

Chapter 8

Ecology and Ornithology

Introduction

8.1 This chapter presents the findings of the assessment of likely significant effects of the EDM Project on ecology and ornithology. It constitutes an Ecological Impact Assessment (EclA) which is based upon the EDM Project components outlined in **Chapter 4: Project Description**.

8.2 The chapter presents and interprets the findings of desk-based and field studies and follows good practice methods in assessing the potential significance of effects on ecological features, with a focus on identifying those that are considered to be significant in the context of the EIA Regulations.

8.3 The chapter assesses the effects during the construction and operation of the New 132kV OHL and the removal of the Existing 132kV OHL.

8.4 This chapter should be read in conjunction with the following chapters of the EIA-R, which inform, or have been informed by, this assessment:

- **Chapter 3: Routeing and Design Strategy**
- **Chapter 4: Project Description**
- **Chapter 5: Planning Policy Context**
- **Chapter 7: Geology, Hydrology, Hydrogeology, Water Resources, and Peat** which includes further information in relation to peat and Groundwater Dependent Terrestrial Ecosystems (GWDTEs).
- **Chapter 10: Forestry**

8.5 Figures associated with this chapter include:

- **Figure 8.1:** Study Area
- **Figure 8.2:** Designated Sites
- **Figure 8.3:** Habitat Survey Results
- **Figure 8.4:** Protected Species Survey Results
- **Figure 8.5: Confidential** Badger Survey Results
- **Figure 8.6:** Breeding Bird Territories
- **Figure 8.7:** Bird Flights Overview

8.6 Appendices include the detailed findings of the desk-based and field studies that have informed this assessment. These comprise:

- **Appendix 8.1: Habitat and Vegetation Survey Report.**
- **Appendix 8.2: Protected Species Survey Report (including confidential Badger annex).**
- **Appendix 8.3: Ornithological Survey Report.**

8.7 The ecology assessment was undertaken by LUC, with support from JK Ecology who undertook the ornithological study and assessment. LUC's and JK Ecology's ecologists are members of the Chartered Institute of Ecology and Environmental Management (CIEEM). All field surveys were undertaken by LUC ecologists and JK Ecology ornithologists.

Scope of the Assessment

Effects Assessed in Full

8.1 The potential effects which have been scoped in, and out, were originally detailed in the EDM Project's Scoping Report¹, which was informed by available data, professional judgement of the EIA Team, experience from other relevant projects, policy, guidance or standards, and feedback received from consultees. At that point, all potential effects on ecology and ornithology as a result of construction of the New 132kV OHL, and decommissioning of the Existing 132kV OHL, and the potential operational effects on birds were scoped in.

8.8 However, following detailed field survey, interpretation of baseline data and interrogation of evolving construction methods and timescales, a revised scope has been undertaken that focusses on likely significant effects, as required by the EIA Regulations.

8.9 Likely effects scoped into the assessment, and assessed in full, include:

- Effects on designated sites during construction of the New 132kV OHL and decommissioning of the Existing 132kV OHL.
- Effects on habitats of conservation concern² during construction of the New 132kV OHL (including consideration of forestry felling).
- Effects on breeding and wintering bird populations of conservation concern³ during construction of the new 132kV OHL and decommissioning of the Existing 132kV OHL.
- Effects on wintering bird populations during operation of the New 132kV OHL.

8.10 Detailed assessments are provided in later sections of this chapter.

Effects Scoped Out

8.11 A likely effect may be scoped out of full assessment when it is clear that it will not be significant⁴ in EIA terms. Various factors are considered in this determination, including:

- Baseline data that confirms the Study Area is of limited importance for a species/habitat identified during field studies.
- Construction methods are demonstrably limited in their ability to cause damage or disturbance (e.g. limited footprint or timescale).
- Post construction, the operation of the development will not result in increased activity or land take.
- The application of embedded mitigation or standard, well-established good practice construction methods means an effect is highly unlikely.

8.12 With regard to the EDM Project, key project features include:

- Physical land take is limited, with the access tracks being temporary.
- Construction activity at each new wood pole location is limited to a few days.
- Decommissioning of each existing tower will similarly last only a few days.
- The operation of the New 132kV OHL will not see ongoing activity within the wayleave with staff visiting for inspection and maintenance purposes on an annual basis.
- Construction will be subject to embedded mitigation⁵ and standard well-established good practice construction methods via a Construction and Decommission Environmental Management Plan (CDEMP). Please, refer to **Chapter 4** and **Appendix 4.1** for

¹ The Erskine to Devol Moor 132kV Replacement Project EIA Scoping Report (December 2018)

² i.e. habitats listed in Annex 1 of the Habitats Directive, included in the Scottish Biodiversity List, Local Biodiversity Action Plans and Groundwater Dependent Terrestrial Ecosystems (GWDTEs)

³ Annex 1, Schedule 1 and BoCC (Amber and Red list).

⁴ As defined by the assessment method set out in this chapter.

⁵ Explained in detail below

further details. All measures included in the CDEMP are well established on energy infrastructure projects and have a demonstrably high level of success.

8.13 Consequently, the following potential effects have been scoped out of full assessment:

- Construction and operational effects of the New 132kV OHL on terrestrial protected species (on the basis that direct evidence of all target species was limited and extensive suitable habitat will persist following construction).
- Effects during decommissioning of the Existing 132kV OHL (excluding effects on designated sites and birds).
- Operational effects of the New 132kV OHL on designated sites.
- Operational effects of the New 132kV OHL on habitats of conservation concern.
- Cumulative effects with other nearby developments (on the basis of the EDM Project Study Area's limited Ecological Importance and the lack of receptor connectivity with other developments).

8.14 It is important to note, however, that while effects are scoped out because they are not considered to be significant in EIA terms, the need to ensure compliance with international and national nature conservation legislation still applies. The presence and potential presence of protected species along the route will require consideration within the CDEMP and appropriate measures, including licensing, will be necessary to ensure their ongoing viability. See **Appendix 8.2** for details of protected species distribution across the Study Area.

Assessment Methodology

Legislation and Guidance

Legislation

8.15 Legislation of relevance to statutorily designated sites, protected habitats and protected species, as detailed in this assessment, includes:

- the Nature Conservation (Habitats, &c.) Regulations 1994 (as amended in Scotland).
- the Wildlife and Countryside Act 1981 (as amended in Scotland).
- the Nature Conservation (Scotland) Act 2004.
- the Protection of Badgers Scotland Act 1992 (as amended in Scotland).
- the Water Environment and Water Services (Scotland) Act 2003 (WEWS).
- the Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended).

Guidance

8.16 Nature conservation policy or guidance of relevance to locally designated sites and habitats and species of conservation interest, as detailed in this assessment, includes:

- the Scottish Biodiversity Listⁱ.
- the Renfrewshire Biodiversity Action Plan and Local Biodiversity Action Plan for East Renfrewshire, Renfrewshire & Inverclydeⁱⁱ.
- Scottish and Local Planning Policy and Supplementary Guidance, as detailed in **Chapter 5**.

8.17 Relevant guidance that informs assessment methods adopted in this chapter includes:

- Guidelines for Ecological Impact Assessment in the UK and Irelandⁱⁱⁱ.
- Scottish Natural Heritage, Series on Species Advice Notes for Developers^{iv}.
- Assessment and Mitigation of Impacts of Power Lines and Guyed Meteorological Masts on Birds^v.

- Bird Survey Methods to Inform Impact Assessment of Onshore Wind Farms^{vi}.
- Guidance on Assessing the Impacts of Development Proposals on Groundwater Abstractions and Groundwater Dependent Terrestrial Ecosystems (GWDTE)^{vii}.

8.18 Further guidance in relation to survey methods and the interpretation of ecological data is referenced in relevant Appendices, where appropriate.

Consultation

8.19 In undertaking the assessment, consideration has been given to the scoping responses and other consultation undertaken as detailed in **Table 8.1**.

