

EARBA STORAGE

A GILKES ENERGY COMPANY

Earba Pumped Storage Hydro Scheme EIA Report

Chapter 10: Ornithology

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10. Ornithology

10.1 Executive Summary

This Chapter considers the potential effects of the Proposed Development on the wild bird populations of relevance and reaches conclusions on the likely significant effects on ornithology.

A desk study and field study were undertaken during the summers of 2022 and 2023 and the winter of 2022/23 to establish baseline bird populations in the area. Four ornithologically-designated sites are located within 5 km of the Proposed Development (Creag Meagaidh Special Protection Area (SPA), Ben Alder SPA, Creag Meagaidh Site of Special Scientific Interest (SSSI), and Ben Alder & Aonach Beag SSSI), and of the 59 species recorded during the survey period, four are considered to have the potential to be affected by the Proposed Development and have been assessed (Ring Ouzel, Snipe, Teal and Common Sandpiper), and four are afforded additional legal protection (Golden Eagle, Black-throated Diver, Red-throated Diver, and Black Grouse) and have been assessed in **Appendix 10.1 - Ornithology - Confidential Annex**.

There were three potential impacts on the bird life of the area identified during the construction phase of the Proposed Development (habitat loss, disturbance and displacement), with disturbance and displacement also being assessed as potential impacts during the operational phase.

The assessment of the four species considered in this Chapter determined that all species would be subjected to minor displacement and disturbance throughout the construction period. However, due to the low numbers of the birds nesting on the Site, all four ornithological receptors would only suffer low impacts from the construction phase and negligible impacts from the operational phase of the Proposed Development. The effects of the Proposed Development on all species are considered to be not significant.

Once standard mitigation measures (provision of an Ecological Clerk of Works (ECoW), preconstruction monitoring of nesting birds, creating no-go zones around any sensitive nesting areas, etc.) are successfully implemented, there will be no residual effect from the construction or operational activity of the Proposed Development on ornithological receptors within the area.

This Chapter does not assess the four species afforded additional legal protection identified in the area. For a full assessment on these species, please refer to **Appendix 10.1 - Ornithology - Confidential Annex**. However, once the appropriate mitigation and compensation measures have been undertaken on these species, the potential impacts on these species are also considered to be negligible to low, and the residual effects considered to be not significant.

10.2 Introduction

- 10.2.1 This Chapter considers the potential effects, including cumulative effects, of the Proposed Development on ornithology during construction and operation. As detailed in **Chapter 2: The Proposed Development**, with proper maintenance the Proposed Development should remain functional indefinitely. If the project were to be decommissioned, it is anticipated that the potential effects on the bird life of the area would be lower than the construction impacts. As such, a separate assessment of potential decommissioning effects on ornithology is not included in this Chapter. Where likely significant effects are predicted during construction and operation, appropriate mitigation measures are proposed, and the significance predicted residual effects are assessed.
- 10.2.2 This assessment has been carried out by Mike Coleman, owner of Mike Coleman Ecology, an experienced and competent ornithologist, and a full member of the Chartered Institute of Ecology and Environmental Management (CIEEM). Mike has extensive ornithological field experience of both lowland and upland areas across Europe, has over two decades of experience living and working in The Highlands, including work on many EIAs for renewable energy projects. He also holds a NatureScot Schedule 1 Licence (Number 167304).
- 10.2.3 A table presenting relevant qualifications and experience of key staff involved in the preparation of this Chapter is included in **Appendix 1.1 – EIA Specialist Team**.

10.3 Scope of Assessment

Study Area

- 10.3.1 The Study Area encompasses the area over which all desk-based and field data were gathered to inform the assessment presented in this Chapter. The ornithological field Study Area comprises the footprint of the Proposed Development with an appropriate buffer of up to 500 metres. The ornithological desk-based Study Area included statutory and non-statutory designated sites up to ten kilometres from the boundary of the footprint of the Proposed Development.
- 10.3.2 A full description of the ornithological Study Area can be found in the **Appendix 10.2 - Ornithology – Field Survey Methodology** of this EIAR.

Consultation Responses

- 10.3.3 To inform the scope of the assessment for the Proposed Development, consultation was undertaken with statutory and non-statutory bodies. **Table 10.1**, below, summarises the scoping and consultation responses relevant to the Ornithology Assessment and provides information on where and/or how points raised have been addressed in this assessment.
- 10.3.4 Full details on the consultation responses and scoping opinion can be reviewed in **Chapter 4: Assessment Methodology, Scoping and Consultation**, and associated appendices.

Table 10.1: Consultation Responses

Consultee	Issue Raised	Response/Action Taken
Highland Raptor Study Group (HRSG) Background Information Request 04/02/2022	Historical and recent raptor records were provided	Cognisance of the HRSG data was taken into the field survey effort. Results of the field survey for protected species can be found in Appendix 10.2 - Ornithology – Field Survey Methodology
The Highland Council (THC) Scoping Response 31/03/2023	The EIAR should provide a baseline survey of the bird and animals (mammals, reptiles, amphibians, etc) interest on site. It needs to be categorically established which species are present on the site, and where, before a future application is submitted. Further the EIAR should provide an account of the habitats present on the proposed development site. It should identify rare and threatened habitats, and those protected by European or UK legislation, or identified in national or local Biodiversity Action Plans. Habitat enhancement and mitigation measures should be detailed, particularly in respect to blanket bog, in the contexts of both biodiversity conservation. Details of any habitat enhancement programme (such as native- tree planting, stock exclusion, etc) for the proposed site should be provided. It is expected that the EIAR will address whether or not the development could assist or impede delivery of elements of relevant Biodiversity Action Plans.	This Chapter and the Appendix 10.2 - Ornithology – Field Survey Methodology of this EIAR Report provide baseline survey results and analysis for birds. Other biota and habitats are similarly covered in Chapter 8: Terrestrial Ecology .
	The Council's Ecology Officer has stated that: • In addition to the ecological surveys specified within the EIA Scoping Report, the priority species within the Highland Nature Biodiversity Action Plan 2021-2026 must also be considered within the EIA to fulfil the Highland Wide Local Development Plan polices 57-60. • THC request to be supplied with the confidential ecological appendixes.	All species recorded during the field surveys are considered using the standard assessment criteria for birds. Appendix 10.1 - Ornithology – Confidential Annex covers the most legally protected and sensitive species, and forms part of this EIAR.
	The presence of protected species such as Schedule 1 Birds or European Protected Species must be included and considered as part of the planning application process, not as an issue which can be considered at a later stage. Any consent given without due consideration to these species may breach European Directives with the	As above, all species recorded during the field surveys are considered within this EIAR. Following an online video meeting with THC on 17 October 2023, historical

