblair Wind Farm. Further advised that</p>	<p>An updated cumulative collision risk assessment for the Proposed Varied Development is included in section 7.12 of this chapter. All relevant developments with available collision risk data were included in the assessment. This included the grid connection for the Consented Development and Allt an Tuir Renewable Energy Park. However, based on the separation between the proposed Balblair Wind Farm and the Caithness and Sutherland Peatlands SPA, there was not considered to be any connectivity for breeding populations of relevant IOFs (greenshank and golden</p>

Consultee and Date	Issue Raised	Response
	there are also a number of proposals in the vicinity that are at the scoping stage which should also be considered for inclusion, such as the Invercassley Wind Farm, the Inveroykel Wind Farm (ECU00005210) and the Spittal – Loch Buidhe – Beauly 400kV Connection.	<p>eagle) and it was scoped out of the cumulative collision risk assessment.</p> <p>However, developments at the pre-application stage for which insufficient information was available to inform the cumulative collision risk assessment, including the proposed Invercassley and Inveroykel wind farms and LT132 Spittal – Loch Buidhe – Beauly 400 kV OHL Connection, were scoped out.</p>
	<p><u>Habitat Management Plan (HMP) and Biodiversity Enhancement</u></p> <p>Advised that the Outline HMP (or Outline Biodiversity Enhancement and Management Plan (OBEMP)) must include a comprehensive monitoring programme for breeding birds on the Site and SPA-qualifying species.</p>	<p>Although no significant effects on any IOFs were predicted in the 2021 EIAR for the Consented Development, possible displacement and loss of breeding wader territories, specifically golden plover, curlew (<i>Numenius arquata</i>), dunlin and greenshank, were identified as a potential effect. Breeding populations of the latter three species are qualifying features of the Caithness and Sutherland Peatlands SPA. However, it was considered that the measures to restore blanket bog habitat outlined in the HMP would increase both nesting and foraging habitat for breeding waders, reducing the predicted magnitude of change from Minor to None, therefore resulting in no effect on breeding waders. To assess the effectiveness of the habitat management in supporting breeding waders and determine whether any additional management measures are required, post-construction breeding wader surveys would take place alongside the HMP monitoring.</p> <p>Further details are provided in section 7.8 of this chapter.</p>
Scottish Ministers (13 August 2025)	<p>Recommended that decisions on bird surveys – species, methodology, vantage points (VPs), viewsheds & duration - site specific & cumulative – should be made following discussion between the Applicant and NatureScot and RSPB Scotland.</p> <p>Considered some of the ornithological data to be out of date, as the surveys were</p>	<p>As noted above NatureScot confirmed their agreement with the approach to the OIA detailed in the Scoping Report and did not recommend any further surveys. Therefore, all relevant survey data and flight line maps are included in Technical Appendix 9.1 of the 2021 EIAR for the Consented Development and are not repeated here.</p> <p>The cited (2025a) NatureScot guidance on bird survey methods to inform OIAs for onshore wind farms relates to new developments, whereas their 2024a guidance specifically relates to proposals for the variation of section 36 wind farm consents. The Applicant believes</p>

Consultee and Date	Issue Raised	Response
	<p>undertaken in 2019 and 2020, whereas NatureScot (2025a) guidance on bird survey for onshore wind farms advises that data more than five years old are invalid. Advised that the relevant data is submitted within the EIAR, including flight map data and full assessment of collision risks.</p> <p>Noted that the RSPB has requested that updated baseline data are collected over a minimum one-year period and used to inform the revised CRM. Also noted that the RSPB has concerns that the location of the Proposed Varied Development is between a nest of white-tailed eagle and several suitable feeding lochs. Further highlighted that the RSPB requests that the HRSG is contacted for further information, and further flight activity surveys are undertaken to inform an updated collision risk assessment.</p> <p>Recommend that bird surveys must be carried out in relation to the qualifying features of the relevant SPA.</p>	<p>the latter is the correct guidance to follow in this instance.</p> <p>Responses to the RSPB comments are detailed above and are also applicable here. Updated HRSG records have been obtained (see section 7.6 of this chapter) but no further surveys are proposed.</p>

Further Consultation with THC – August 2025

THC (22 August 2025)	<p>Confirmed they would be satisfied with the proposed approach of reworking the previously collected bird data if the baseline has not changed and the data are still considered valid. Noted the Applicants reference to NatureScot (2024a) guidance</p>	<p>As noted above, in their Scoping Opinion comments, NatureScot confirmed their agreement with the proposed approach for the OIA and did not raise any concerns regarding the validity of the data or recommend any further surveys.</p> <p>Regarding white-tailed eagles, as noted by the RSPB in their Scoping Opinion comments, a white-tailed eagle nest, which is over 2km from the Proposed Varied Development, was reported in the 2021 EIAR</p>
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Consultee and Date	Issue Raised	Response
	<p>on dealing with proposals for the variation of section 36 wind farm consents, which implies that no further field work is required. But highlighted that NatureScot (2025a) guidance on bird survey methods to inform impact assessments of onshore wind farms (Box 1) that data from the original EIA can be used for extensions and revisions of previous proposals provided that the data are reliable and collected within last five years or within three years if the populations of key species are known to be changing rapidly. Advised that, in this case, the Applicant must submit a reasoned ecological justification within the EIA why it is considered that no further survey work is required, given the age of the data, and the information provided by RSPB Scotland on the pair of white-tailed eagles that have been recorded within the wider area.</p>	<p>for the Consented Development and was considered at that stage. Updated raptor records, including information on the known white-tailed eagle pair, have been obtained from the HRSG (see section 7.6 of this chapter). These records show that a single white-tailed eagle pair is still breeding in the wider area, though it has nested further away from the Proposed Varied Development.</p> <p>It is considered unlikely that the ornithological baseline would have changed significantly since the 2020 breeding season (when the latest surveys were completed for the Consented Development). Furthermore, as detailed in section 7.8 of this chapter, mitigation measures will be implemented during construction to ensure all relevant legislation is complied with, including preventing damage to any wild bird nests and avoiding disturbance to species listed on Schedule 1 of the W&CA and/or Annex I of the Birds Directive. As such, the conclusions of the 2021 EIAR that there will be no significant effects on any IOFs remains valid for the Proposed Varied Development, and collection of new baseline survey data would not result in any changes to this conclusion.</p>

- 7.4.4. For reference, a summary of the Section 36 planning conditions related to ornithological issues for the Consented Development is provided below in **Table 7.2**. These conditions correspond to consultation responses for the Consented Development and mitigation measures to reduce effects to IOFs proposed in the 2021 EIAR for the Consented Development.
- 7.4.5. The planning commitments agreed for the Consented Development will be adhered to for the Proposed Varied Development.

Table 7.2: Summary of Planning Conditions of the Consented Development with relevance to ornithology.