Table 8.1: Consultation Responses

Consultee and Date	Scoping/Other Consultation	Issue Raised	Response/Action Taken
Scottish Natural Heritage (SNH)	Formal Scoping Consultation and follow-up discussions/clarifications with Case Officer	SNH request that survey information gathered on the Black Cart Special Protection Area (SPA), and used to inform the ornithology assessment, is presented within the EIA Report. This should include vantage point (VP) viewsheds and tabulated monthly or seasonal VP data as well as proposed mitigation measures.	The Black Cart SPA is approximately 3.7 km southeast of the end of the OHL. As such, there is likely to be very little survey data gathered directly related to this Natura site, especially given the VP viewshed distance is 2 km. However, any observations of whooper swans (the SPA qualifying species) recorded during baseline surveys has been included in Appendix 8.3 .
		SNH state that Hen Harrier and Red Shank surveys and assessment are not required given the proposed development's lack of connectivity with the Renfrewshire Heights SPA and Inner Clyde SPA.	Noted. Based on the lack of connectivity, there is no requirement for a Habitats Regulations Appraisal (HRA).
		SNH advise that the retention of existing in situ concrete bases associated with the existing 132kV OHL would be the least damaging option for surface vegetation and underlying hydrology associated with Dargavel Burn Special Site Scientific Interest (SSSI).	Noted. Decommissioning details for the existing 132kV overhead line are provided in Chapter 4: Project Description and effects of decommissioning are assessed in this chapter.
		SNH advise that the siting of new wood poles on the slopes to the north of the Dargavel Burn SSSI should avoid springs and flushes which may supply water to it. Additionally, consultation with SEPA may be required if access tracks cross any Ground Water Dependent Terrestrial Ecosystems (GWDTE) in the area. The construction method statement ⁶ should include: - Detailed information on the proposed methods for the siting and installation of new infrastructure. Recommended avoiding placing new poles in any springs or flushes that may be supplying water to the SSSI. - Information detailing the access route including measures to minimise damage such as: ■ avoiding tracking across spring and flushes.	The avoidance of Dargavel Burn SSSI and its potential GWDTE habitats has been a key design consideration during the detailed design of the New 132kV OHL. Details of GWDTE habitats and potential effects on them are included in Chapter 7 . The CDEMP will set out the relevant construction practices required to minimise effects on Dargavel Burn SSSI as well as good practice construction methods to be employed. These include: ■ A Pollution Prevention Plan (PPP). ■ Construction Method Statements (CMS). ■ A Water Protection Plan (WPP). ■ A Site Waste Management Plan (SWMP).

⁶ Referred to within the remainder of this chapter as a Construction Design Environmental Management Plan (CDEMP)

Consultee and Date	Scoping/Other Consultation	Issue Raised	Response/Action Taken
		<ul style="list-style-type: none"> taping off springs and flushes to exclude them from the working corridor and minimize risk of damage. if planning an access track that crosses watercourses or Ground Water Dependent Terrestrial Ecosystems (GWDTE) you may need to consult SEPA. if installing a track refer to best practice guidelines to avoid any interruption of the hydrology of any springs and flushes supplying water to the SSSI. <p>- Details regarding storage of materials i.e. do not store any materials on springs and flushes.</p> <p>- Details of measures to avoid an increase in the sediment load reaching the SSSI, either through the burns which enter the SSSI from the north or via seepages.</p>	
		<p>Regarding the Formakin SSSI, the decommissioning method statement should include:</p> <p>- Detailed information on the proposed methods for the removal of the old pylon including what kind of machinery would be needed for its dismantling and removal from the site. Information detailing the access route including measures to minimise damage such as;</p> <p>- Minimising the number of times the vehicles track over the agreed route</p> <p>- No deviation from the agreed route</p> <p>- No storage of materials within the SSSI</p>	<p>These details will be provided in the CDEMP, which will include:</p> <ul style="list-style-type: none"> A Pollution Prevention Plan (PPP). Construction Method Statements (CMS). A Water Protection Plan (WPP). A Site Waste Management Plan (SWMP).
		<p>SNH state that where the impacts upon protected species are unavoidable, the EIA report should be supported by full species protection plans.</p>	<p>There are no predicted significant effects on protected species. However, in order that full legislative compliance is achieved, pre-works surveys will be undertaken no more than 6 months prior to construction. Pre-works surveys will inform all necessary species protection measures, to be detailed in the CDEMP. Where necessary, the licensing process will be implemented.</p>
		<p>The results from the extended Phase 1 Habitat surveys should be included within the EIA Report. Survey results should be used throughout the iterative design and layout process in order to avoid, where possible, fragile and priority habitats and other sensitive areas.</p>	<p>Results of the Extended Phase 1 Surveys are provided in Appendix 8.1.</p>
		<p>SNH note that advice from Renfrewshire and Inverclyde council should be sought regarding the potential impacts to locally designated sites, including Sites of Importance for Nature Conservation (SINCs).</p>	<p>Renfrewshire council was unable to provide any detail on the SINCs within that council area. Inverclyde referred to the publicly available citations for their LNCSs</p>
		<p>The results of all ornithology and ecology surveys should be fully detailed in the EIA Report.</p>	<p>Full details of ecology and ornithology survey efforts are included in Appendices 8.1 – 8.3.</p>

Consultee and Date	Scoping/Other Consultation	Issue Raised	Response/Action Taken
		<p>The cumulative impacts of the proposal with other existing or planned overhead line infrastructure and wind farms should be fully considered.</p>	<p>Due to the limited significance of the EDM Project's ecological impact, and lack of connectivity with other projects in the wider study area, a cumulative impact assessment is not considered necessary.</p>

Study Area

8.20 The Study Area adopted in this assessment varies by desk and field survey and ecological and ornithological feature, as defined by best practice (detailed in **Technical Appendices 8.1 – 8.3**). Study Areas are detailed in **Table 8.2** and shown in **Figure 8.1**.

Table 8.2: Study Area Description

Desk-based Studies	
Ecological Feature	Study Area
Statutory Designated Sites	Development footprint, wayleave and 5km buffer
Non-Statutory Designated Sites	Development footprint, wayleave and 2km buffer
Existing Protected Species Data	Development footprint, wayleave and 2km buffer
Field Studies	
Habitat and Vegetation Surveys (including GWDTEs)	Development footprint, wayleave and further 50m buffer (including ILA)
Protected Species (terrestrial)	Development footprint, wayleave and further 50m buffer (extended to 200m along watercourses for otter)
Protected Species (aquatic)	Development footprint, wayleave and further 200m buffer
Protected Species (ornithological)	Development footprint, wayleave and further 500m buffer

8.21 In relation to existing access tracks and access routes proposed to be used for the removal of existing 132kV towers, the limited nature of proposed works did not warrant detailed ecological survey. Instead, brief walkover surveys were undertaken to identify any key potential ecological constraints, such as the presence of protected species resting sites.

8.22 With regards to the Existing 132kV OHL removal, the location of towers, and access to them, is fixed, thus there was no opportunity to use field data to inform project design. Consequently, a detailed baseline was not required or proportionate. Instead, a walkover survey was undertaken to identify key ecological constraints, such as protected species resting sites.

8.23 Where new stone access tracks are required or in the vicinity of designated sites, detailed surveys were undertaken in line with the details in the above table.

Desk Based Research and Data Sources

8.24 Prior to the commencement of field studies, a desk study was undertaken to identify known ecological features within the relevant Study Areas described above. Searches were made for those habitats and species agreed through consultation. The following resources were used:

- SNH SiteLink (statutory designated sites)^{viii}.
- Inverclyde Council list of Local Nature Conservation Sites (Non-statutory designated sites)^{ix}.
- The Ancient Woodland Inventory^x.
- National Biodiversity Network Atlas^{xi}.

- British Trust for Ornithology (BTO) Wetland Bird Survey (WeBS).
- The Birds of Conservation Concern (BoCC^{xii}) List.

8.25 Where appropriate, other scientific resources were referred to when determining protected species behaviour or population sizes. These resources are referenced in the chapter where appropriate.