Consultee	Issue Raised	Response/Action Taken
	possibility of consequential delays or the project being halted by the EC. Please refer to the comments of NatureScot and RSPB in this respect.	bird data for Ardverikie Estate was requested from the RSPB to supplement the background information from the desk study.
	The EIAR should address the likely impacts on the nature conservation interests of all the designated sites in the vicinity of the proposed development. It should provide proposals for any mitigation that is required to avoid these impacts or to reduce them to a level where they are not significant. NatureScot can also provide specific advice in respect of the designated site boundaries for SACs and SPAs and on protected species and habitats within those sites. The potential impact of the development proposals on other designated areas such as SSSI's should be carefully and thoroughly considered and, where possible, appropriate mitigation measures outlined in the EIAR. NatureScot provide advice on the impact on designated sites.	This Chapter considers the potential impacts from the Proposed Development on bird species recorded within the ornithological Study Area and bird species that are features of the designated sites. The habitats and protected species that are the features of these designations are covered in Chapter 8: Terrestrial Ecology .
NatureScot (NS) Scoping Response 24/03/2023	The breeding bird survey methodology may not be adequate. A full description of the method is not included in the scoping report. The methodology to be used is based on the BTO BBS method which is designed to show year on year changes in bird populations on a nationwide, random sample of 1km squares. The BTO BBS method is not designed to produce the type of survey we normally expect for EIA purposes i.e. one that provides an estimate of the number of breeding territories present and where the territory centres are in relation to the proposed infrastructure. Much of the survey area appears to be open moorland and a modified Brown & Shepherd Survey as recommend in our guidance will be more appropriate. It is important that the standard methodologies we recommend in our guidance are used for all the specific species identified in the scoping report (golden eagle, black grouse & divers) during the 2023 survey period.	All field surveys followed standard survey and monitoring guidance recommended by NatureScot and CIEEM for upland bird survey. Appendix 10.2 - Ornithology – Field Survey Methodology of this EIAR Report provides full methods for all field surveys undertaken. Results of species-specific surveys for protected species can be found in Appendix 10.2 - Ornithology – Field Survey Methodology.
The Royal Society for the Protection of Birds (RSPB) Scoping 09/03/2023	No comments.	N/A

10.4 Legislation, Policy and Guidance

Legislative Context

10.4.1 The following legislation has been considered in the assessment:

- A Directive 2009/147/EC on the Conservation of Wild Birds ('Birds Directive');
- Directive 92/43/EEC on Conservation of Natural Habitats and of Wild Fauna and Flora (as amended) ('Habitats Directive');
- Convention on Wetlands of International Importance ('Ramsar Convention');
- The Wildlife and Countryside Act 1981 (as amended);
- The Conservation (Natural Habitats &c.) Regulations 1994 (as amended) ('The Habitats Regulations');
- The Nature Conservation (Scotland) Act 2004 (as amended);
- The British Standard for Biodiversity BS 42020:2013;
- Wildlife and Natural Environment (Scotland) Act 2011 (as amended) (WANE); and
- The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017.

Policy Context

10.4.2 The following policy has been considered in the assessment:

- Important Bird Area (IBA) Criteria, BirdLife;
- Scottish Planning Policy 2014;
- Scottish Biodiversity Strategy 2020;

Technical Guidance

10.4.3 The following technical guidance has been considered in the assessment:

- BirdLife International (2021). European Red List of Birds. Luxembourg: Publications Office of the European Union;
- Chartered Institute of Ecology and Environmental Management (CIEEM) (2022). Guidelines for Ecological Impact Assessment in the UK and Ireland. Version 1.2;
- Cosgrove, P., Kortland, K., Shields, D., Potter, R., Murray, J. & Cosgrove, C. (2017). Response of incubating Golden and White-tailed Eagles to forest road traffic: results of a pilot study. *Scottish Birds* 37:1
- Drewitt, A. (1999). Disturbance effects of aircraft on birds. English Nature Birds Network Information Note.
- Eaton MA, Aebischer NJ, Brown AF, Hearn RD, Lock L, Musgrove AJ, Noble DG, Stroud DA and Gregory RD (2021). Birds of Conservation Concern 5: the population status of birds in the United Kingdom, Channel Islands and Isle of Man.
- European Commission (2010). Natura 2000 Guidance Document 'Wind Energy Developments and Natura 2000'. European Commission, Brussels;

- Forestry Commission Scotland (2006). Forest operations and birds in Scottish forests - the law and good practice. FCS Guidance Note 32: Forest operations and birds in Scottish forests.
- Forrester, R.W., Andrews I.J., McInerny C.J., Murray R.D., McGowan R.Y., Zonfrillo B., Betts M.W., Jardine D.W. & Grundy D.S. (eds). (2012). The Birds of Scotland. Digital Version. The Scottish Ornithologists Club, Aberlady.
- Grubb, T.Y., Delaney, D.K., Bowerman, W.W. & Weir, M.R. (2010). Golden eagle indifference to heli-skiing and military helicopters in northern Utah. *Journal of Wildlife Management*, **74**, 1275-1285.
- Hake, M., Dahlgren, T., Åhlund, M., Lindberg, P. & Eriksson, M.O.G. (2005). The impact of water level fluctuation on the breeding success of the Black-throated Diver *Gavia arctica* in South-west Sweden. *Ornis Fennica* **82**:1–12.
- Hardey, J., Crick, H., Wernham, C., Riley, H., Etheridge, B. & Thompson, D. (2009). Raptors – A field guide for surveys and monitoring. Second Edition, The Stationery Office, Edinburgh.
- Hayhow, D.B., Benn, S., Stevenson, A., Stirling-Aird, P.K. & Eaton, M.A. (2017) Status of Golden Eagle *Aquila chrysaetos* in Britain in 2015, *Bird Study*, **64**:3, 281-294.
- Highland Nature Biodiversity Action Plan 2021-2026 (HNBAP);
- Humphreys, E.M., Marchant, J.H., Wilson, M.W. & Wernham, C.V. (2015). Golden Eagle (*Aquila chrysaetos*): Scottish Windfarm Bird Steering Group (SWBSG) Species Dossier 9. Report by BTO Scotland to SWBSG as part of Project 1403. Updated by SWBSG March 2017.
- IUCN (2022). The IUCN Red List of Threatened Species. Version 2022-2. <https://www.iucnredlist.org>;
- McGrady, M.J., Petty, S.J. & McLeod, D.R.A. (2004). Potential impacts of new native woodland expansion on golden eagles in Scotland. Scottish Natural Heritage Commissioned Report No.018 (ROAME No. F99LD01).
- Ruddock, M. & Whitfield, D.P. (2007). A Review of Disturbance Distances in Selected Bird Species - A report from Natural Research (Projects) Ltd to Scottish Natural Heritage.
- Scottish Biodiversity List (2013) (SBL);
- Scottish Natural Heritage (2000). Windfarms and birds: calculating a theoretical collision risk assuming no avoidance action. SNH Guidance Note;
- Scottish Natural Heritage (2012). Assessing the Cumulative Impact of Onshore Wind Energy Developments;
- Scottish Natural Heritage (2014). Repowering onshore wind farms: bird survey requirements.
- Scottish Natural Heritage (2015). The use of helicopters and aircraft in relation to disturbance risks to Schedule 1 & 1A raptors and wider Schedule 1 species.
- Scottish Natural Heritage (2016a). Assessing connectivity with Special Protection Areas (SPAs). Version 3;
- Scottish Natural Heritage (2016b). Environmental Statements and Annexes of Environmentally Sensitive Bird Information; Guidance for Developers, Consultants and Consultees Version 2;
- Scottish Natural Heritage (2017). Recommended bird survey methods to inform impact assessment of onshore wind farms. Version 2;
- Scottish Natural Heritage (2018a). Assessing the cumulative impacts of onshore wind farms on birds. SNH Guidance Note;
- Scottish Natural Heritage (2018b). Assessing the impact of repowered wind farms on nature, consultation draft;