Planning Condition	Reason	Elements of the Planning Condition of Particular Relevance to Ornithology
13. Ecological Clerk of Works (ECoW)	<i>“To secure effective monitoring of and compliance with the environmental mitigation and management measures associated with the Development during the decommissioning, restoration, and aftercare phases.”</i>	Monitoring compliance with the ornithological commitments provided in the EIA report, the Construction Environmental Management Plan (CEMP), HMP and Bird Protection Plan (part 1a of the planning condition).
14. Construction and Environmental Management Plan (CEMP)	<i>“To ensure that all construction operations are carried out in a manner that minimises their impact on road safety, amenity, and the environment, and that the mitigation measures contained in the Environmental Impact Assessment Report are fully implemented to avoid significant effects on Caithness and Sutherland Peatland Special Area of Conservation and the Caithness & Sutherland Peatlands Special Protection Area.”</i>	The section of new track which intersects the territory centre of one breeding curlew pair will be constructed outside of the bird breeding season (April to July inclusive) (part 2d of the planning condition).
19. Habitat Management Plan (HMP)	<i>“In the interests of protecting ecological features and to ensure that the development secures positive effects for biodiversity.”</i>	<p>The information in the HMP will include a suitable area to leave deer stalking grallochs or carcasses outwith the Site (part 1d of the planning condition).</p> <p>This will minimise the potential for eagle species to be attracted onto the Site to scavenge on deer remains, thus reducing potential collision risk.</p> <p>Although not specifically proscribed within the Planning Condition, post-construction breeding wader surveys would take place alongside the HMP monitoring to assess the effectiveness of the habitat management in supporting breeding waders and determine whether any additional management measures are required, Additionally, habitat enhancement measures to restore and enhance blanket bog habitat and increase the extent of wetland foraging habitat would increase the capacity of the management units to support breeding</p>

Planning Condition	Reason	Elements of the Planning Condition of Particular Relevance to Ornithology
		waders, thus mitigating for the possible displacement and loss of breeding wader territories during operation. Further details are provided in section 7.8 of this chapter.
23 Deer Management Plan (DMP)	<i>“To protect ecological interests of the Caithness and Sutherland Peatlands Special Area of Conservation.”</i>	Although not specifically proscribed within the Planning Condition, the DMP will include management of deer grazing pressure which, in conjunction with the habitat management measures delivered via the HMP, will benefit breeding waders as outlined above. Further details are provided in section 7.8 of this chapter.
29. Site Decommissioning, Restoration and Aftercare	<i>“To ensure the decommissioning and removal of the Development in an appropriate and environmentally acceptable manner and the restoration and aftercare of the site, in the interests of safety, amenity and environmental protection.”</i>	To include a species protection plan based on surveys for protected species (including birds) carried out no longer than eighteen months prior to submission of the plan (part 4l of the planning condition).
32. Species Specific Surveys and Protection Plans	<i>“In the interests of nature conservation.”</i>	<p>Pre-construction breeding bird surveys to be carried out at an appropriate time of year for the species concerned, for breeding waders, raptors, upland birds to identify any species within disturbance distance of construction activity. Surveys to cover any land on which construction takes place (including the existing Achany Wind Farm access track and additional laydown/welfare areas in that vicinity), plus an appropriate buffer as agreed with the ECoW (part 1c of the planning condition).</p> <p>A Bird Protection and Mitigation Plan shall set out measures required to avoid disturbing the Caithness and Sutherland Peatlands SPA waders during the summer months (part 1d of the planning condition).</p>

Planning Condition	Reason	Elements of the Planning Condition of Particular Relevance to Ornithology
		The survey results and any mitigation measures required for these species on site shall be set out in a species mitigation and management plan, which shall inform construction activities (part 2 of the planning condition).

7.5. Assessment Methodology

- 7.5.1. With the exception of CRM, the assessment methodology for the Proposed Varied Development is the same as that for the Consented Development, described in **Chapter 9: Ornithology** of the **2021 EIAR** for the Consented Development, and is not repeated here.
- 7.5.2. Further details of the CRM methods are presented in the following sections.

Collision Risk Modelling

- 7.5.3. The CRM was completed based on the same 18-month flight activity dataset as the original CRM undertaken for the Consented Development as part of the 2021 EIAR. The revised CRM is based on the Proposed Varied Development design. The dataset was collected from September 2018 to August 2020 (which included two full breeding seasons and the intervening non-breeding season) as part of the ornithology baseline surveys carried out for the 2021 EIAR submission for the Consented Development. These flight activity surveys were carried out following NatureScot (2017) guidance, which was current at the time (but has since been revised). A total of 36 hours of survey effort was completed per VP per season. Full details of the flight activity survey methods and results are provided in **Technical Appendix 9.1: Ornithology Baseline, Collision Risk Modelling and Cumulative Report** of the **2021 EIAR**. The dates of the surveys are in line with guidance on a consented development variation.
- 7.5.4. With the exception of the turbine parameters and locations, the same CRM methods were followed for the Proposed Varied Development as for the Consented Development. CRM for the Consented Development followed NatureScot (2000) guidance. It is acknowledged that NatureScot has recently updated this guidance (NatureScot, 2024b). However, it is considered that the results of CRM following the earlier guidance would be comparable to CRM following the updated guidance. Therefore, since the flight activity dataset was collected based on methods designed for the earlier guidance, and to ensure consistency with earlier CRM completed for the Consented Development, use of the earlier guidance was retained for this revised CRM based on the Proposed Varied Development.

Turbine Parameters

- 7.5.5. A summary of the collision risk area (CRA) and turbine parameters used for the Consented Development and Proposed Varied Development is presented in **Table 7.3**.
- 7.5.6. The CRA for the Consented Development was calculated in GIS by drawing a concave hull around the outermost turbines and adding a buffer equating to the turbine blade length (or radius of sweep) plus 200m. For consistency, the same approach was used when calculating the CRA for the Proposed Varied Development.
- 7.5.7. Note that several candidate turbine models are under consideration for the Proposed Varied Development. Therefore, the parameters for the revised CRM were based on a 'worst-case scenario' (in terms of potential rotor swept height) of a minimum potential air gap (the distance from the ground to the lowest blade sweep) of 42m and a maximum tip height of 200m. Values for related parameters (turbine blade radius and diameter, and hub height) were derived from the minimum air gap and maximum tip height values. It is likely that the hub height will be lower, and the blade length (and diameter) will be shorter.

Table 7.3: Summary of CRA and Turbine Parameters for the Consented Development and Proposed Varied Development CRM.