8.26 Further information relating to the desk study method is provided in **Appendices 8.1 – 8.3**.

Field Survey

8.27 A suite of habitat and species surveys were undertaken to inform this EclA. Field studies included:

- Habitat surveys, namely Phase 1 Habitat and National Vegetation Classification (NVC) (to inform GWDTE classification where necessary);
- Protected terrestrial species surveys, including detailed searches for signs of:
 - Badger.
 - bat roosting potential.
 - Otter.
 - water vole.
 - great crested newt (Habitat Suitability Index and eDNA⁷).
- Ornithological surveys included:
 - breeding bird surveys; and
 - vantage point surveys.
- All ecology surveys were undertaken over an 18-month period between 2018-2019, in appropriate conditions, in accordance with published good practice guidelines, and, where necessary, appropriate seasons. Detailed accounts of survey rationale and methods are provided in **Appendices 8.1 - 8.3**.

8.28 Note the following methodological deviations were applied:

- As ornithological collision risk is a specific concern for OHLs, a year of vantage point (VP) surveys were undertaken. In consultation with SNH, it was agreed to give particular attention to 'target species' of higher conservation concern and which are most likely to be at risk from collision (due to size, flight style, and behaviour). This list of target species included all goose and swan species, as well as redshank, and non-passerine species afforded higher protection (e.g. Annex I of the Birds Directive). Four height bands were also established which were used during the surveys (0-10m, 10-20m, 20-100m, 100m+). The 'at risk' height was defined as Band 2: 10-20m above ground, as this reflects the height of the OHL conductors.
- Detailed surveys were not undertaken within the Existing 132kV OHL footprint. Detailed baseline data serves to inform the design process, highlighting key constraints and allowing design to minimise effect. As the towers of the Existing 132kV OHL exist, and available access routes to them relatively fixed, there is limited scope to inform design. However, walkover surveys were undertaken to identify key ecological constraints, such as protected species resting sites, ensuring effects could be properly mitigated in due course. Further details of this approach are set out in **Appendices 8.2 and 8.3**.

Approach to GWDTE

8.29 The term 'Groundwater Dependent Terrestrial Ecosystem' (GWDTE) refers to wetland habitats that rely on groundwater for their function and viability. The concept evolved from the Water Framework Directive, transposed in Scotland through the Water Environment and Water Services Act (2003) (WEWS), and subsequent SEPA guidance^{vii}.

8.30 The guidance sets out those vegetation communities that at least potentially rely upon groundwater. Classification as a GWDTE does not convey any ecological value on a habitat; indeed, many GWDTE habitats are common and widespread across Scotland, e.g.

rush mire. However, while GWDTE habitats are not necessarily of specific ecological value, the WEWS Act, and subsequent guidance, requires GWDTEs to be protected wherever possible.

8.31 SEPA guidance requires potential effects on GWDTEs to be fully assessed and where necessary, mitigated. It is important to understand this context because to focus the assessment on the ecological value of GWDTEs is to misunderstand their use. The assessment of potential effects should also focus on GWDTEs as a proxy for groundwater movement, i.e. the assessment should focus on the effect of the EDM Project upon the quality and quantity of groundwater supporting the GWDTE. Notwithstanding this, the ecological value of GWDTEs in their own right must also be considered, which is completed through the assessment of potential effects on habitats.

8.32 A detailed assessment of potential effects on GWDTEs is provided in **Chapter 7**.

Determining Ecological Importance, Potential Effects and Effect Significance

8.33 The assessment undertaken in this chapter is based on methods described in 'Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Marine, and Coastal. CIEEM (2018).

8.34 The guidelines recommend that the 'importance' of a given site in relation to each of its ecological features is determined within a defined geographical context. This, alongside the qualifying criteria and associated geographical context as it relates to the EDM Project is described in **Table 8.3**.

Table 8.3: Ecological Importance Criteria

Ecological Importance	Qualifying Criteria	Relevant Geographical Context
International/European	<p>A Study Area is considered of international/European ecological importance when it supports:</p> <p>An internationally designated site or candidate site (SPA, pSPA: Special Area of onservation (SAC), cSAC, pSAC: Ramsar site, Biogenetic Reserve) or an area which SNH has determined meets the published selection criteria for such designations, irrespective of whether or not it has yet been notified.</p> <p>A viable area of a habitat type listed in Annex 1 of the Habitats Directive, or smaller areas of such habitat which are essential to maintain the viability of that ecological resource at an international scale.</p> <p>>1% of the European resource of an internationally important species, i.e. those listed in Annex 1, 2 or 4 of the Habitats Directive.</p>	Europe
UK/National	<p>A Study Area is considered of UK/National ecological importance when it supports:</p> <p>A nationally designated site (SSSI, NNR, Marine Nature Reserve) or a discrete area which SNH has determined meets the published selection criteria for national designation irrespective of whether or not it has yet been notified.</p> <p>A viable area of a priority habitat referenced in the UK Post-2010 Biodiversity Framework or Scottish Biodiversity List, or smaller areas of such habitat which are essential to maintain</p>	UK/Scotland

⁷ eDNA (Environmental DNA analysis) is a means of detecting the presence of great crested newt within a waterbody with the preceding 21 days.

Ecological Importance	Qualifying Criteria	Relevant Geographical Context
	<p>the viability of that ecological resource at a national scale.</p> <p>>1% of the National Resource of a regularly occurring population of a nationally important species, i.e. a priority species listed in the Scottish Biodiversity List and/or Schedules 1, 5 (S9 (1, 4a, 4b)) or 8 of the Wildlife and Countryside Act.</p>	
Regional	<p>A Study Area is considered of regional ecological importance when it supports:</p> <p>Non-statutory designated sites that represent a scale, or habitat/species assemblage, of importance across a number of counties within a recognised regional context. Non-designated sites that the designating authority has determined meet the published ecological selection criteria for designation, particularly large or represent habitat or species assemblages of importance at a regional level.</p> <p>Viable and extensive areas of legally protected habitat/habitat identified in Regional BAP or County BAP, or smaller areas of such habitats that are essential to maintaining the viability of the resource at a regional scale.</p> <p>Any regularly occurring population of an internationally/nationally important species or a species in a relevant policy which is important for the maintenance of the regional meta-population.</p> <p>Semi-natural ancient woodland greater than 0.5ha.</p>	West central Scotland
County	<p>A Study Area is considered of county ecological value when it supports:</p> <p>County sites and other sites which the designating authority has determined meet the published ecological selection criteria for designation, e.g. Local Nature Conservation Sites.</p> <p>Viable areas of legally protected habitat/habitat identified in Council BAP, or smaller areas of such habitats that are essential to maintaining the viability of the resource at a county scale.</p> <p>Any regularly occurring population of an internationally/nationally important species or a species in a relevant County BAP which is important for the maintenance of the county meta-population.</p> <p>Semi-natural ancient woodland greater than 1ha.</p> <p>Networks of species-rich hedgerows.</p>	Inverclyde or Renfrewshire
Local	<p>A Study Area is considered of local ecological value when it supports:</p> <p>Commonplace and widespread semi-natural habitats, e.g. scrub, poor semi-improved grassland, coniferous plantation woodland,</p>	Study Area plus a 5km radius.

Ecological Importance	Qualifying Criteria	Relevant Geographical Context
	<p>intensive arable farmland, which, despite their ubiquity, contribute to the ecological function of the local area (habitat networks, etc.);</p> <p>Very small, but viable, populations of internationally/nationally important species or a species in a relevant UK/Council BAP which is important for the maintenance of the local meta-population.</p> <p>Networks of linear features, including species-poor hedgerows</p>	
Study Area	<p>A Study Area is considered of Study Area ecological value when it supports:</p> <p>Habitats of limited ecological value, e.g. amenity grassland, but which contribute to the overall function of the application site's ecological functions.</p>	Study Area

8.35 Following the assessment of Ecological Importance, potential effects are identified. This process involves the study of the New 132kV OHL and Existing 132kV OHL to be decommissioned, construction methods and timescales with a view to identifying the pathways by which ecological features may be affected. Design and programme information presented in **Chapters 3 and 4** have informed this stage of the assessment. Similarly, embedded mitigation and sensitive design consideration, also known as 'Good Practice Measures' have been reviewed. Further information on these measures are provided in later sections of this chapter.