- Scottish Natural Heritage (2018c). Assessing significance of impacts from onshore windfarms on birds out with designated areas. Version 2; and
- Scottish Natural Heritage (2018d). Environmental Impact Assessment Handbook – Version 5: Guidance for competent authorities, consultation bodies, and others involved in the Environmental Impact Assessment process in Scotland.
- SERAD (Scottish Executive Rural Affairs Department) (2000). Habitats and Birds Directives, Nature Conservation; Implementation in Scotland of EC Directives on the Conservation of Natural Habitats and of Wild Flora and Fauna and the Conservation of Wild Birds (“the Habitats and Birds Directives”). Revised Guidance Updating Scottish Office Circular No 6/1995;
- The UK Biodiversity Action Plan (BAP) and UK Post-2010 Biodiversity Framework (2012); and
- Walker, D. (2017). A fieldworker’s guide to the Golden Eagle. Whittles Publishing, Dunbeath.
- Woodward, I., Aebischer, N., Burnell, D., Eaton, M., Frost, T., Hall, C., Stroud, D.A. & Noble, D. (2020). Population estimates of birds in Great Britain and the United Kingdom. *British Birds* **113**: 69–104.

10.5 Methodology

Desk Study

- 10.5.1 The desk study involved a search of the appropriate sources (Sitelink¹) for statutory designated sites concerning birds within a ten kilometre radius (e.g. Special Protection Areas (SPAs), Sites of Special Scientific Interest (SSSIs), Ramsar Sites) and non-statutory designated sites (e.g. Important Bird Areas (IBAs), Local Nature Reserves (LNRs) and Sites of Importance for Nature Conservation (SINCs)).

Field Study

- 10.5.2 All field surveys followed standard survey and monitoring guidance recommended by NatureScot and CIEEM for upland bird survey. **Appendix 10.2 - Ornithology – Field Survey Methodology** of this EIAR provides full methods for all field surveys undertaken.

Assessment Methodology

Evaluation of Important Ecological Features

- 10.5.3 The evaluations are applied to those species that have been scoped into the assessment and those that are predicted to be affected by the project. These are termed Important Ecological Features (IEFs).
- 10.5.4 European, national and local governments and specialist organisations have together identified a large number of species that provide the key focus for biodiversity conservation in the UK and Ireland, supported by policy and legislation. These provide an objective starting point for identifying the important ecological features that need to be considered.

¹ NatureScot Sitelink: <https://sitelink.nature.scot/home> (Accessed July 2023)

10.5.5 The importance of each species is determined through consideration of three factors. Firstly, its legal protection; secondly, its conservation status; and finally, the population size at the site as a percentage of the European and national population sizes.

10.5.6 These three factors are described in more detail below:

Legal Protection of Bird Species

10.5.7 Wild birds within the UK are protected under both European and national legislation. On a European scale, *The Birds Directive*, or European Directive 2009/147/EC (the codified version of EEC Directive 79/409/EEC as amended), relates to the conservation of all species of naturally occurring birds in the wild state. It covers the protection, management and control of these species and applies to birds, their eggs, nests and habitats.

10.5.8 It requires measures to be taken to address the factors that may affect the numbers of birds, namely, the repercussions of man's activities and, in particular, the destruction and pollution of their habitats, in order to maintain populations at a level that corresponds to ecological, scientific and cultural requirements. The Directive requires, in particular, that species mentioned in Annex 1 shall be the subject of special conservation measures concerning their habitat in order to ensure their survival and reproduction in their area of distribution. Those species that are the subject of special conservation measures under the Directive are referred to as Annex 1 species.

10.5.9 Part I of Schedule 1 of the *Wildlife and Countryside Act 1981* (as amended) lists those birds that are protected by special penalties at all times, and provides the highest level of protection in the UK. Part II lists birds that are protected by special penalties during the close season. Those species that are protected by special penalties under the Act are referred to as Part I of Schedule 1, or Part II of Schedule 1 species.

Conservation Status of Bird Species

10.5.10 Wild birds may be listed as Priority Species in Biodiversity Action Plans at national (UKBAP) and local (LBAP) levels. These plans are non-statutory but aim to describe the biological diversity of the UK, and to set out detailed measures for their conservation, in order to contribute to fulfilling the UK's international and national obligations.

10.5.11 The global conservation status of birds is defined in the IUCN Red List Categories and Criteria (IUCN, 2022). The general aim of this system is to provide an explicit, objective framework for the classification of species according to their extinction risk. This is the world's most comprehensive inventory of the global conservation status of species and those categorised as Threatened may be further categorised on a decreasing scale as Critically Endangered, Endangered or Vulnerable.

10.5.12 Those species not considered as Threatened may be categorised as Near Threatened when close to qualifying, or if likely to qualify in the future. A species at the lowest level of threat is categorised as Least Concern, and widespread and abundant species are included in this category. When there is inadequate information to make an assessment, a species may be categorised as Data Deficient.

- 10.5.13 The European conservation status of birds is determined by BirdLife International in their *European Red List of Birds* (BirdLife International, 2021), which identifies priority species in order that conservation action can be taken to improve their status taken from the IUCN Red List assessment of regional extinction risk. Such birds are described as European Red List of Birds Species (ERLOB).
- 10.5.14 The national conservation status of birds is determined by their listing on the Red, Amber and Green lists of *Birds of Conservation Concern* (BoCC), as defined by Eaton et al. (2021). The criteria used to assign a species to one of these lists reflect each species' global, European and UK status and measure the importance of the UK populations in international terms.
- 10.5.15 BoCC Red List species are either globally Threatened using IUCN criteria; have suffered a severe decline since 1800 without substantial recent recovery; have suffered a severe decline in breeding or non-breeding population of more than 50% over 25 years; or suffered a severe decline in breeding range of more than 50%, measured by birds present in 10 km squares, over 25 years.
- 10.5.16 BoCC Amber List species must have been identified as an ERLOB; or have been Red listed for historical decline in a previous review, but with a substantial recent recovery; or have a moderate (25%-50%) decline in breeding or non-breeding populations or breeding range over the past 25 years; or have a UK breeding population of fewer than 300 pairs, non-breeding population of fewer than 900 individuals; or have at least 50% of the UK breeding or non-breeding population found in 10 or fewer sites; or be species of international importance with at least 20% of the European breeding or non-breeding population found in the UK.
- 10.5.17 BoCC Green List species comprise all regularly occurring species that do not qualify under any of the Red or Amber criteria. The Green list also includes those species listed as recovering from historical decline in the last review that have continued to recover and do not qualify under any of the other criteria.