Parameter	Consented Development	Proposed Varied Development
CRA (km ²)	6.06	5.72
Turbine diameter (2x radius) (m)	133	158
Turbine blade length, or radius of sweep (m)	66.5	79
Hub height (m)	83	121
Turbine height to maximum blade tip (m)	149.5	200
Air gap from ground to lowest blade sweep (m)	16.5	42
Number of turbines in array	18	18
Mean maximum chord (blade depth/thickness) (m)	3.94	3.93
Maximum rotation period (s)	12.2	14
Blade pitch (degrees)	10	10

Flight Height Bands

- 7.5.8. During the flight activity surveys completed between September 2018 and August 2020 (inclusive) to collect data to inform the CRM, flights were recorded and assigned to height bands to identify flights that were below, at or above potential collision risk height (PCH). Initially, six height bands were used, as follows:
1. 0-20m;
 2. 20-40m;
 3. 40-100m;
 4. 100-150m;
 5. 150-250m; and
 6. >250m.
- 7.5.9. However, during the 2019 non-breeding season, height band 1 was split as follows:
- 1a. 0-10m; and
 - 1b. 10-20m.
- 7.5.10. In the original CRM for the Consented Development, flights recorded before the 2019 non-breeding season at height bands 1-5, which encompassed flights recorded between 20-250m², were considered to be at PCH. From the 2019 non-breeding season onwards, flights recorded at height bands 1a-5, which encompassed flights recorded between 10-250m², were considered to be at PCH.
- 7.5.11. For the Proposed Varied Development, flights recorded within the CRA at height bands 3-5 were considered to be at PCH.

Species Scoped Into the CRM

- 7.5.12. Flights recorded within the CRA at PCH are defined as 'at-risk' flights. Species included in the original CRM for the Consented Development were typically those for which a minimum of three at-risk flights were recorded within the CRA across the survey period. For consistency, the same criteria were applied when determining which species to include in the revised CRM for the Proposed Varied Development.
- 7.5.13. Based on the above criteria, four species were scoped into the original CRM for the Consented Development, namely golden plover, dunlin, greenshank and golden eagle. Due to the change in turbine parameters for the Proposed Varied Development, the air gap has increased compared to that for the Consented Development. Consequently, there were no at-risk dunlin or golden plover flights (because all flights within the CRA were below PCH) and therefore they were not included in the revised CRM. The two

² Although the tip height for the Consented Development was 149.9m, flights recorded within the CRA at height band 5 (150-250m) were included in the CRM for the Consented Development as a precautionary approach.

remaining species, namely greenshank and golden eagle, were scoped into the CRM for the Proposed Varied Development.

7.6. Consented Development EIAR Baseline

7.6.1. **Chapter 9: Ornithology** of the **2021 EIAR** details the baseline for the Site. No further baseline ornithology surveys have been completed since the 2021 EIAR was submitted. Full details of completed surveys are included in **Technical Appendix 9.1** of the **2021 EIAR** for the Consented Development and are not repeated here. For ease of reference, however, a list of completed surveys is provided below:

- Flight activity (VP) surveys (September 2018 to August 2020, inclusive);
- Breeding diver surveys (2019 and 2020 breeding seasons);
- Breeding raptor surveys (2019 and 2020 breeding seasons);
- Moorland breeding bird surveys (MBBS) (2019 and 2020 breeding seasons); and
- Black grouse (*Lyrurus tetrix*) surveys (2019 and 2020 breeding seasons).

7.6.2. Full details of the desk-based study completed for the Consented Development are provided in **Technical Appendix 9.1** of the **2021 EIAR**. Updated records of breeding or roosting eagles recorded within 6km of the Proposed Varied Development and records of other breeding or roosting raptor species listed on Schedule 1 of the W&CA and/or Annex I of the Birds Directive were obtained from the HRSG in August 2025.

7.6.3. A summary of the ornithological baseline is presented below, with further details provided in the Ornithology chapter of the 2021 EIAR for the Consented Development. Predicted impacts on ornithological features presented in the 2021 EIAR are also summarised below.

Designated Sites

7.6.4. There are no statutory or non-statutory sites designated for ornithological interests within the boundary of the Proposed Varied Development (which remains the same as the Consented Development).

7.6.5. The Caithness and Sutherland Peatlands SPA and Ramsar site borders the Site to the north-east, as does the Grudie Peatlands SSSI, which is a component of the SPA. The SPA is designated for the following upland breeding bird species: wigeon (*Mareca penelope*), common scoter (*Melanitta nigra*), golden plover, dunlin, wood sandpiper (*Tringa glareola*), greenshank, red-throated diver (*Gavia stellata*), black-throated diver (*Gavia arctica*), golden eagle, hen harrier (*Circus cyaneus*), short-eared owl (*Asio flammeus*) and merlin (*Falco columbarius*). Designated features of the Ramsar site include the same features as the SPA, apart from the latter four species, as well as its breeding bird assemblage feature. Breeding dunlin, golden plover and greenshank are notified features of the Grudie Peatlands SSSI.

- 7.6.6. It was considered that the Consented Development could have significant effects on the Caithness and Sutherland Peatlands SPA, underlying Ramsar site and the Grudie Peatlands SSSI, which were therefore identified as IOFs and scoped into the OIA. Additionally, an HRA report was provided in **Technical Appendix 9.2** of the **2021 EIAR** for the Consented Development. This reviewed the effects of the Consented Development against the conservation objectives of the Caithness and Sutherland Peatlands SPA and Ramsar site, to assist the competent authority in carrying out an Appropriate Assessment (AA) in accordance with the Habitat Regulations.
- 7.6.7. Other international sites designated for ornithological features within 20km of the Proposed Varied Development are:
- Inverpolly, Loch Urigill and nearby Lochs SPA, which is designated for breeding black-throated diver, approximately 11km to the west;
 - Lairg and Strath Brora Lochs SPA, which is also designated for breeding black-throated diver, approximately 11km to the east; and
 - Strath Carnaig and Strath Fleet Moors SPA, which is designated for breeding hen harrier, approximately 15km to the east.
- 7.6.8. Due to the separation distance between these SPAs and the Site, which exceeds recommended maximum disturbance buffers (NatureScot, 2022) and core foraging ranges (NatureScot, 2016a) of qualifying species, there is not considered to be any connectivity, and all three SPAs were scoped out of the OIA for the Consented Development. This conclusion remains valid for the Proposed Varied Development and these three SPAs are not considered further in this chapter.
- 7.6.9. Similarly, based on separation distances from the Site, there was not considered to be any potential for the Consented Development to have any significant effects on notified features of the following sites of national ornithological importance within 20km of the Site:
- Cnoc an Alaskie SSSI, which is a component of the Caithness and Sutherland Peatlands SPA and includes breeding greenshank and its breeding bird assemblage as notified features, located approximately 8.5km to the north of the Site;
 - Strath Duchally SSSI, which is a component of the Caithness and Sutherland Peatlands SPA and includes breeding golden plover, dunlin and greenshank as notified features, located approximately 9.5km to the north of the Site; and
 - Loch Awe and Loch Ailsh SSSI, which is a component of the Inverpolly, Loch Urigill and nearby Lochs SPA and is notified for breeding black-throated diver, located approximately 11.6km to the east of the Site.
- 7.6.10. The conclusions of the 2021 EIAR for the Consented Development remain valid and potential effects on these sites have been scoped out of the OIA for the Proposed Varied Development.