8.36 Potential direct and indirect effects can be grouped into the following broad types:

- **Direct habitat loss.**
- **Severance** (disruption of ecological processes through fragmentation, isolation and barriers).
- **Mortality** (loss of life to faunal species or populations, including designated site qualifying features, through direct contact or following pollution events, etc.).
- **Disturbance** (disruption to ecological processes through increased human presence, noise, vibration, etc.).

8.37 To determine significance, effects are considered with reference to the following parameters:

- Positive or negative;
- Extent;
- Magnitude;
- Duration;
- Frequency; and
- Reversibility.

8.38 A degree of confidence, based on professional judgement, is used to assess the likelihood of an effect occurring. The following scale is referred to:

- Certain/near-Certain: probability estimated at ≥95%;
- Probable: probability estimated at 50 – 90%;
- Unlikely: probability estimated at 5 – 50%; and
- Extremely unlikely: probability estimated at ≤ 5%.

8.39 Based on the combination of these parameters and likelihood, an effect is then considered to be either **significant** or **not significant** in EclA terms. An effect is considered to be significant if it has the potential to affect the 'integrity' of a habitat or the 'conservation status' of a species. Technical definitions of integrity and conservation status follow CIEEM guidelinesⁱⁱⁱ.

8.40 The significance of a potential effect is considered within the context of the geographically-based ecological importance of the feature. For example, an effect on a habitat of local ecological importance is considered to be *significant, or not significant, at a Local level*. In some cases, where only a small part of an ecological feature is affected, the potential effect may be significant at a lower geographical level; for example, where only a small part of a habitat of local ecological importance is affected, the effect may only be *significant at a Study Area level*.

8.41 The EIA process requires that the significance of an effect is described as either '*major, moderate, minor or negligible/none*'. However, best practice guidance in relation to ecological impact assessmentⁱⁱⁱ (EclA) does not support this approach, due to the complexities of ecological processes.

8.42 To allow the potential effects identified in this EclA to be considered alongside those addressed in other topic chapters, a 'translation' from EclA significance to EIA significance has been undertaken, as set out in **Table 8.4** below. The translation relates the geographically-based significance of ecological effects (identified through the EclA process) to the standard terminology for significance presented in other chapters (following the EIA process), allowing direct comparison.

8.43 Effects of **Major** and **Moderate** significance are considered 'significant' in the context of the EIA Regulations.

Table 8.4: Ecological Effect 'Significance' translation to EIA terminology

EIA Significance Terminology	Corresponding EclA Effect Significance Terminology
Major	International/European
	UK/National
Moderate	Regional
	County
Minor	Local
	Study Area
Negligible/None	Not Significant

Identifying Mitigation and Assessing Residual Significance

8.44 Where likely significant effects are identified, mitigation measures are identified to avoid or reduce their significance or, where necessary, compensate for the effect. The standard mitigation hierarchy applies, whereby the following sequential measures are considered:

- **Avoidance:** the effect is avoided by removing its pathway, e.g. by changing the route of an access track or the positioning of a pole;
- **Mitigation:** measures are taken to reduce the significance of the effect, e.g. vegetation clearance is undertaken outwith the nesting bird season; and
- **Compensation:** where the effect cannot be reduced, alternative action is taken elsewhere within the Study Area, e.g. new planting proposals to replace lost vegetation, etc.

8.45 Using the assessment method described above, significant effects are re-assessed on the basis that mitigation measures will be applied, and a residual significance identified. An important part of this step is the identification of the likely success, or confidence in, the proposed mitigation measure.

8.46 This chapter is structured such that potential effects associated with construction of the New 132kV OHL, operation of the New OHL, and decommissioning/removal of the Existing 132kV OHL are considered separately.

Assessment Limitations

8.47 Ecological surveys are limited by a variety of factors which affect the presence of flora and fauna; for example, climatic variation, season, and species behaviour may mean that evidence of protected species is not always recorded during a survey. This does not mean that a species is absent; hence the surveys also record and assess the ability of habitats to support species. All ecological surveys provide a snapshot of activity for the purposes of design and assessment and cannot be used for long-term interpretation i.e. prior to construction.

8.48 No bat roost surveys have been undertaken of individual trees to be removed during the construction phase as, as whilst wherever possible, the removal of mature trees has been avoided through the design process, the appointed contractor may require to change felling, trimming or pruning requirements to respond to site conditions when works commence. As detailed in **Chapter 4**, there is an expectation of a minimum three years between the completion of the ecology field surveys and the commencement of the construction phase. Therefore, bat roost surveys will be undertaken prior to the commencement of construction. If bat roosts are identified, the bat roost licensing process will be engaged. This is considered an appropriate response as bat tree roosts can often be transient and open to considerable change due to the effects of weather on suitable features.

8.49 As access to one section of the corridor was not granted until May 2018, breeding bird surveys of the Drums Estate commenced in late May 2018. However, as the habitats present were similar to those present in the wider landscape, and detailed surveys were undertaken in May, June and July, the assessment is considered to be sufficient. Further information on the approach, which was agreed with SNH, is provided in **Appendix 8.3**.

8.50 Due to poor weather conditions, there were occasions when flight activity survey hours had to be carried over into the following month. On each occasion, hours carried over were undertaken as soon as possible in the first week of the following month, preferably within the first couple of days. Weather constraints are common during bird vantage point surveys and the adjustment in survey programme is considered to be acceptable within the confines of accepted survey good practice.

8.51 Within these constraints, it is considered that the baseline data collected has allowed a robust and thorough assessment of potential effects to be undertaken. A further account of constraints is provided in **Appendices 8.1-8.3**.

Existing Conditions

New 132kV OHL

Designated Sites

8.52 As detailed in **Appendix 8.1**, there are no statutory designated sites within the project footprint or wayleave. The technical appendix also provides details of designated sites within a 5km buffer. The nearest statutory designated sites, as shown in **Figure 8.2**, (<1 km) are:

- Dargavel Burn SSSI – c.100m south – designated for valley fen.
- Formakin SSSI – c.1.2km southeast– designated for lowland acid grassland.
- Inner Clyde SPA/Ramsar/SSSI – 50m north – designated for non-breeding redshank (SPA and Ramsar) and non-breeding redshank, cormorant, eider, oystercatcher, goldeneye, red-breasted merganser, red-throated diver, and saltmarsh (SSSI).

8.53 There is potential for connectivity between the New 132kV OHL and the Dargavel Burn as the former traverses upslope of the burn and the prevalence of springs and groundwater in the area means that there is a risk to the SSSI's valley fen during the construction stage.

8.54 Although the M8 road corridor forms a barrier to direct connectivity between the Inner Clyde SPA designated site and the New 132kV OHL, several notified features of all three designations are using habitats within the OHL footprint.

8.55 Five non-statutory sites are located within the New 132kV OHL footprint, each a Site of Importance for Nature Conservation (SINCs):

- Devol Road Upland – upland habitats.
- Craigmarnloch Wood – Mature oak plantation, relic heathland, and swamp.
- Leperstone Reservoir/Auchendores Reservoir – swamp.

- Auchendores Reservoir – Swampy areas and unimproved grassland.
- Park Glen/Barbeg Hill – grassland and scrub.

8.56 A number of Ancient Woodland Inventory (AWI) sites are also located within the OHL corridor:

- Long Established Woodland at Craigmarnoch (also a SINC, as above).
- Long Established Woodland at Park Glen (also a SINC, as above).
- Long Established Woodland at Drumcross.
- Long Established Woodland at Shilton.