Population Size at the Site

- 10.5.18 To establish the importance of the population size at the site, the sizes of the European and national populations need to be estimated. In determining the size of these populations, reference is made to Woodward et al. (2020) and BirdLife International (2021). Scottish populations are determined using *The Birds of Scotland* (Forrester et al., 2012).
- 10.5.19 **Table 10.2** shows a procedure for determining the geographical level of importance of bird species. Where a feature is important at more than one level in the table, its overriding importance is that of the highest level. Usually only the highest level of legal protection is listed.

Table 10.1: Geographical Level of Importance of Ecological Features

Level of Importance	Assessment Criteria		
	Legal Protection	Conservation Status	Population Size
International	Any species within Annex 1 of the Birds Directive	Any species which is listed as Critically Endangered or Endangered on the IUCN Red List; any species which is a qualifying feature of a SPA.	Supporting greater than 1% of European population
National	Any species within Schedule 1 of the Wildlife and Countryside Act	Any species that is listed as a Priority Species in the UKBAP; any species on the BoCC Red List.	Supporting greater than 1% of UK population
Regional		Any species on the SBL; any species on the BoCC Amber List.	Supporting greater than 0.5% of the UK population
County		Any species that is listed as a Priority Species in the HNBAP.	Supporting greater than 0.05% of UK population
Local		BoCC Green List; or species with no conservation concern; common and widespread throughout the UK.	Supporting less than 0.05% of UK population

Impact Assessment

- 10.5.20 The assessment of impacts describes how the baseline conditions would change as a result of the project and its associated activities and from other developments. The term 'impact' is used commonly throughout the EIA process and is usually defined as a change experienced by a receptor (this can be positive, neutral or negative). The term 'effect' is commonly used at the conclusion of the EIA process and is usually defined as the consequences for the receptor of an impact after mitigation measures have been taken into account. The EIA Regulations specifically require all likely significant effects to be considered. Therefore, impacts and effects are described separately and the effects for the IEFs are assessed as being either significant or not according to the importance and sensitivity of the IEF.

10.5.21 Significant cumulative effects can result from the individually insignificant but collectively significant effects of actions taking place over a period of time or concentrated in a location, for example:

- Additive / incremental;
- Associated / connected.

Assessment Criteria - Magnitude

10.5.22 The CIEEM guidance states that when describing changes/activities and positive or negative impacts on ecosystem structure and function, reference should be made to the following parameters:

- Magnitude;
- Extent;
- Duration;
- Reversibility; and
- Timing and frequency.

10.5.23 Magnitude: refers to the size, amount, intensity and volume of an impact, determined on a quantitative basis if possible, but typically expressed in terms of relative severity, such as major, moderate, low or negligible. Extent, duration, reversibility, timing and frequency of the impact can be assessed separately but they tie in to determine the overall magnitude.

10.5.24 Extent: the area of which the impact occurs. If the IEF is the habitat itself, magnitude and extent may be synonymous.

10.5.25 Duration: the time for which the impact is expected to last prior to recovery or replacement of the IEF. This is defined in relation to ecological characteristics, rather than human timeframes. The duration of an activity may differ from the duration of the resulting impact caused by the activity and this is taken into account.

10.5.26 Reversibility: an irreversible (permanent) impact is one from which recovery is not possible within a reasonable timescale or for which there is no reasonable chance of action being taken to reverse it. A reversible (temporary) impact is one from which spontaneous recovery is possible or for which effective mitigation is possible and an enforceable commitment has been made.

10.5.27 Timing and frequency: the number of times an activity occurs will influence the resulting impact. The timing of an activity or change may cause an impact if it happens to coincide with critical life-stages or seasons.

10.5.28 Criteria for describing the magnitude of an impact are presented in **Table 10.3** below:

Table 10.2: Criteria for Describing Magnitude of Impact

Magnitude	Description
Major	Total or major loss or alteration to the IEF, such that it will be fundamentally changed and may be lost from the site altogether; and/or loss of a very high or high proportion of the known population or range of the IEF.
Moderate	Loss or alteration to the IEF, such that it will be partially changed; and/or loss of a moderate proportion of the known population or range of the IEF.
Low	Minor shift away from the existing or predicted future baseline conditions. Change arising from the loss or alteration will be discernible but the condition of the IEF will be similar to the pre-development conditions; and/or having a minor impact on the known population or range of the IEF.
Negligible	Very slight change from the existing or predicted future baseline conditions. Change barely discernible, approximating to the 'no change' situation; and/or having a negligible impact on the known population or range of the IEF.

Assessment Criteria - Significance

- 10.5.29 Significance is a concept related to the weight that is attached to effects when decisions are made. For the purposes of EclA, a 'significant effect' is an effect that either supports or undermines biodiversity conservation objectives for IEFs. In broad terms, significant effects encompass effects on the structure and function of defined sites, habitats or ecosystems and the conservation status of habitats and species (including extent, abundance and distribution).
- 10.5.30 Significant effects are quantified with reference to an appropriate geographic scale (see **Table 10.2** above). The CIEEM guidance has one 'level of importance' and a geographical 'scale of significance'. This is to deal with the fact that the geographical scale at which the effect is significant is not necessarily the same as the geographic level of importance of the IEF.
- 10.5.31 A sensitivity scale is used, along with professional judgement, to determine the significance of effects, as shown in **Table 10.4**:

Table 10.3: Sensitivity of Important Ecological Features

Sensitivity	Definition
High	Tolerance: The IEF has a very limited tolerance of the effect.
	Adaptability: The IEF is unable to adapt to the effect.
	Recoverability: The IEF is unable to recover, resulting in permanent or long term (>10 years) change.
Medium	Tolerance: The IEF has limited tolerance of the effect.
	Adaptability: The IEF has limited ability to adapt to the effect.
	Recoverability: The IEF is able to recover to an acceptable status over the medium term (5-10 years).
Low	Tolerance: The IEF has some tolerance of the effect.
	Adaptability: The IEF has some ability to adapt to the effect.
	Recoverability: The IEF is able to recover to an acceptable status over the short term (1-5 years).
Negligible	Tolerance: The IEF is generally tolerant of the effect.
	Adaptability: The IEF can completely adapt to the effect with no detectable changes.
	Recoverability: The IEF is able to recover to an acceptable status near instantaneously (<1 year).