Species

- Wildfowl: there are no lochans or other waterbodies within the Site and there were very few records of target wildfowl and wader species during the surveys, limited to occasional flights by greylag goose (*Anser anser*), pink-footed goose (*Anser brachyrhynchus*) and whooper swan (*Cygnus cygnus*), and a possible record of breeding teal (*Anas crecca*) within 1km of the Site. Due to the very low levels of flight activity, CRM was not completed for any wildfowl species.
- Black grouse: no black grouse leks within 1km of the Site were identified during the 2019 or 2020 surveys or from desk study records, and as there were no flights over the Site during 2018-2020 flight activity surveys for the Consented Development, CRM was not completed for this species.
- Waders: several golden plover and dunlin breeding territories were recorded within the MBBS Area (which was based on the Site and a surrounding 500m buffer) during both survey years. There were also smaller numbers of greenshank breeding territories and occasional curlew breeding territories within the MBBS Area. Multiple golden plover, dunlin and greenshank flights were recorded during the breeding season flight activity surveys, with golden plover flights also recorded during the non-breeding season; all three species are qualifying features of the Caithness and Sutherland Peatlands SPA and Ramsar site and Grudie Peatlands SSSI. No curlew flights were recorded during the flight activity surveys.
- Divers: although there were very occasional records of red-throated and black-throated divers during the 2019 and 2020 field surveys, no flights of either species were recorded during the vantage point surveys and therefore CRM was not completed. There was no evidence that either species held a breeding territory within 1km of the Site during surveys in 2019 and 2020 and no breeding territories within 1km were identified during the desk study.
- White-tailed Eagle: as noted in **Table 7.1**, a white-tailed eagle nest site was present in the wider area, although flight activity by this species was low. Updated records of white-tailed eagle within 6km of the Proposed Varied Development were obtained from the HRSG in September 2025. These records confirmed that, following successful breeding in 2021 (reported in the 2021 EIAR), the pair also bred successfully between 2022-25 (inclusive), with a single chick fledged in 2022-24 and two chicks fledged in 2025. The HRSG data indicate that the nest site used between 2022-24 may have been slightly further north (and thus further away from the Proposed Varied Development) than the site used in 2021, while the 2025 nest site was at least 2km¹ further to the north of the previous nest site(s) and over 5km from the Proposed Varied Development (at the closest point). Locations of the nest sites are shown in **Figure 7.1 (Confidential)**. There were no other HRSG records of white-tailed eagle breeding territories within 6km of the Proposed Varied Development.

- Other raptors: no breeding raptors were identified on Site or within potential disturbance distance³ of the Consented Development. Osprey (*Pandion haliaetus*), golden eagle, hen harrier and merlin are also known to breed in the wider area, and updated records obtained from the HRSG in September 2025 show that merlin (but not osprey) are still breeding in the wider area. Locations of osprey and merlin breeding records obtained from the HRSG (both those reported in the 2021 EIAR and more recent records) are shown in **Figure 7.2 (Confidential)**. With the exception of golden eagle, however, levels of flight activity were considered too low to warrant CRM. There were also occasional flights of red kite (*Milvus milvus*), short-eared owl and peregrine (*Falco peregrinus*), but there was no evidence that any of these species were breeding in the surrounding area and levels of flight activity were considered too low to merit CRM.

7.6.11. Based on the baseline data presented in the 2021 EIAR for the Consented Development, the following IOFs were identified and were scoped into the OIA:

- Golden plover;
- Curlew;
- Dunlin;
- Greenshank;
- Osprey;
- Golden eagle;
- Hen harrier; and
- Merlin.

7.7. Predicted Collision Risk for the Consented Development and Proposed Varied Development

7.7.1. A breakdown of seasonal collision risk results for the Consented Development and Proposed Varied Development is presented in **Table 7.4**. Mean annual/seasonal collision risk is summarised in **Table 7.5**.

³ Based on maximum recommended species-specific disturbance buffers in NatureScot (2022) guidance.

Table 7.4: Breakdown of seasonal CRM Results for the Consented Development and Proposed Varied Development.

Species (and Year/Season)	Consented Development		Proposed Varied Development	
	Collision Risk*	No. of Years per Collision	Collision Risk*	No. of Years per Collision
Golden plover (2019, breeding)	0.036	27.8	0**	0**
Golden plover (2020, breeding)	0.018	55.6	0**	0**
Golden plover (2018-19, non-breeding)	0.1	10.0	0**	0**
Golden plover (2019-20, non-breeding)	0.009	111.1	0**	0**
Dunlin (2019, breeding)	0.002	500	0**	0**
Dunlin (2020, breeding)	0**	0**	0**	0**
Greenshank (2019, breeding)	0.069	14.5	0.034	29.4
Greenshank (2020, breeding)	0.015	66.7	0**	0**
Golden eagle (2019, breeding)	0.11	9.1	0.005	200
Golden eagle (2020, breeding)	0.02	50	0.001	1,000
Golden eagle (2018-19, non-breeding)	0.07	14.3	0.013	76.9
Golden eagle (2019-20, non-breeding)	0.03	33.3	0**	0**

*Based on avoidance rates of 98% for greenshank and 99% for golden eagle, in accordance with NatureScot (2025b) guidance

**No at-risk flights recorded, therefore CRM not completed

Table 7.5: Summary of mean annual/seasonal collision risk from the Consented Development and Proposed Varied Development for relevant IOFs.

Species (and Seasons)	Consented Development			Proposed Varied Development		
	Collision Risk	No. of Years per Collision	Approx. Total Collisions during 50-year Lifespan	Collision Risk	No. of Years per Collision	Approx. Total Collisions during 50-year Lifespan
Golden plover (breeding and non-breeding)	0.081	12.3	4	0*	0*	0*
Dunlin collision (breeding season only)	0.001	1,000	0	0*	0*	0*
Greenshank (breeding season only)	0.042	23.8	2	0.017	58.8	1
Golden eagle (breeding and non-breeding seasons)	0.115	8.7	6	0.009	111.1	1

*No at-risk flights recorded, therefore CRM not completed

7.8. Summary of Effects Predicted & Mitigation Measures suggested for the Consented Development

Predicted Effects on IOFs

Statutory Sites

- 7.8.1. Potential effects of the Consented Development on qualifying features of the Caithness and Sutherland Peatlands SPA and Ramsar site and Grudie Peatlands SSSI are discussed below for individual species identified as IOFs.
- 7.8.2. Likely Significant Effects (LSEs) in HRA terms could not be definitively excluded for the qualifying interests of the Caithness and Sutherland Peatlands SPA. Consequently, the Scottish Government, as competent authority, was required to carry out an AA in view of the site's conservation objectives for its qualifying features. To assist with the AA, a HRA Report was presented as **Technical Appendix 9.2 of the 2021 EIAR**. Based on this

information, it was concluded that the Consented Development would not adversely affect the integrity of the SPA.

Species

- 7.8.3. This chapter focuses on an updated assessment of the effects of collision risk associated with the Proposed Varied Development. As other predicted effects are considered to be the same as those for the Consented Development, they have been scoped out of the OIA for the Proposed Varied Development. For ease of reference, however, a summary of predicted effects of the Consented Development on species identified as IOFs is presented in **Table 7.6**.