Habitats

8.57 Detailed habitat and vegetation accounts are provided in **Appendix 8.1**, whilst **Figure 8.3** shows the mapped habitats. **Table 8.5** provides a brief summary of the primary habitat composition of the New 132kV OHL Study Area, grouped by broad habitat type.

8.58 The New 132kV OHL stretches between the Devol Moor Substation and the Erskine Substation, a length of approximately 16km. The habitats within the Study Area are mostly rural, comprising large areas of intensively managed grasslands and pastures.

8.59 In the western edge of the Study Area, the landscape is less intensively managed and upland habitat assemblages were identified. These included marshy grassland, wet dwarf shrub heath, small pockets of modified bog, and acid flush, alongside the more typical grazed pasture habitats of improved grassland and semi-improved grassland. The value of the upland habitats in this area is recognised through their inclusion in a number of non-statutory SINC designations, including Devol Road Upland, Crosshill Road Heath and Craigmarnoch Woods. While these sites are designated, they are not currently under positive management and the influences of agricultural land management are evident.

8.60 As the Study Area moves eastward, the habitats become more intensively managed through agricultural use, with improved grassland being identified as the most common habitat overall. Semi-improved neutral grassland, mosaic of semi-improved neutral grassland and scattered scrub and semi-natural broadleaved woodland are widespread habitats within this part of the Study Area.

Table 8.5: New 132 kV OHL Study Area Habitat Summary

Phase 1 Broad Habitat Type	Area within Study Area (Ha)	Proportion of Study Area (%)
Grassland (incl. pasture and silage fields)	317.25	67.34
Woodland, Forest and Scrub	48.34	10.26
Un-surveyed (incl. restricted access, post-survey addition)	46.89	9.95
Miscellaneous (incl. built environment, bare ground and arable land use etc.)	33.69	7.15
Heathland	13.73	2.91
Ephemeral (incl. tall herb and fern, and bracken)	4.65	0.99
Mire and Acid flush	4.23	0.90
Open water and marginal vegetation (incl. swamp)	2.34	0.50
Total	471.12	100

8.61 The majority of habitats within the Study Area were considered to be common and widespread within the lowland agricultural context and are scoped out of this assessment. However, **Table 8.6** provides further details of those habitats of conservation concern identified during field surveys which have been considered in detail in this assessment. Where necessary, Phase 1 Habitat types are converted to NVC classifications to aid identification of Annex 1 habitats.

Table 8.6: New 132kV OHL Habitats of Conservation Concern

Phase 1 Habitat Type	NVC code where appropriate	Description	Total Habitat Area (ha)
Broadleaved Woodland	N/A	Broadleaved woodland is widespread within the Study Area and various extensively in age, structure and function. However, almost all woodland within the Study Area is of plantation origin (including AWI features) and comprise species assemblages common to this part of Scotland. No woodland feature accorded with standard NVC classifications.	22.27
Heath	H10	Heathland habitats were recorded in the west of the Study Area. Most features were extensions of a much larger upland resource at Lurg Moor and Corlic Hill, however agricultural intervention meant that most stands were very species poor and were best classified in NVC H10, a 'catch all' category for heath habitats in generally poor condition.	13.76
Mire	M17 and M25	Like heath, mire habitats were recorded in the west of the Study Area. They were also heavily modified by extensive agricultural land use, however the dominance of <i>Eriophorum</i> sp. and <i>Molinia</i> allowed the NVC classification of these typical lowland bog systems. Note that the M25 features function as flushes within the larger M17 features.	4.23
Total			40.26

Protected Terrestrial Species

Detailed accounts of protected species evidence identified during surveys are provided in **Appendix 8.2**. **Figure 8.4** and **Confidential Figure 8.5** show evidence spatially. Summaries are provided below.

Bats

8.62 The habitats through which the New 132kV OHL is routed are highly suitable for the common and widespread bat species found in central Scotland. The Study Area provides a mix of grassland, woodland edges, hedgerows, and watercourses creating optimal commuting and foraging areas. Moderate Bat Roost Potential was identified in several woodlands and scattered trees along the route. Three buildings/structures were recorded as having some roosting potential, the greatest being a derelict cottage just off the B789 with moderate potential. Details on where these trees and structures can be found in **Appendix 8.2**, and **Figure 8.4**.

8.63 However, on the basis that extensive suitable habitat exists in the wider context, it is concluded that there is unlikely to be a significant effect on bat populations, arising from the EDM project, in EIA terms. **Chapter 10: Forestry** demonstrates the areas of trees to be removed to support the construction of the New 132kV OHL, however this may be subject to change once a contractor has assessed the site prior to, and during, construction. The proportion of trees to be lost represents a small proportion of the wider resources within the Study Area, much of which also provides suitable roosting conditions for bat species. While a small number of these may support roosting bats, pre-construction surveys and the application of the CDEMP will ensure any roosts to be lost are appropriately mitigated. Bats are therefore not considered further in this assessment.

Otter

8.64 The Study Area provides suitable habitat for foraging and commuting otters, with some suitability for sheltering. Optimal habitat was recorded along the Dargavel Burn, and at Leperstone and Auchendores Reservoirs; and good quality otter habitat is found around the many small burns, ponds and wetlands within the Study Area. Evidence of otter presence, in the form of prints and spraints was found on the Dargavel Burn and in the eastern end of the Study Area. Dargavel Burn also hosts a single hover under a concrete shelf of the Gallahill Road bridge. Details of the otter survey results can be found in **Appendix 8.2** and its associated figure and **Figure 8.4**.

8.65 Although otter is present within the Study Area, the limited nature of the construction of the New 132kV OHL, coupled with the absence of important resting sites, suggests that effects are unlikely to be significant on the species, in EIA terms. The CDEMP will set out measures to protect the water environment and additional measures to prevent disturbance to otter. On this basis, Otter is not further considered in this assessment.

Water Vole

8.66 Suitable habitat for water vole was recorded along parts of the Dargavel Burn, with its slow flow, over-hanging banks and foraging opportunities. Suspected water vole prints were recorded along this watercourse. However, the majority of the watercourses in the Study Area were suboptimal. No water vole burrows were recorded on any watercourse or body within the Study Area. Potential effects on water vole are unlikely to be significant, in EIA terms, and the species is not considered further in this assessment.

Badger

8.67 The Study Area offers wide-ranging suitable habitat for badger, due to the mosaic of dense scrub, woodland and agricultural grassland habitat. Both scrub and broadleaved woodland in the Study Area offers sett excavation habitat, due to the presence of friable and free-draining soils, while the network of improved and semi-improved grasslands offers suitable foraging. The eastern half of the Study Area offers the greatest potential, and this is where the largest concentration of activity was recorded, including the only main sett.

8.68 Five active badger setts were recorded during surveys; one main sett, three subsidiary setts and one outlier. Due to continued persecution, the locations of the badger setts are provided within Confidential **Figure 8.5**.

8.69 While badgers will undoubtedly experience some disturbance during construction activity, it is recognised that no setts will be physically affected. Disturbance will be limited to an increased presence in vehicles and personnel for very short periods. Protective measures will be addressed in the CDEMP and, where necessary, licensing will be undertaken before works commence. However, in EIA terms, the effect will not be significant and badger is not considered further in this assessment.

Great Crested Newt (GCN)

8.70 Though most of the waterbodies within the Study Area are likely to be unsuitable for GCN, five ponds and one reservoir were subject to Habitat Suitability Index (HSI). Three ponds were identified as having 'poor' suitability, with scores ranging from 0.25 – 0.42. Three ponds were identified as having 'below average' suitability, with scores ranging from 0.54 – 0.57.

8.71 For the avoidance of doubt, eDNA surveys were completed at those ponds with 'below average' suitability. The surveys, completed in compliance with current best practice as described in **Appendix 8.2**, found no evidence of the species

8.72 No further survey was considered necessary and any effects on GCN have been scoped out of this assessment.

Ornithological Species

8.73 Breeding bird and flight activity surveys were undertaken over a one-year period (April 2018 – March 2019). Survey methods and scope were agreed with SNH in advance of commencement; details can be found in **Appendix 8.3**.