10.5.32 Consideration of conservation status is important for assessing the significance of effects of impacts on individual habitats and species. *The Habitats Directive* provides a helpful definition of conservation status for species (as defined by Article 1(i)):

10.5.33 *For species, conservation status is determined by the sum of influences acting on the species concerned that may affect the long-term distribution and abundance of its populations within a given geographical area.*

10.5.34 *The conservation status of species will be taken as 'favourable' when:*

- i. population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and*
- ii. the natural range of the species is neither being reduced for the foreseeable future, and*
- iii. there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.*

Assumptions and Limitations

10.5.35 Bird surveys are based on sampling techniques and results give an indication of numbers, activities and locations of birds at the particular times that surveys were carried out. The surveys for the Proposed Development were distributed by time of day and by date throughout the year to give a representation of the range of activity, and although they were occasionally restricted by inclement weather, this is not considered to have compromised the overall survey data. As a result of the survey effort (presented in **Appendix 10.2 - Ornithology Field Survey Methodology**), no gaps have been identified in the baseline data that would

prevent assessments being undertaken for the purposes of determining likely significant effects as is required by the EIA Regulations.

10.6 Baseline Conditions

Existing Baseline

Designated Sites

- 10.6.1 There are four sites with statutory designations for ornithological features within ten kilometres of the Proposed Development. Details of the sites and qualifying features are provided in **Table 10.5**.

Table 10.4: Designated Sites - Ornithology

Site Name	Distance from Proposed Development and Direction	Qualifying Feature
Ben Alder SPA	c. 2 kilometres south of Loch a' Bhealaich Leamhain	Breeding Dotterel (<i>Charadrius morinellus</i>).
Ben Alder & Aonach Beag SSSI	c. 1 kilometre south of Loch a' Bhealaich Leamhain	Breeding bird assemblage
Creag Meagaidh SPA	c. 4 kilometres north of Lochan na h-Earba	Breeding Dotterel
Creag Meagaidh SSSI	c. 2 kilometres north of Lochan na h-Earba	Breeding bird assemblage

- 10.6.2 Despite being located in close proximity to the Proposed Development, these four designations cover breeding Dotterel and other breeding birds of upland and montane habitats. As this habitat is not found within the planning boundary, and there are no historic records of Dotterel being present within the Study Area, neither the designations nor their qualifying species are considered further within this assessment.

- 10.6.3 However, as part of the breeding bird assemblage on Creag Meagaidh SSSI, Black-throated Diver (*Gavia arctica*) is known to nest within five kilometres of the planning boundary of the Proposed Development and was recorded during the field surveys. Further information on these records can be found within **Appendix 10.1 - Ornithology – Confidential Annex**.

Species

- 10.6.4 A total of fifty-nine species was recorded during the field surveys. Of these, six are included on Annex 1 of the *Birds Directive*, nine are included on Schedule 1 of the *Wildlife and Countryside Act 1981*, 21 are included on the SBL, and 10 on the HNBAP. Twelve of those species recorded are present on the BoCC Red List, 20 on the BoCC Amber List, and 20 on the BoCC Green List.
- 10.6.5 Merlin (*Falco columbarius*), Black-throated Diver, Golden Eagle (*Aquila chrysaetos*), White-tailed Eagle (*Haliaeetus albicilla*), Peregrine (*Falco peregrinus*), and Red-throated Diver (*Gavia stellata*) are all found on Annex 1, Schedule 1, the SBL, and the HNBAP. Further information on these records can

- be found within the **Appendix 10.1 - Ornithology – Confidential Annex**. These species are not assessed further within this Chapter.
- 10.6.6 Black Grouse (*Lyrurus tetrix*) is found on both the SBL and the HNBAP, as well as on the BoCC Red List. Despite not being afforded additional legal protection either internationally, or nationally, the records of Black Grouse are also considered sensitive, and will also not be assessed further within this Chapter. Further information on this species can be found within **Appendix 10.1 - Ornithology – Confidential Annex**.
 - 10.6.7 Common Crossbill (*Loxia curvirostra*), Redwing (*Turdus iliacus*) and Fieldfare (*Turdus pilaris*) are all found on Schedule 1 of the *Wildlife and Countryside Act 1981*.
 - 10.6.8 Redwing has also been placed on the SBL, along with Swift (*Apus apus*), Ring Ouzel (*Turdus torquatus*), Cuckoo (*Cuculus canorus*), Lesser Redpoll (*Acanthis cabaret*), Tree Pipit (*Anthus trivialis*), Skylark (*Alauda arvensis*), Twite (*Linaria flavirostris*), Dunnock (*Prunella modularis*), Song Thrush (*Turdus philomelos*), Bullfinch (*Pyrrhula pyrrhula*), Siskin (*Spinus spinus*), Hooded Crow (*Corvus cornix*), and Red Grouse (*Lagopus lagopus scotica*).
 - 10.6.9 Swift, Ring Ouzel, and Snipe (*Gallinago gallinago*) appear on the HNBAP.
 - 10.6.10 Fieldfare, Swift, Ring Ouzel, Cuckoo, Lesser Redpoll, Tree Pipit, Skylark, and Twite, along with Mistle Thrush (*Turdus viscivorus*) and House Martin (*Delichon urbicum*) are all found on the BoCC Red List.
 - 10.6.11 Redwing, Dunnock, Song Thrush, Bullfinch, Snipe, Greylag Goose (*Anser anser*), Mallard (*Anas platyrhynchos*), Teal (*Anas crecca*), Wren (*Troglodytes troglodytes*), Meadow Pipit (*Anthus pratensis*), Wheatear (*Oenanthe oenanthe*), Willow Warbler (*Phylloscopus trochilus*), Grey Wagtail (*Motacilla cinerea*), Common Gull (*Larus canus*), Common Sandpiper (*Actitis hypoleucos*), Dipper (*Cinclus cinclus*), Common Crane (*Grus grus*), and Red-breasted Merganser (*Mergus serrator*) are all found on the BoCC Amber List.
 - 10.6.12 Siskin, Hooded Crow, Red Grouse, Goosander (*Mergus merganser*), Great Tit (*Parus major*), Chaffinch (*Fringilla coelebs*), Stonechat (*Saxicola torquatus*), Coal Tit (*Periparus ater*), Grey Heron (*Ardea cinerea*), Raven (*Corvus corax*), Buzzard (*Buteo buteo*), Blackcap (*Sylvia atricapilla*), Pied Wagtail (*Motacilla alba yarrellii*), Goldcrest (*Regulus regulus*), Blue Tit (*Cyanistes caeruleus*), Treecreeper (*Certhia familiaris*), Jack Snipe (*Limnocryptes minimus*), Long-tailed Tit (*Aegithalos caudatus*), Sand Martin (*Riparia riparia*), Great Spotted Woodpecker (*Dendrocopos major*), Swallow (*Hirundo rustica*), Robin (*Erithacus rubecula*), and Canada Goose (*Branta canadensis*) are all on the BoCC Green List.
 - 10.6.13 In addition to the survey data, historical ornithological records obtained from the RSPB concerning non-sensitive species from Ardverikie Estate also included one record of a Ring Ouzel from 2012, and one record of a Twite in 2013 – both recorded over 1km from the proposed planning boundary.
 - 10.6.14 The majority of the 59 species recorded either constitute individual records of birds passing through the Site, species not thought to be nesting within the planning boundary of the Proposed Development, species potentially breeding within the planning boundary of the Proposed Development, but only recorded in areas away

from proposed infrastructure, or species recorded many times within suitable habitat within the Study Area and common throughout the neighbouring land. The Proposed Development will not impact on their local or national populations, and therefore they have been scoped out of the assessment process. This includes all the BoCC Green List species, and the Amber List species Dunnock, Song Thrush, Bullfinch, Greylag Goose, Mallard, Wren, Meadow Pipit, Wheatear, Willow Warbler, Grey Wagtail, Common Gull, Dipper, Common Crane, and Red-breasted Merganser.