Mitigation and Enhancement

- 7.8.4. As can be seen from **Table 7.6**, in terms of the EIA Regulations, no significant effects were predicted for any IOF. However, as good practice, mitigation and enhancement measures were proposed to avoid and reduce the risk of adverse effects on IOFs. The following sections outline these measures during each phase of the Consented Development.

Mitigation During Construction

- 7.8.5. Mitigation measures will be implemented during construction to ensure all relevant legislation is complied with, including preventing damage to any wild bird nests and avoiding disturbance to species listed on Schedule 1 of the W&CA and/or Annex I of the Birds Directive. This will be achieved by:
- The production and implementation of a Bird Protection and Mitigation Plan (BPMP), as part of the Construction Environmental Management Plan (CEMP). This will set out the survey methods, coverage and reporting schedule for all bird monitoring pre and during construction, the protocols and appropriate buffer distances to be implemented should breeding birds be identified, and materials for tool box talks for all site personnel regarding legal obligations and good practice. It would also establish protocols for recording and disseminating bird survey results (where appropriate) or information on disturbance buffers and protection measures to inform ongoing construction works; and
 - As part of the BPMP, a complete pre-construction survey would also be undertaken (specifically for moorland breeding birds, breeding divers and breeding raptors) to inform the detailed measures required to ensure effective implementation of other BPMP measures to protect breeding birds.
- 7.8.6. The BPMP will be implemented by a suitably experienced on-site ornithologist, who will work in close liaison with the on-site Ecological Clerk of Works (ECoW) during construction.

Mitigation During Operation

- 7.8.7. Although no significant effects on any IOFs were predicted for the Consented Development, measures to mitigate for the possible displacement and loss of breeding wader territories during operation are set out in **Chapter 8, Technical Appendix 8.10 – Outline Habitat Management Plan** of the **2021 EIAR** for the Consented Development. The aim of these measures would be to restore and enhance blanket bog habitat and increase the extent of wetland foraging habitat within three off-site habitat management units, through a programme of ditch-blocking and management of deer grazing pressure (with the latter to be delivered via the Deer Management Plan). This would increase the capacity of the management units to support successful breeding by dunlin, greenshank and golden plover.
- 7.8.8. To accompany the HMP, post-construction bird monitoring was proposed in the 2021 EIAR for the Consented Development to monitor operational effects on IOFs and provide information on effectiveness of operational mitigation measures, and to determine if there is a requirement for any additional measures.

Mitigation During Decommissioning

- 7.8.9. Mitigation during decommissioning would employ many of the same measures outlined above for construction, whereby a Bird Protection Plan would be designed and implemented, informed by a pre-decommissioning survey of the area potentially affected. This plan would be further refined to take account of any changes in legal requirements, guidance or policy in the intervening years.

Table 7.6: Summary of predicted effects of the Consented Development on IOFs.

IOF	Importance of IOF	Sensitivity	Importance of Site	Stage of Consented Development	Type of Impact	Magnitude of Change	Effect of Consented Development	Significance of Consented Development
Golden plover	International	High	International	Construction	Land take	Negligible	Moderate/ Minor	Not significant
					Disturbance	Negligible	Moderate/ Minor	Not significant
				Operation	Disturbance	Negligible	Moderate/ Minor	Not significant
					Displacement	Negligible	Moderate/ Minor	Not significant
					Collision	Negligible	Moderate/ Minor	Not significant
					Barrier effects	None	None	Not significant
Curlew	International	Medium	International	Construction	Land take	Negligible	Moderate/ Minor	Not significant
					Disturbance	Negligible	Moderate/ Minor	Not significant
				Operation	Disturbance	Negligible	Moderate/ Minor	Not significant
					Displacement	Negligible	Moderate/ Minor	Not significant
					Collision	Negligible	Moderate/ Minor	Not significant
					Barrier effects	Negligible	Moderate/ Minor	Not significant
Dunlin	International	High	International	Construction	Land take	Negligible	Moderate/ Minor	Not significant
					Disturbance	Negligible	Moderate/ Minor	Not significant

IOF	Importance of IOF	Sensitivity	Importance of Site	Stage of Consented Development	Type of Impact	Magnitude of Change	Effect of Consented Development	Significance of Consented Development
				Operation	Disturbance	Negligible	Moderate/ Minor	Not significant
					Displacement	Negligible	Moderate/ Minor	Not significant
					Collision	Negligible	Moderate/ Minor	Not significant
					Barrier effects	None	None	Not significant
Greenshank	International	High	International	Construction	Land take	Negligible	Moderate/ Minor	Not significant
					Disturbance	Negligible	Moderate/ Minor	Not significant
				Operation	Disturbance	Negligible	Moderate/ Minor	Not significant
					Displacement	Negligible	Moderate/ Minor	Not significant
					Collision	Negligible	Moderate/ Minor	Not significant
					Barrier effects	None	None	Not significant
				Construction	Land take	Negligible	Minor	Not significant
					Disturbance	Negligible	Minor	Not significant
Golden eagle	International	Medium	Regional	Operation	Disturbance	Negligible	Minor	Not significant
					Displacement	Negligible	Minor	Not significant

IOF	Importance of IOF	Sensitivity	Importance of Site	Stage of Consented Development	Type of Impact	Magnitude of Change	Effect of Consented Development	Significance of Consented Development
Hen harrier	International	Medium	Regional	Construction	Collision	Slight	Moderate/ Minor	Not significant
					Barrier effects	Negligible	Minor	Not significant
				Operation	Land take	Negligible	Minor	Not significant
					Disturbance	Negligible	Minor	Not significant
					Disturbance	Negligible	Minor	Not significant
					Displacement	Negligible	Minor	Not significant
					Collision	Negligible	Minor	Not significant
					Barrier effects	Negligible	Minor	Not significant
Merlin	International	Medium	Regional	Construction	Land take	Negligible	Minor	Not significant
					Disturbance	Negligible	Minor	Not significant
				Operation	Disturbance	Negligible	Minor	Not significant
					Displacement	Negligible	Minor	Not significant
					Collision	Negligible	Minor	Not significant
					Barrier effects	Negligible	Minor	Not significant

7.9. Revised Assessment of Effects for the Proposed Varied Development

- 7.9.1. Potential effects of collision risk from the Proposed Varied Development alone on relevant IOFs is considered in the following sections.

Greenshank

- 7.9.2. Based on turbine parameters for the Proposed Varied Development, at-risk greenshank flights were only recorded during the 2019 breeding season. Consequently, the mean breeding season collision rate for greenshank (based on 2019 and 2020 flight data) was 0.017, which represents 0.001% of the Caithness and Sutherland Peatlands breeding population (at least 653 greenshank pairs in 2009; NatureScot, 2023).
- 7.9.3. As summarised in **Table 7.6**, as a qualifying feature of the Caithness and Sutherland Peatlands SPA and Ramsar site, greenshank is considered to be of International Importance and Medium Sensitivity. The Site Level of Importance for the Consented Development was also assessed as International.
- 7.9.4. It is considered that the Magnitude of Change to the Caithness and Sutherland Peatlands SPA breeding greenshank population due to collision risk from the Proposed Varied Development would be Negligible, which would result in a Minor effect, which is not significant in EIA terms.