8.74 Species which have the potential to be affected by OHLs in this area include raptors, waders and waterfowl. A summary of the breeding bird survey, highlighting those species of particular conservation concern (i.e. Annex I, Schedule 1, BoCC Red-listed or species likely to be at risk of collision) is provided in **Table 8.7**. Detailed results for the breeding bird survey can be found in **Appendix 8.3**, and an overview of territories provided in **Figure 8.6**

Table 8.7: Breeding Birds of Conservation Concern Recorded

Species	Conservation Status (Annex I, Schedule 1, BoCC red list, species at risk of collision)	Comment on Site Presence
Peregrine	Annex I, Sch 1	A single peregrine was observed hunting during the breeding bird surveys, to the west of Devol Moor Substation on 3rd July 2018. Only two of the peregrines observed during flight activity surveys were recorded during the breeding season, in April and June 2018 respectively, with the remainder of sightings from August to March. There are two large quarries located to the north of the Study Area which have the potential to provide suitable nesting habitat for this species. There is also a series of crags in the Kilpatrick Hills, to the north of the Clyde Estuary, which could also provide suitable nesting habitat. There was no evidence of peregrine breeding anywhere near the Study Area.

Species	Conservation Status (Annex I, Schedule 1, BoCC red list, species at risk of collision)	Comment on Site Presence
Osprey	Sch 1, BoCC Amber	Several individual sightings of ospreys were made during the breeding bird surveys, but there was no evidence of this species breeding within or close to the Study Area.
Crossbill	Sch 1	A locally uncommon resident was recorded during the breeding bird survey within mature forestry / mixed woodland, mainly within Drums Estate.
Cuckoo	BoCC Red	This is a locally uncommon summer migrant species. Several calling males were recorded during the breeding bird surveys, mostly within FCS Knockmountain woodland and on Drums Estate.
Curlew	BoCC Red	Two curlew breeding territories were identified within the Study Area in 2018 and only 7.7% of curlew flights were recorded during the breeding season.
Grasshopper warbler	BoCC Red	This uncommon summer migrant was recorded on only two occasions during the breeding bird surveys. On one occasion a singing male was heard in rush pasture close to VP9 (directly within the New 132kV OHL route), and another in a patch of nettles on the edge of arable fields north of Bishopton.
Grey wagtail	BoCC Red	This uncommon resident was recorded occasionally along watercourses and the edges of waterbodies during the breeding bird surveys.
Herring gull	BoCC Red	Herring gull was recorded regularly during breeding bird surveys, usually flying over the study area. No herring gulls were found to be breeding within the study area.
House sparrow	BoCC Red	A reasonably common resident species, it was recorded at a number of locations spread across the breeding bird survey area, particularly around farm buildings.
Lapwing	BoCC Red	The only record of lapwing during the breeding bird surveys was of a single pair displaying over ploughed fields south of Bardrainey during the April 2018 visit.
Lesser redpoll	BoCC Red	This resident species was found to be common in mixed woodland and forestry blocks during the breeding bird survey, typically recorded in flight, calling noisily.
Linnet	BoCC Red	A locally common species, it was recorded among areas of gorse and scrub, particularly inland and within Drums Estate. A flock of 60 birds was recorded in fields south of Bardrainey during the April breeding bird survey visit.
Mistle thrush	BoCC Red	This species was fairly common in broadleaf/ mixed woodland and forestry plantations and was often encountered feeding in adjacent fields and grassy areas.
Skylark	BoCC Red	This resident was regularly encountered throughout the New 132kV OHL survey buffer in spring, but not common. It was mainly recorded in areas of rough grassland and grazing, the edges of silage and arable fields, and in small areas of wet and dry heath / moorland at the western end of the Study Area.
Song thrush	BoCC Red	This is a fairly common resident species, which was recorded in areas of farmland with hedgerows and broadleaved / mixed woodland and forestry.
Starling	BoCC Red	A fairly common resident species, starlings were observed across a range of farmland habitats. The farmland around High Auchenleck around 2km east of Devol Moor Substation was particularly busy with foraging adults and flocks of fledged juveniles during the breeding bird surveys in June and July.
Tree pipit	BoCC Red	An uncommon summer migrant, tree pipits were mostly recorded on the edges of open woodland/ rough grazing and within FCS Knockmountain woodland/ forestry.
Tree sparrow	BoCC Red	This is an uncommon resident only found on farmland around Drumcross/ North Porton farms at the eastern end of the Study Area and on Drums Estate.
Whinchat	BoCC Red	A single observation was made of a singing male within FCS Knockmountain in an area of long grass and scrub.

Species	Conservation Status (Annex I, Schedule 1, BoCC red list, species at risk of collision)	Comment on Site Presence
Yellowhammer	BoCC Red	An uncommon species, yellowhammer was recorded in areas of mixed farmland with hedgerows and gorse scrub. The area of Drums Estate around VP7 and VP8 held good numbers of singing males as did Drumcross Farm at the eastern end of the Study Area.
Greylag goose	BoCC Amber (at risk of collision)	No greylag goose breeding territories were identified within the Study Area and no flights were recorded during breeding season.
Mute swan	BoCC Amber (at risk of collision)	This species was recorded during breeding bird surveys with a pair recorded breeding successfully on both Leperstone and Auchendores reservoirs which VP4 overlooks.

8.75 Detailed results of the flight activity (or vantage point) surveys is provided in **Appendix 8.3** and an overview provided in **Figure 8.7**. A summary of those birds of higher conservation concern recorded during the flight activity survey is included in the **Table 8.8**.

Table 8.8: Summary of flight activity recorded during flight activity surveys by species

Species	Total number flights	Total number constituent birds recorded	-of which were at potential collision height ⁸	-of which came within 100m of the New 132kV OHL EDM Project route	Conservation Status (Annex I, Schedule 1, BoCC red list, species at risk of collision)
Curlew	220	2,092	1,348	802	BoCC Red
Greylag goose	70	1,390	671	457	BoCC Amber
Lapwing	40	1,095	782	257	BoCC Red
Herring gull	865	1,538	424	195	BoCC Red
Pink-footed goose	36	3,106	1,079	98	BoCC Amber
Peregrine	22	22	6	5	Annex I, Sch 1
Osprey	21	24	8	3	Sch 1, BoCC Amber
Redshank	20	77	2	1	BoCC Amber
Red kite	4	4	1	1	Annex I, Sch 1
Mute swan	11	19	1	1	BoCC Amber
Merlin	1	1	1	1	Annex I, Sch 1, BoCC Red
Common tern	57	168	32	0	Annex I, BoCC Amber
Little egret	9	11	8	0	Annex I
Woodcock	3	3	2	0	-
Whooper swan	9	56	0	N/A	Annex I, Sch 1, BoCC Amber

⁸ i.e. species within flight band 10 – 20m.

Species	Total number flights	Total number constituent birds recorded	-of which were at potential collision height ⁸	-of which came within 100m of the New 132kV OHL EDM Project route	Conservation Status (Annex I, Schedule 1, BoCC red list, species at risk of collision)
Golden plover	1	1	0	N/A	Annex I
Hobby	1	1	0	N/A	Sch 1
Canada goose	1	2	0	N/A	-

Existing 132kV OHL

Ecology

8.76 As detailed in the Scoping Report, the decommissioning of the Existing 132kV OHL is considered “unlikely to pose significant ecological or ornithological impacts” as any impacts would be of short duration and in narrow, previously-developed locations. The decommissioning of the Existing 132kV OHL seeks to remove structures from semi-natural habitat, allowing it an opportunity to regenerate. Approximately half the Existing 132kV OHL deviates outwith the Study Area of the New 132kV OHL route. More information on the results of the desk and field survey can be found in **Appendix 8.1**, with a summary below.

8.77 The Study Area of the Existing 132kV OHL includes infrastructure within both the Dargavel Burn and Formakin SSSIs, and SINCS.