- 10.6.15 Several species afforded extra protection under Schedule 1 (Common Crossbill, Fieldfare and Redwing), or considered to have a high conservation concern by appearing on the BoCC Red List (Swift, Tree Pipit, Skylark, Twite, Cuckoo, Lesser Redpoll, Mistle Thrush, and House Martin) were recorded within the Study Area, but in areas located away from the Proposed Development, or in habitats that will not be directly, or indirectly, affected by the Proposed Development. These species have also been scoped out of the assessment process.
- 10.6.16 Several species were recorded in habitats or locations that are contained within the footprint of the Proposed Development, and they have the potential to be affected by the Proposed Development, most likely through habitat loss of their preferred foraging or nesting locations with the creation of access tracks across open moorland, the felling of trees and loss of the forest understorey in wooded areas, or through the fluctuation in water levels within the two reservoirs. These species are considered to have a high conservation concern by appearing on the UKBAP, HNBAP or the BoCC Amber or Red Lists – Ring Ouzel, Snipe, Teal, and Common Sandpiper.
- 10.6.17 Historical records obtained from the RSPB also include satellite-tagged Hen Harrier (*Circus cyaneus*) in 2018, and further, single records from 2022 and 2023. Despite this species being afforded additional legal protection, all records are away from proposed areas of development, and due to the paucity of records, Hen Harrier has not been considered further within this assessment.

Future Baseline

- 10.6.18 With no change to the management of the moorland habitat, bird life would remain in the current state, and any fluctuations in species' populations would be due to natural fluctuations. Although the diversity of species is likely to remain the same in the short-term, it is likely that some species may disappear from the area over the medium-term, and the numbers of other species may increase.
- 10.6.19 If predicted levels of climate change continue, the increase in stormy weather and more consistent periods of rain may lead to an increase in the water levels of all the waterbodies within the footprint of the Proposed Development. This is likely to be detrimental to birds that use the lochs as foraging locations, or use the fringes and adjacent marshy habitat as nesting locations. However, an increase in the area of saturated land to the south of the Earba lochans may lead to an increase (or a variation in the current diversity of species) in both passage and breeding upland waders and moorland breeding waterfowl.
- 10.6.20 It is possible that the forestry areas may be felled in the future, which would lead to short-distance dispersal of those species currently found in the wooded block within the footprint of the Proposed Development. Should there be replanting of native trees, the diversity of species may increase as a result over a long time

period. Should the woodland areas be clear felled and left open, the diversity of species would likely drop, but it could lead to an increase in raptor activity in the short term as prey items would become more visible, especially in the former woodland blocks adjacent to moorland.

10.7 Mitigation by Design

- 10.7.1 The Applicant's approach to the EIA process has been to prioritise and implement mitigation in a hierarchical way. This approach focusses on developing a design through the consideration of alternative infrastructure layouts to avoid or minimise likely significant adverse effects, as discussed in **Chapter 3: Consideration of Alternatives and Design Evolution** within this EIAR.

10.8 Potential Significant Effects

- 10.8.1 This section considers the potential impacts and associated effect significance of the construction, and operation of the Proposed Development based on the typical activities described in **Chapter 2: The Proposed Development**.

Evaluation

- 10.8.2 Evaluations are only applied to those species where there is the potential for impacts that could result in significant adverse ecological effects as a result of the Proposed Development.
- 10.8.3 The four species recorded during the survey period that may potentially be affected by the Proposed Development are:
- Ring Ouzel;
 - Snipe;
 - Teal; and
 - Common Sandpiper.

Construction Effects

- 10.8.4 Construction impacts are categorised as those relating to habitat loss, disturbance to the birds and their preferred foraging, roosting or nesting areas and displacement of birds from their preferred foraging, roosting or nesting areas.

Habitat Loss

- 10.8.5 The creation of two larger waterbodies (reservoirs) at Lochan na h-Earba and Loch a' Bhealaich Leamhain would result in the permanent loss of open moorland, acid grassland, and scattered mixed woodland habitat. These habitats are currently used as nesting, roosting and foraging habitats for species of conservation concern.
- 10.8.6 The construction of dams and new permanent, or upgraded, access tracks, would result in the permanent loss of long-established mixed plantation forest, open moorland, marshy grassland, and acid grassland habitats. These habitats are currently used as nesting, roosting and foraging habitats for species of conservation concern.

- 10.8.7 Certain areas of the construction footprint (potentially including borrow pits, construction tracks, laydown areas, welfare areas, site compounds, car parks, etc) will be reinstated following construction. In these areas, the habitat loss will be temporary, although the reinstated ground may not contain the same floral diversity as it did prior to commencement of the construction phase.

Disturbance

- 10.8.8 Disturbance during construction may be derived from increased noise and visual stimuli resulting from increased vehicular and personnel movements and the creation of development infrastructure within the Site. Disturbance consists of the regular interruption of species from their regular behaviour, potentially resulting in failed nesting attempts, increased predation, abandonment of territories, and long-distance dispersal of foraging, roosting or nesting sites.

Displacement

- 10.8.9 Displacement during construction may be derived from increased noise and visual stimuli resulting from increased vehicular and personnel movements and the creation of development infrastructure within the Site. Displacement consists of the construction activity resulting in the birds' preferred nesting, foraging or roosting areas being unavailable, and suboptimal locations being used for the duration of the construction period.

Assessment of Potential Construction Impacts

Nature of Impact

- 10.8.10 The construction phase will include the creation of borrow pits, the formation of new access tracks, the construction of dams, draining sections of the reservoirs to allow construction activity, the initial inundation of the enlarged reservoirs, and a high volume of construction traffic and personnel on Site year-round for five to six years.

Duration of Impact

- 10.8.11 These impacts would be temporary (lasting the duration of the five to six year construction period). The works would be continuously ongoing throughout this period.

Importance of IEFs

- 10.8.12 Ring Ouzel has been placed on the BoCC Red List, the SBL, and the HNBAP, and is therefore of National importance.
- 10.8.13 Snipe has been placed on the BoCC Amber List and the HNBAP, and is therefore of Regional importance.
- 10.8.14 Teal has been placed on the BoCC Amber List, and is therefore of Regional importance.
- 10.8.15 Common Sandpiper has been placed on the BoCC Amber List, and is therefore of Regional importance.