Golden Eagle

- 7.9.5. The revised CRM for the Proposed Varied Development predicted very low golden eagle collision mortality, with mean rates of 0.003 during the breeding season (based on 2019 and 2020 flight data) and 0.006 during the non-breeding season (based on 2018-19 and 2019-20 flight data). The mean annual rate (for both seasons combined) is 0.009, which equates to one bird every 111 years, or approximately one bird over the 50-year lifespan of the Proposed Varied Development.
- 7.9.6. As summarised in **Table 7.6**, as a qualifying feature of the Caithness and Sutherland Peatlands SPA and Ramsar site, golden eagle is considered to be of International Importance and Medium Sensitivity. The Site Level of Importance for the Consented Development was assessed as Medium.
- 7.9.7. It is considered that the Magnitude of Change to the Caithness and Sutherland Peatlands SPA breeding golden eagle population due to collision risk from the Proposed Varied Development would be **Negligible**, which would result in a **Minor** effect, which is **not significant** in EIA terms.

Statutory Designated Sites

- 7.9.8. Potential collision risk effects of the Proposed Varied Development on relevant qualifying features of the Caithness and Sutherland Peatlands SPA and Ramsar site and notified features of the Grudie Peatlands SSSI are discussed above.

7.10. Revised Mitigation Measures for the Proposed Varied Development

- 7.10.1. No significant collision risk effects on any IOFs are predicted for the Proposed Varied Development and no additional mitigation measures are proposed beyond those already proposed in the 2021 EIAR.

7.11. Comparison of Effects of the Proposed Varied Development with the Effects of the Consented Development

Golden Plover

- 7.11.1. Relatively few golden plover flights were recorded during the flight activity surveys. CRM completed for the Consented Development resulted in a mean predicted collision rate of 0.027 per breeding season and 0.055 during the non-breeding season. The mean annual collision rate for both seasons combined was 0.081, which equates to one bird every 12 years, or four birds⁴ over the 50-year lifespan of the Consented Development.
- 7.11.2. The predicted effect of the Consented Development on golden plover from collision was considered to be of negligible magnitude and not significant in EIA terms.
- 7.11.3. Based on the larger air gap for the Proposed Varied Development (42m) compared with the Consented Development (16.5m), none of the golden plover flights recorded during the 2018-2020 flight activity surveys were considered to be at-risk. Therefore, this species was scoped out of the revised CRM and predicted collision risk for the Proposed Varied Development is lower than for the Consented Development.

Dunlin

- 7.11.4. Based on the turbine parameters used in CRM completed for the Consented Development that was detailed in the 2021 EIAR, three at-risk dunlin flights were recorded during 2019 and none in 2020, resulting in a mean predicted collision rate of 0.001 birds per breeding season, which equates to one bird⁴ every 1,000 years. The

⁴ Rounded up or down to the nearest whole number, since it is only possible to kill a whole bird

predicted effect of the Consented Development on dunlin due to collisions was therefore considered to be of negligible magnitude and not significant in EIA terms.

- 7.11.5. Based on the larger air gap for the Proposed Varied Development compared with the Consented Development, none of the dunlin flights recorded during the flight activity surveys completed between 2019-2020 were considered to be at-risk. Therefore, dunlin was scoped out of the revised CRM and predicted collision risk for the Proposed Varied Development is lower than for the Consented Development.

Greenshank

- 7.11.6. Based on the turbine parameters for the Consented Development, eight at-risk breeding season greenshank flights were recorded in 2019 and six in 2020. This resulted in a mean collision rate of 0.042 per breeding season, which equates to one bird every 23 years, or approximately two birds⁴ over the 50-year lifespan of the Consented Development.
- 7.11.7. The revised CRM for the Proposed Varied Development predicted even lower greenshank mortality, with a mean breeding season rate of 0.017 (based on 2019 and 2020 flight data), which equates to one bird every 58 years, or approximately one bird over the 50-year lifespan of the Proposed Varied Development. This is largely due to the increased air gap for the Proposed Varied Development compared with the Consented Development, as a result of which some greenshank flight activity that would be at-risk from the Consented Development turbines would be below PCH for the Proposed Varied Development turbines.

Golden Eagle

- 7.11.8. CRM completed for the Consented Development predicted relatively low golden eagle collision mortality, with mean rates of 0.065 during the breeding season (based on 2019 and 2020 flight data) and 0.050 during the non-breeding season (based on 2018-19 and 2019-20 flight data), giving a mean annual rate of 0.115, which equates to one bird every eight years, or six birds over the 50-year lifespan of the Consented Development.
- 7.11.9. The revised CRM for the Proposed Varied Development predicted even lower golden eagle collision mortality, with mean rates of 0.003 during the breeding season (based on 2019 and 2020 flight data) and 0.006 during the non-breeding season (based on 2018-19 and 2019-20 flight data), giving a mean annual rate of 0.009, which equates to one bird⁴ every 111 years, or up to one bird⁴ over the 50-year lifespan of the Proposed Varied Development. As for greenshank, this is largely due to the increased air gap for the Proposed Varied Development compared with the Consented Development, as a result of which some golden eagle flight activity that would be at-risk from the Consented Development turbines would be below PCH for the Proposed Varied Development turbines.

Caithness and Sutherland Peatlands SPA and Ramsar site and Grudie Peatlands SSSI

- 7.11.10. Potential collision risk effects of the Proposed Varied Development on relevant qualifying features of the Caithness and Sutherland Peatlands SPA and Ramsar site and Grudie Peatlands SSSI are discussed above.
- 7.11.11. As revised collision risk effects on all IOFs re-assessed were lower for the Proposed Varied Development compared with the Consented Development, in HRA terms, the potential for LSEs on the qualifying interests of the Caithness and Sutherland Peatlands SPA will be lower. Therefore, the conclusions in **Technical Appendix 9.2 of the 2021 EIAR** that there would be no adverse effects on the integrity of the SPA are still considered to be valid.