8.78 Most of the habitats observed within the Existing 132kV OHL Study Area (**Figure 8.3**) are very similar to those within the New 132kV OHL Study Area; dominated by extensive agricultural pasture and arable fields. Several small stands or edges of broadleaved and mixed woodland and trees were recorded, which were either functionally connected to those recorded in the New 132kV OHL route or as part of field margins. The majority of these were on the Drums Estate, High Hatton Farm, or near the Erskine Substation.

8.79 Where the Existing 132kV OHL departs from the New 132kV OHL Study Area, protected species evidence was limited. Field signs of otter activity were recorded along several watercourses, with the highest density, in the form of recent sprainting, being along the Dargavel Burn, to the west and east of Mid Glen Farm (**Appendix 8.2 and Figure 8.4**). Bat Roost Potential was limited to a small number of trees, with ‘High’ potential, near the Castlehill Planataion.

Ornithology

8.80 The breeding bird survey of the New 132kV OHL included a buffer of 500m. In most instances this covered the Existing 132kV OHL route. There were two areas (totalling 1.8km in length) where the OHL route was outwith the New 132kV OHL Study Area, by approximately 200m, and were not surveyed. One section is the corner (where the OHL turns sharply nearly 90°) at Meiklefield Farm; the surrounding habitat is continuous improved grassland. The second section is within fields north-west of the Whitemoss Reservoir, which is dominated by arable and poor semi-improved/semi-improved neutral grassland.

8.81 Where the Existing 132kV OHL is not within the New 132kV OHL Study Area, the habitats present were sufficiently similar (in most cases improved grassland and silage fields) to those found with the surveyed areas for the New 132kV OHL to allow extrapolation of the species expected to be present. A wider discussion on the validity of this approach is provided in the ‘Assessment Limitations’ section above, and in **Appendix 8.3**.

The ‘Do Nothing’ Scenario

8.82 Ecological features are rarely static in their extent, distribution and condition. Habitats and species populations are dynamic and so the prediction of future baseline is complex. Provided the existing land-management of the area continues as at present,

changes in the terrestrial ecological and bird population during the medium- to long-term are likely to be typical of those associated with areas of pasture grasslands, modified grazed heaths, waterbodies, and plantation origin woodland.

8.83 In relation to lowland agricultural habitats, it is anticipated that agricultural land use will persist, limiting opportunities for habitat enhancement or protected species range expansion.

8.84 The predicted effects of climate change are also likely to influence the future ecological status of the Study Area. Drawing on The UK Climate Projections CP18, which generally predicts hotter, drier summers and milder, wetter winters, it is likely that ecological features will be subject to:

- An increase in invasive species diversity and range.
- Changes to vegetation assemblages.
- Range contraction/expansion of faunal species.

Ecological Importance

8.85 Table 8.9 provides an interpretation of the Study Area's Ecological Importance for those ecological and ornithological features scoped into the assessment (both existing OHL and new OHL).

Table 8.9: Ecological Importance Assessment

Ecological Feature		Ecological Importance of Study Area for Feature	Rationale
Designated Sites	SSSIs	National	The Study Area supports the Dargavel Burn, which supports the structure and function of the Dargavel Burn SSSI. Consultation has identified that the flushes and springs to the north of the SSSI, through which the new OHL route passes, feeds the Burn, thus the Study Area is essential to the SSSI's viability. The Study Area also supports a small part of the Formakin SSSI, where a tower of the existing OHL route is located.
	SINCS	County	The 2km Study Area supports a number of SINCS sites. However, parts of only four of these SINCS are located within the new OHL and existing OHL corridor. In most cases, the route of the new OHL bisects the SINCS, meaning the Study Area is essential to the maintenance of these four features.
	Ancient and Long Established Woodland (AWI)	Local	The four Long Established Woodlands identified within the OHL corridor form part of a wider network of AWI features within the wider 2km Study Area for non-statutory designated sites. The network of AWI features within the Study Area, as a whole, play a role in the maintenance of the AWI resource at a County level, however as only four of these features are immediately associated with the OHL corridor, the importance is reduced.
Habitats of Conservation Concern	Broadleaved Woodland	Local	Broadleaved and mixed woodland were identified throughout the Study Area. Woodland resources across the Study Area varied from long established stands with complex structure and function, to immature, species-poor examples. Almost all woodland features were well connected to a much larger, functional resource that reached well beyond the Study Area. Consequently, the resource within the Study Area, which represents a small proportion of the larger resource, is valued as having Local importance.
	Mire		Mire and heath systems represent the very small areas of upland habitat confined to the very western edge of the Study Area (to

Ecological Feature		Ecological Importance of Study Area for Feature	Rationale
	Heath		the east of Devol Road). These habitats are remnants of previously expansive upland systems that have been lost to agricultural intensification. This is demonstrated in the condition of these habitats, which are heavily influenced by aggressive agricultural grass species. Restricted in their size and quality, these habitats are considered to be important at the Local level only.
	Marshy Grassland	N/A	Marshy grassland is a habitat of conservation concern solely for its GWDTE status. GWDTEs are valued and assessed in Chapter 7 .
Ornithology	Breeding birds (assemblage)	Study Area – Local (precautionary for two species)	22 species of conservation concern were recorded during breeding bird surveys. No Schedule 1 or Annex 1 species were recorded breeding, but a relatively small number of amber/red-listed species were confirmed as breeding. All breeding species were recorded in relatively small numbers, utilising common and widespread agricultural habitats, which are extensive in the wider area. Based on the relatively small number of species and individuals recorded, the Study Area is considered to be of no more than Study Area importance for the majority of these species. As a precaution, Local importance is attributed for Tree sparrow and Yellowhammer due to particularly dramatic declines in their numbers in recent years.
	Wintering/non-breeding birds (assemblage)	Study Area – Local (for five species)	As above, wintering/non-breeding bird assemblages were typical of those expected in mosaic agricultural land. The relatively low numbers for most species mean the Study area is of no more than Study Area importance. There are five exceptions. The Study Area was considered to be of Local importance for the following species: <ul style="list-style-type: none"> ■ Pink footed goose and Whooper swan – a precautionary approach due to the absence of Scotland-wide reference data. ■ Lapwing – due to large winter flock numbers that equate to 6% of the population of the Clyde Estuary (WeBS data) ■ Greylag goose – due to large winter flock numbers that equate to 20% of the Clyde Estuary population (WeBS data) ■ Tree sparrow – a precautionary valuation based on the particularly rapid national decline in this species.
	Species susceptible to collision risk	Study Area – Local	For clarity in later stages of assessment, the species considered to be at potential risk of collision with the new OHL are geese, swans, waterfowl, waders and raptors. These include the species below, listed against the Study Area's Importance for each: <ul style="list-style-type: none"> ■ Curlew – Study Area ■ Greylag goose – Local ■ Lapwing – Local ■ Herring Gull – Study Area ■ Peregrine – Study Area ■ Pink-footed goose – Local ■ Osprey – Study Area ■ Redshank – Study Area

Ecological Feature	Ecological Importance of Study Area for Feature	Rationale
		<ul style="list-style-type: none"> ■ Red kite – Study Area ■ Mute swan – Study Area ■ Merlin – Study Area ■ Common tern – Study Area ■ Little egret – Study Area ■ Whooper swan – Local ■ Golden plover – Study Area ■ Hobby – Study Area ■ Canada goose – Study Area

Project Design Considerations

Infrastructure Location Allowance

8.86 A 50m micositing tolerance (referred to by SPEN as an Infrastructure Location Allowance or ILA) will be applied, allowing infrastructure to be moved, during construction, to avoid sensitivities identified at detailed ground investigation stages and during updated pre-construction protected species surveys.

8.87 The potential for an ILA was factored into survey design. All habitats that could be affected, should the ILA be used, were recorded. Similarly, all evidence of protected species within the bounds of the ILA was recorded. It is considered unlikely that the use of the ILA would affect the levels of effect significance set out in this assessment.