Magnitude of Impact

- 10.8.16 Although the area of potential construction disruption covers a large area, construction works is likely to be limited to small pockets within the footprint of the Proposed Development at any given time, although construction of the dams, use of the borrow pits, blasting of the tunnels, and draining and inundating the reservoirs are predicted to cause the highest levels of un-natural visual and noise stimuli. These activities are likely to lead to disturbance and displacement of the birds from their preferred areas of foraging, roosting, or nesting.
- 10.8.17 All the species being assessed nest within 100 metres of predicted construction works within the proposed Lochan na h-Earba inundation zone of the Proposed Development, or in the saturated moorland to the south of the Earba lochans.
- 10.8.18 Therefore, despite the concentrated area of construction activity, the proposed construction activity is potentially of high impact with the use of blasting, piling, and heavy use of vehicular movements during the dam construction. There is a lack of seasonal timing with the construction activity, and birds are likely to be disturbed or displaced as a result of these works, although their breeding numbers on Site are predicted to remain stable in the short-term. Therefore, the magnitude of impact from all construction activity on Ring Ouzel, Snipe, Teal, and Common Sandpiper is considered to be Low.

Significance of Effect

- 10.8.19 As all bird IEFs are likely to be tolerant of the proposed construction work, and all species can still adapt during the construction phase despite the potential disturbance and displacement, all species' sensitivity is considered to be Low.
- 10.8.20 The effects of habitat loss on Ring Ouzel, Snipe, Teal and Common Sandpiper are considered to be Not Significant.
- 10.8.21 The effects of visual and noise disturbance on Ring Ouzel, Snipe, Teal and Common Sandpiper are considered to be Not Significant.
- 10.8.22 The effects of displacement on Ring Ouzel, Snipe, Teal and Common Sandpiper are considered to be Not Significant.

Operational Effects

- 10.8.23 Operational impacts are likely to consist of disturbance and displacement events at a similar level to the existing baseline levels, and a decrease in disturbance and displacement levels from those predicted during the construction phase.

Disturbance

- 10.8.24 Once operational, the levels of vehicular and human movement across the Site will be radically reduced from the levels experienced during much of the construction phase. This will reduce the disturbance of bird life on Site to similar levels as the existing baseline.
- 10.8.25 The fluctuation of water within both reservoirs may lead to minor disturbance events, with birds forced to relocate from their preferred foraging, roosting or nesting behaviour during times of water level rises.

Displacement

- 10.8.26 Once operational, the levels of vehicular and human movement across the Site will be radically reduced from the levels experienced during much of the construction phase. This will reduce any displacement of bird life on Site to similar levels as the existing baseline.
- 10.8.27 The fluctuation of water within both reservoirs may lead to displacement events, with birds forced to relocate from their preferred foraging, roosting or nesting behaviour during times of water level rises.

Assessment of Potential Operational Impacts

Nature of Impact

- 10.8.28 For all species, the vehicular and human movement on Site during the upkeep and monitoring of the project will cause limited noise and visual stimuli, potentially leading to disturbance and displacement. Although potential disturbance events will subside from the construction phase, the future baseline conditions will be calmer, and once the birds on Site have become accustomed to the new Site, each movement will have the potential to lead to disturbance.
- 10.8.29 The change in water level within both newly-created reservoirs has the potential to displace birds from their preferred foraging, nesting or roosting along the temporary shoreline of the water. Due to the heights involved, this fluctuation may take a longer period of time to adapt to than on smaller waterbodies.
- 10.8.30 For Teal and Snipe, the construction of the Shuas dam to the south of the Earba lochans has the potential to alter the water levels of the marshy moorland and acid grassland to the south, which may displace these species from their preferred nesting locations around the boggy fringes of the standing water.

Duration of Impact

- 10.8.31 All impacts would potentially be permanent for the duration of the development but short-term for the duration of each individual event.

Importance of IEFs

- 10.8.32 As all IEFs may be impacted, all IEFs are included in this section. Their importance is National (Ring Ouzel), and Regional (Snipe, Teal and Common Sandpiper).

Magnitude of Impact

- 10.8.33 The drop in human and vehicular activity from the construction phase will only constitute a temporary impact that will be restricted to a defined, and limited, geographical area (the new access tracks). Over the longer-term, the ability of birds to habituate to non-startling, non-sudden movements, such as passing vehicles and humans will return the potential impacts on Site to levels similar to the existing baseline.
- 10.8.34 The fluctuating water levels will take longer for birds to habituate to, and will potentially impact Common Sandpiper the most, as this species nests in the heather moorland and mossy patches within the scattered trees above the high water line. This impact is likely to be temporary, as, over time, the loss of

vegetation from around the edge of the water will dissuade birds from attempting to nest within the inundation zone.

10.8.35 The impact on ornithological IEFs is considered to be of Negligible magnitude.

Significance of Effect

10.8.36 As all bird IEFs are likely to be highly tolerant of the operational scheme, with all species adapting to a stable future baseline within a short-term following the completion of the construction period, all species' sensitivity is considered to be Negligible.

10.8.37 The effects of visual and noise disturbance on Ring Ouzel, Snipe, Teal and Common Sandpiper are considered to be Not Significant.

10.8.38 The effects of displacement on Ring Ouzel, Snipe, Teal and Common Sandpiper are considered to be Not Significant.

Positive Impacts

10.8.39 It is unlikely that there will be any positive impacts to the bird life of the Site during the construction phase of the Proposed Development, although the constant construction activity may deter land predators from accessing areas in close proximity to the works.

10.8.40 The potential change in hydrological conditions from the existing baseline in the wetter areas to the south of the Proposed Development may benefit some species, with a potential increase in invertebrate prey items and more suitable habitat being available for nest sites of several waterfowl or wader species (e.g. Snipe, Golden Plover, Teal and Wigeon)

10.8.41 Once the enabling works and construction activity has been completed, and suitable ecological mitigation measures have been successfully implemented (see Sections below), there will be a change in the baseline for birds on Site, which may require monitoring to ascertain whether the operation of the Proposed Development has had, or is having, any positive impacts.

Cumulative Effects

10.8.42 The cumulative effects of the Proposed Development concern all construction activity, and all infrastructure and activity once operational.

10.8.43 There are two aspects of cumulative effects to consider:

- the cumulative effect of two or more developments on an individual animal or home range / territory; and
- the cumulative effect of a number of developments within a region on the local / regional population of a species.

10.8.44 The cumulative effects do not include any associated works of the Proposed Development which fall under separate planning applications, including a switching station and associated cabling and access tracks.

10.8.45 It is considered that due to the footprint of the Proposed Development being located in an area away from other planned schemes, this work is unlikely to

constitute a significant effect on the bird life of the area in conjunction with other schemes or the wider works of the Proposed Development.