7.12. Cumulative Effects

- 7.12.1. The potential for the Proposed Varied Development to make a material contribution to cumulative collision effects on greenshank and golden plover are assessed below with reference to NatureScot (2018) guidance. A spreadsheet listing estimated collision risk to target species recorded at wind farms in North Highland (dated 29/05/2024) was provided by NatureScot (2024c) and was used to inform the cumulative collision risk assessment.
- 7.12.2. The cumulative collision risk assessment focussed on wind farms with potential connectivity to the Caithness and Sutherland Peatlands SPA. Although overhead lines (OHLs) were also considered where possible, there are no defined modelling methods for predicting the risk of birds colliding with OHLs (NatureScot, 2016b) and CRM is not typically carried out for this type of project.
- 7.12.3. The following proposed developments were scoped out of the cumulative collision risk assessment because they are still at the pre-application stage and no or insufficient information is available to include them: Achrugan, Baledigle, Braelangwell, Coillie Beith, Forsinain Forest, Invercassley and Inveroykel wind farms and LT132 Spittal – Loch Buidhe – Beaully 400 kV OHL Connection.
- 7.12.4. The proposed Balblair Wind Farm was also scoped out of the cumulative collision risk assessment as, based on separation distances, there was not considered to be any connectivity between these development sites and the Caithness and Sutherland Peatlands SPA. Additionally, the proposed Bad Fearn Wind Farm was scoped out because the application was refused on appeal.
- 7.12.5. It should also be noted that the majority of the developments included in the cumulative collision risk assessment do not overlap the Caithness and Sutherland Peatlands SPA, and some of the golden eagle flights included in the CRM could relate to non-breeding birds that are not linked to the SPA breeding population.

7.12.6. A summary of the potential cumulative collision effects on greenshank and golden eagle is presented in **Table 7.7**.

Table 7.7: Summary of cumulative collision risk to greenshank and golden eagle from the Proposed Varied Development and other developments with potential connectivity to the Caithness and Sutherland Peatlands SPA.

Development	Status	No. of Turbines/ Length of OHL	Greenshank	Golden eagle
Proposed Varied Development	In planning	18 turbines	0.017	0.009
Achairn Wind Farm (NatureScot, 2024c)	Operational	3 turbines	0	0
Achany Wind Farm (NatureScot, 2024c)	Operational	19 turbines	0	0
Achany Windfarm Grid Connection (ASH, 2025a)	In planning	18km	0*	0*
Acheilidh Wind Farm (formerly known as Lairg III Wind Farm) (Energiekontor UK Ltd, 2024)	In planning	19 turbines	0	0.090
Allt an Tuir Renewable Energy Park (RSK Environment Ltd, 2024a)	In planning	9 turbines	0.053	0.18
Bettyhill Wind Farm (NatureScot, 2024c)	Operational	2 turbines	0	0.004
Bettyhill Wind Farm Phase 2 (SLR, 2022a; 2023a)	Consented	10 turbines	0	0
Bilbster Wind Farm (THC, 2024)	Operational	3 turbines	Unknown	Unknown
Buolfurich Wind Farm (NatureScot, 2024c)	Operational	15 turbines	0	0
Burn of Whilk Wind Farm (NatureScot, 2024c)	Operational	9 turbines	0	0.012

Development	Status	No. of Turbines/ Length of OHL	Greenshank	Golden eagle
Camster Wind Farm (NatureScot, 2024c)	Operational	25 turbines	0	0
Camster II Wind Farm (Natural Power, 2019)	Under construction	10 turbines	0.01	0
Causeymire Wind Farm (Natural Power, 2019)	Operational	21 turbines	0.010	0
Causeymire Wind Farm Life Extension (RSK, 2021)	In planning	21 turbines	0	0
Chleansaid Wind Farm (RSK, 2022)	Constructed	16 turbines	0	0.43
Coille Linne Wind Farm (formerly known as Fiag Wind Farm) (Energiekontor UK Ltd, 2025)	In planning	15 turbines	0	0.03
Creag Riabhach Wind Farm (NatureScot, 2024c)	Constructed	22 turbines	0	0.040
Creag Riabhach Extension Wind Farm (RSK Environment Ltd, 2023)	Consented	3 turbines	0	0.01
Creag Riabhach Wind Farm Connection (SHE Transmission, 2020)	Consented	20km	0	0
Flex Hill Wind Farm (NatureScot, 2024c)	Operational	2 turbines	0	0
Forss Wind Farm Phase 1 (THC, 2024)	Operational	2 turbines	Unknown	Unknown
Forss Wind Farm Phase 2 (NatureScot, 2024c)	Operational	4 turbines	0	0

Development	Status	No. of Turbines/ Length of OHL	Greenshank	Golden eagle
Garvary Wind Farm (Ramboll, 2021)	Consented	37 turbines	0	0.165**
Gordonbush Wind Farm (Scottish Government, 2008; NatureScot, 2024c)	Operational	35 turbines	0	0***
Gordonbush Extension Wind Farm (ASH, 2015; SSE Generation Limited, 2019)	Operational	11 turbines	0	Unknown
Halsary Wind Farm (NatureScot, 2024c)	Operational	15 turbines	0	0
Kilbraur Wind Farm (NatureScot, 2024b)	Operational	18 turbines	0	0
Kilbraur Wind Farm Extension (NatureScot, 2024c)	Operational	8 turbines	0	0
Kirkton Energy Park SLR (2022b; 2023b)	In planning	11 turbines	0	0.008
Lairg Wind Farm (NatureScot, 2024c)	Operational	3 turbines	0	Unknown
Lairg II Wind Farm Resubmission (THC, 2024)	Consented	5 turbines	Unknown	Unknown
Limekiln Grid Connection (ASH, 2020)	Consented	~5 km	0*	0*
Limekiln Wind Farm (Infinergy, 2012; 2016; 2021; 2022)	Consented	21 turbines	0	0
Limekiln Wind Farm Extension (Infinergy, 2020)	Consented	5 turbines	0	0

Development	Status	No. of Turbines/ Length of OHL	Greenshank	Golden eagle
Meall Buidhe Wind Farm (Muirden Energy LLP, 2020; 2021)	Consented	8 turbines	0.011	0.041
Melness Community Wind Farm (NatureScot, 2024c)	Operational	3 turbines	0	0
Melvich Wind Energy Hub (ITPEnergised, 2023)	In planning	12 turbines	0	0
Rosehall Wind Farm (NatureScot, 2024c)	Operational	19 turbines	0	0
Sallachy Windfarm Resubmission (ITPE, 2021)	Consented	9 turbines	0	0.050****
Shinness Wind Farm (RSK Environment Ltd, 2024b; 2025)	In planning	16 turbines	0	0.048****
Slickly Wind Farm (Arcus Consultancy Services, 2019)	Consented	11 turbines	0	0
Strath Oykel Wind Farm (Energiekontor UK Ltd, 2022)	Consented	11 turbines	0	0
Strath Tirry Wind Farm (ITPE, 2020)	Consented	4 turbines	0	0
Strathy North Wind Farm (Environ, 2007; 2010; NatureScot, 2024c)	Operational	33 turbines	0.001	0.039
Strathy North Grid Connection (Strath Halladale to Dallangwell) (ASH, 2013)	Operational	~12 km	0*	0*

Development	Status	No. of Turbines/ Length of OHL	Greenshank	Golden eagle
Strathy South Wind Farm (Ramboll UK Limited, 2020)	Under construction	35 turbines	0.120	0.020
Strathy South Wind Farm Grid Connection (ASH, 2025b)	Submitted	10.5-12.5km (depending on alignment)	0*	CRM not completed
Strathy Wood Wind Farm (Atmos, 2015; 2019)	Consented	11 turbines	0	0
Strathy Wood Wind Farm Grid Connection (ASH, 2024)	Submitted	4.5 km	0*	0*
Stroupster Wind Farm (THC, 2024)	Operational	13 turbines	Unknown	Unknown
Tormsdale Wind Farm Resubmission (Arcus Consultancy Services, 2021)	In planning	10 turbines	0.002	0
Wathegar Wind Farm (NatureScot, 2024c)	Operational	5 turbines	Unknown	0
Wathegar 2 Wind Farm (Whirlwind Renewables, 2011)	Operational	9 turbines	0	0
Total			0.224	1.176

*CRM not completed but no at-risk flights recorded during surveys.

**Mean value calculated from annual values presented in the EIAR for this development.

***Flight activity was east of Caithness and Sutherland Peatlands SPA and considered to be unconnected to the qualifying interest of the site. Collision risk assessed as low (no detailed information available).

***Based on flapping flight, which was presented in the EIAR for this development as a 'worst-case scenario'

7.12.7. The potential for significant effects on greenshank and golden eagle due to collision risk was considered to be negligible for many of the developments included in the cumulative

assessment, and in many cases flight activity was too low for CRM to be merited. Where CRM was completed, the total cumulative risk was low for both species, with predicted mean annual rates of 0.224 for greenshank and 1.176 for golden eagle.

- 7.12.8. These estimates represent 0.017% of the Caithness and Sutherland Peatlands SPA breeding greenshank population (at least 653 pairs in 2009; NatureScot 2023), and 11.760% of the golden eagle population (five pairs in 1992; NatureScot 2023). The latest assessed condition of SPA breeding populations (2024 for greenshank and 2017 for golden eagle) was “favourable maintained” (NatureScot, 2025c).
- 7.12.9. Although the cumulative collision risk appears relatively high for golden eagle, this is considered to be a worst-case theoretical scenario and potential impacts on the Caithness and Sutherland Peatlands SPA breeding population are likely to be lower than predicted for a number of reasons. The results of national surveys show that the British population has increased by 15% between 2003-15 and now meets the abundance target identified to define favourable conservation status in Scotland (Hayhow *et al.*, 2017). The most recent golden eagle breeding population estimate available for Sutherland is 25 occupied territories in 2022 (Challis *et al.*, 2023). As such, it is possible that the SPA breeding population has increased since the 1992 estimate, which would mean a smaller proportion would be affected by collision mortality. Furthermore, the SPA golden eagle population estimate relates to breeding birds, whereas some of the flight activity on which the CRM was based would be associated with wintering birds, non-breeding adults and immature birds, as well as birds breeding outwith the SPA. There are no known nesting golden eagle pairs within 6km of the Site, which is the core foraging range from the nest site during the breeding season (NatureScot, 2016a), indicating that potential collision risk to breeding birds is limited. Additionally, there is evidence to suggest that birds in Scotland tend to avoid turbines (e.g., Whitfield & Fielding, 2017; Fielding *et al.*, 2022). Golden eagles do still occasionally pass through wind farms, but they tend to fly above turbine height or appear to deliberately fly through gaps between the turbine arrays (Fielding *et al.*, 2022). NatureScot (2025b) guidance recommends an avoidance rate of 99% for golden eagle for CRM, indicating that the species is considered to be less vulnerable to collisions than many other species (the default avoidance rate is 98%).
- 7.12.10. Although it is acknowledged that there could be additional cumulative collision risk to both golden eagle and greenshank from developments for which CRM was not completed, this is expected to be negligible. Furthermore, some of the developments included in the cumulative collision risk assessment are still in planning and may not be consented or built. Additionally, the CRM does not take into account any mitigation/compensation, which would likely reduce the figures significantly (NatureScot, 2024c).
- 7.12.11. It should also be noted that CRM is generic and based on a number of assumptions, which typically results in highly precautionary predicted collision rates. For example, CRM works on the assumption that, a bird can either collide with a turbine multiple times or collides once and is instantly replaced in the population, which is not realistic in any circumstances. CRM is often based on a default assumption that turbines will be operational 85% of the time, which is unrealistic, and there may be a mismatch between

flight activity survey height bands and the rotor swept heights of turbines, resulting in the inclusion of some flights that would actually be above or below PCH.

- 7.12.12. Strathy South Wind Farm contributed the highest proportion (53.6%) of the total cumulative collision risk for greenshank, and Chleasaid Wind Farm contributed the highest proportion (6.6%) of the total cumulative collision risk for golden eagle. In contrast the Proposed Varied Development would contribute 7.6% of the total cumulative collision risk for greenshank and 0.8% of the total cumulative collision risk for golden eagle. As such, collision risk from the Proposed Varied Development would result in no more than marginal increases to cumulative effects on the Caithness and Sutherland Peatlands SPA breeding greenshank and golden eagle populations.
- 7.12.13. It is considered that the Magnitude of Change to the Caithness and Sutherland Peatlands SPA breeding greenshank population due to cumulative collision risk from the Proposed Varied Development would be Negligible, which would result in a Moderate/Minor effect, which is not significant in EIA terms.
- 7.12.14. It is considered that the Magnitude of Change to the Caithness and Sutherland Peatlands SPA breeding golden eagle population due to cumulative collision risk from the Proposed Varied Development would be Slight, which would result in a Moderate effect, which is not significant in EIA terms.

7.13. Conclusion

- 7.13.1. This chapter has assessed the effects of collision risk associated with the Proposed Varied Development on relevant IOFs. This was considered to be the only impact that could potentially differ from those predicted for the Consented Development. All other effects on previously identified IOFs were determined to remain as previously predicted for the Consented Development and no additional IOFs were identified for the Proposed Varied Development.
- 7.13.2. Although four species were scoped into the CRM for the Consented Development, namely golden plover, dunlin, greenshank and golden eagle, based on the increased minimum air gap, there were no at-risk golden plover or dunlin flights for the Proposed Varied Development and these species were scoped out of the revised CRM. Collision risk to all four species was predicted to be lower for the Proposed Varied Development compared to the Consented Development, which will result in a minor reduction in the magnitude of collision risk effects, which will remain non-significant in EIA terms.
- 7.13.3. Since all four species are qualifying features of the adjacent Caithness and Sutherland Peatlands SPA and Ramsar site, while all except golden eagle are also notified features of the adjacent Grudie Peatlands SSSI, there will be a minor reduction in the magnitude of effects on features of these designated sites. No adverse effects on site integrity are predicted for the Proposed Varied Development, which is consistent with the conclusions of the HRA completed for the Consented Development.

- 7.13.4. An updated cumulative collision risk assessment was also completed for greenshank and golden eagle, using the revised CRM results for the Proposed Varied Development and CRM results from other developments in the surrounding area. No significant cumulative effects were identified for either species.
- 7.13.5. Although no significant effects on IOFs were predicted for either the Consented Development or the Proposed Varied Development, mitigation and enhancement measures for breeding wader species delivered via the HMP and secured through planning conditions for the Consented Development remain appropriate and effective for the Proposed Varied Development.

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