10.9 Mitigation

Mitigation During Construction

- 10.9.1 There are several mitigation measures proposed to ensure potential effects on birds are minimised during the construction of the Proposed Development. These measures, outlined below, assume an Ecological Clerk of Works (ECoW) would be employed as required, during the construction phase to ensure that disturbance within sensitive ecological areas is kept to an absolute minimum and contractors are aware of procedures to follow should they encounter a protected bird within the vicinity of the proposed works. Likely specific tasks are listed below.
- 10.9.2 During the early breeding season (approximately early-April to mid-May), regular monitoring during the progression of the construction works should be undertaken by the appointed ECoW to ensure that any species nesting, or considering nesting, within close proximity of construction activity is detected, and suitable deterrence or protection measures are implemented at an early stage in agreement with the relevant statutory bodies.
- 10.9.3 Where construction is required during the full breeding season (approximately early-April to late-July), the following mitigation procedures are recommended:
- All defined routes of access track should be surveyed by a suitably qualified ornithologist before the start of construction to ascertain the potential risk to any breeding birds within the immediate construction area and a 100 metre buffer on the open moorland, and within 50 metre of any works undertaken in forested areas.
 - In the event that nesting birds are present within the construction areas, or a risk of disturbance is identified, then appropriate measures should be taken to ensure that the potential for any significant effects is avoided. This may involve measures on the ground such as establishment of buffer-zones around nests to prevent any activity, as advised by the appointed site ECoW.

Mitigation During Operation

- 10.9.4 There is not considered to be any need for any mitigation measures during the operational phase.
- 10.9.5 Further mitigation measures to ensure impacts during the construction and operational phases of the Proposed Development on protected bird species are minimised can be found in the **Appendix 10.1 - Ornithology – Confidential Annex**.
- 10.9.6 Mitigation for the IEFs in this Chapter are presented in **Table 10.6**, below.

Table 10.5: Ornithological Mitigation

Phase of Development	Mitigation Measure	Tasks / Potential Actions
Construction	Employment of an ECoW	Ensure that disturbance within sensitive ecological areas is kept to an absolute minimum and contractors are aware of procedures to follow should they encounter a protected bird within the vicinity of the proposed works.
	Monitoring in early-breeding season (early-April – mid-May)	Ensure that any species nesting, or considering nesting, within close proximity of construction activity is detected, and suitable deterrence or protection measures are implemented at an early stage in agreement with the relevant statutory bodies.
	Pre-construction access track surveys in breeding season (early-April – late-July)	Ascertain the potential risk to any breeding birds within the immediate construction area and a 100 metre buffer on the open moorland, and within 50 metre of any works undertaken in forested areas. May lead to the establishment of buffer-zones around nests to prevent / to minimise any disturbance.
	Pre-construction surveys around construction activity during breeding season (early-April – late-July)	
Operational	None	N/A

10.10 Residual Effects

- 10.10.1 This section considers the potential residual effects and associated effect significance of the construction and operation of the Proposed Development on the four bird species assessed above once the appropriate mitigation measures have been implemented.
- 10.10.2 Residual effects from the construction phase, operational phase, and cumulatively with other potential schemes of the Proposed Development on protected bird species can be found in **Appendix 10.1 - Ornithology – Confidential Annex**.

Construction Residual Effects

- 10.10.3 Despite impacts likely to occur, no significant effects (pre-mitigation) were identified. Nevertheless, good practice management measures have been identified, as detailed above, to further avoid and reduce effects. Therefore, the residual effects on ornithological receptors during the construction phase are considered to be Not Significant.

Operational Residual Effects

- 10.10.4 No significant effects (pre-mitigation) have been identified and no mitigation measures are deemed necessary at this time, although appropriate measures can

be implemented as required following any monitoring results executed by the ECoW. The residual effects on ornithological receptors during the operational phase are considered to be Not Significant.

Cumulative Residual Effects

- 10.10.5 As identified above, the Low potential impacts during the construction and Negligible potential impacts during operation phases of the Proposed Development, in conjunction with the lack of other construction projects in the area, have been assessed as having no significant cumulative effects on the bird life of the area. Once the separate mitigation measures have been implemented (including those referred to above), it is considered highly unlikely that there will be any cumulative residual effects, and so the effects are considered to be Not Significant.
- 10.10.6 The effects of the Proposed Development on the ornithological IEFs are presented in **Table 10.7**, below.

10.11 Conclusion

- 10.11.1 An assessment has been made of the predicted significance of effects of the Proposed Development on ornithological interests. This assessment identified no significant effects, following mitigation, of the Proposed Development on ornithological interests.
- 10.11.2 Specific mitigation measures are proposed to minimise the potential effects of displacement and disturbance and to ensure compliance with the *Wildlife and Countryside Act 1981* (as amended) by the *Nature Conservation (Scotland) Act* (2004). Best practice guidance regarding breeding birds would be followed and an ECoW would be employed during construction.
- 10.11.3 This conclusion does not take into account the presence of protected bird species. For concluding comments which include all species recorded within the Proposed Development, please refer to **Appendix 10.1 - Ornithology – Confidential Annex**.

Table 10.6: Summary of Residual Effects on IEFs

Phase of Project	IEF	Importance of IEF	Sensitivity of IEF	Nature of Impact	Duration of Impact	Magnitude of Impact	Significance of Effect
Construction	Ring Ouzel	National	Low	Habitat Loss	Permanent	Low	Not Significant
				Noise & Visual Disturbance	Temporary		
				Displacement	Temporary		
	Snipe, Teal, Common Sandpiper	Regional	Low	Habitat Loss	Permanent	Low	Not Significant
				Noise & Visual Disturbance	Temporary		
				Displacement	Temporary		
Operational	Ring Ouzel	National	Negligible	Noise & Visual Disturbance	Temporary	Negligible	Not Significant
				Displacement	Temporary		
	Snipe, Teal, Common Sandpiper	Regional	Negligible	Noise & Visual Disturbance	Temporary	Negligible	Not Significant
				Displacement	Temporary		

10.12 List of Abbreviations

Abbreviation	Full Term
BBS	Breeding Bird Survey
BoCC	Birds of Conservation Concern
BTO	British Trust for Ornithology
CEMP	Construction Environment Management Plan
CIEEM	Chartered Institute of Ecology and Environmental Management
COSHH	Control of Substances Hazardous to Health
EC	European Commission
EclA	Ecological Impact Assessment
ECOW	Ecological Clerk of Works
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
ERLOB	European Red List of Birds Species
HNBAP	Highland Nature Biodiversity Action Plan
HRA	Habitats Regulations Appraisal
HRSG	Highland Raptor Study Group
IEF	Important Ecological Feature
IUCN	International Union for Conservation of Nature
JNCC	Joint Nature Conservation Committee
MCIEEM	Member of the Chartered Institute of Ecology and Environmental Management
NHZ	Natural Heritage Zone

Abbreviation	Full Term
NS	NatureScot
OS (GR)	Ordnance Survey (Grid Reference)
RSPB	The Royal Society for the Protection of Birds
SAC	Special Area of Conservation
SBL	Scottish Biodiversity List
SEPA	Scottish Environment Protection Agency
SERAD	Scottish Executive Rural Affairs Department
SNH	Scottish Natural Heritage
SPA	Special Protection Area
SPP	Species Protection Plan
SSSI	Site of Special Scientific Interest
UKBAP	United Kingdom Biodiversity Action Plan
VOR	Valued Ornithological Receptor
VP	Vantage Point