8.88 The ILA will not be implemented where it has the potential to cause direct damage to protected features, such as the resting sites of protected species, identified during the pre-construction surveys and/or by the ECoW during construction.

Embedded Mitigation Measures

8.89 In determining the likely significant effects of the EDM Project on ecological and ornithological features, it should be noted that certain good practice measures are part of the mitigation embedded through the project design process as detailed more fully within **Chapter 4: Project Description**. Of particular relevance to this assessment was the iterative design process, which recognised the need to sensitively manage the removal of the Existing 132kV OHL from the Dargavel Burn SSSI.

8.90 These measures are therefore accounted for in the assessment as embedded mitigation which will be implemented to minimise effects of the project on ecology and ornithology wherever practicable to do so. The specific and general site wide mitigation measures (additional mitigation) to be implemented for each connection are identified within the sections of this Chapter entitled *Proposed Mitigation*.

8.91 Those good practice measures of relevance to the construction of the New 132kV OHL and removal of the Existing 132kV OHL are described in the CDEMP and outlined in **Appendix 4.1** and include:

- Adherence to Guidelines on Pollution Prevention (GPPs), which will significantly reduce the likelihood and severity of pollution events.
- The application of appropriate buffers around watercourses, which will protect riparian habitat while reducing disturbance and the likelihood of pollution events.
- The use of bog-matting and low pressure vehicles to reduce soil compaction and damage to vegetation.
- Updated protected species surveys no more than 6 months prior to the commencement of construction activity (including vegetation clearance).

- The appointment of an Advisory Environmental Clerk of Works (ECoW) with responsibility for monitoring compliance with environmental legislation and project-specific mitigation, including the CDEMP.

Assessment of Potential Effects – New 132kV OHL - Construction

Identification of Potential Effects

8.92 Potential effects associated with the construction of the new OHL have been identified through consideration of information provided in **Chapter 4**, standard guidance and guidelines and the professional judgment of the assessment team. **Table 8.10** relates ecological features to potential effects during the construction phase. It is assumed all effects will be negative, unless stated otherwise.

Table 8.10: New 132kV OHL Construction - Potential Effect Identification

Ecological Feature	Development Activity	Potential Effect Pathway	Potential Effect
Designated Sites (statutory and non-statutory)	<ul style="list-style-type: none"> ■ Vegetation removal (including both wayleave clearfell and additional clearfell in windthrow area) ■ Construction of temporary and permanent infrastructure ■ Construction, including the use of plant, equipment and presence of site staff 	<ul style="list-style-type: none"> ■ Physical removal of habitat ■ Changes in water quality and volume ■ Changes in hydrological regime of peatland habitats ■ Pollution event 	Direct Habitat Loss
			Severance
			Disturbance
Habitats of Conservation Concern	<ul style="list-style-type: none"> ■ Vegetation removal (including both wayleave clearfell and additional clearfell in windthrow areas) ■ Construction of temporary and permanent infrastructure ■ Construction, including the use of plant, equipment and presence of site staff 	<ul style="list-style-type: none"> ■ Physical removal of habitat ■ Changes in water quality and volume ■ Change in hydrological regime of peatland habitats ■ Pollution event 	Direct Habitat Loss
			Severance
Breeding bird assemblages	<ul style="list-style-type: none"> ■ Vegetation removal (including both wayleave clearfell and additional clearfell in windthrow areas) ■ Construction of temporary and permanent infrastructure ■ Construction, including the use of plant, equipment and presence of site staff 	<ul style="list-style-type: none"> ■ Physical removal of habitat ■ Accidental disturbance from site staff and plant 	Direct Habitat Loss
			Mortality
			Disturbance
Wintering bird assemblages	<ul style="list-style-type: none"> ■ Vegetation removal (including both wayleave clearfell and additional clearfell in windthrow areas) ■ Construction of temporary and permanent infrastructure ■ Construction, including the use of plant, equipment and presence of site staff 	<ul style="list-style-type: none"> ■ Physical removal of habitat ■ Accidental disturbance from site staff and plant 	Direct Habitat Loss
			Mortality
			Disturbance

8.93 In relation to direct habitat loss and severance effects it should be noted that the New 132kV OHL land take is limited. The vast majority of access tracks will be temporary and will comprise direct access using low-pressure vehicles over existing vegetation. Where more formal access is required, a combination of floating, temporary matting and stone tracks (in limited locations) will be laid. Both approaches protect existing vegetation through the use of geotextiles and geogrid, however where vegetation must be removed, it is turfed, carefully stored and later used in restoration.

Assessment of Effect Significance

8.94 In this section, drawing on **Table 8.10** an assessment is made of the significance of potential effects on ecological features during construction. Assessments are undertaken on the assumption that the embedded mitigation comprising good practice measures, as detailed in **Chapter 4 and Appendix 4.1** will be successfully applied.

Designated Sites

8.95 The Study Area supports part of the catchment of the Dargavel Burn SSSI, which is located approximately 100m south (closest point) of Poles 107 – 115. Construction works could affect water movement and give rise to sediment and run-off, both of which could negatively affect the structure and function of the SSSI. Potential effects include severance and disturbance.

8.96 The Study Area also supports a number of SINC sites. Poles 166 – 168 will be constructed in Devol Road Upland SINC, designated for its upland habitats. Poles 143 – 146 will be constructed in relic heathland associated with Craigmearloch Wood SINC. Poles 129 – 132 will be constructed in the Auchendores/Leperstone Reservoirs, designated for swamp and unimproved grassland. Poles 81 – 84, including 200m of stone access track will be constructed in Park Glen/Barbeg Hill SINC, designated for grassland and scrub. Potential effects include direct habitat loss, severance and disturbance.

8.97 AWI features, all Long Established Woodland of Plantation Origin, will be lost at Shilton Plantation, Drumcross, and the tip of Craigmearloch Wood to facilitate wayleave maintenance and prevent windthrow. Potential effects include direct habitat loss, severance and disturbance.

8.98 In considering the above, the significance of potential effects on designated sites is detailed in **Table 8.11**.

Table 8.11: Potential Effects – New 132kV OHL Construction – Designated Sites

Parameter	Potential Effect		
	Direct Habitat Loss	Severance	Disturbance
Extent	There is no predicted direct habitat loss of SSSIs. Within SINCS there is no discernible landtake associated with pole construction or temporary access tracks. The exception is at Auchendores/Leperstone Reservoirs SINCS where a very small area of immature woodland, 0.8ha, will be lost to the wayleave associated with Poles 131 – 132. Direct habitat loss within AWI features is limited to 2.54ha at Shilton Plantation and 0.1ha at Craigmearloch Wood.	Severance of the Dargavel Burn SSSI from its catchment could be a consequence of construction of Poles 107 – 115. This could be the result of compaction or damage to springs and flushes as a consequence of pole locations or access tracks. However, embedded mitigation, including the use of low pressure vehicles means that the extent of damage, which could lead to severance, is much reduced. The nature of the works is such that severance is unlikely to be experienced by other designated sites.	The qualifying features of all designated sites within the OHL corridor are vegetation or habitat-specific, thus disturbance does not relate to fauna, which is more susceptible to this effect type. Given the limited nature of the works, the short duration of works at each pole location and the small number of predicted site personnel, the extent of disturbance would be areas immediately adjacent to designations. The effect would be limited to accidental damage, pollution, littering, minor sedimentation etc.
Magnitude	Direct habitat loss within designated sites is unlikely to affect the structure or function of each (noting that woodland loss at Auchendores/Leperstone quarries will only affect immature, sparse birch wood).	The magnitude of the effect on the Dargavel Burn SSSI could extend to the entire feature, due to the dependency of the feature on adjacent water sources.	The magnitude of the effect will be constrained to the immediate area of the effect.
Duration	Permanent for features lost to the wayleave.	Likely to be temporary.	Likely to be temporary.
Frequency	Single event during construction.	Single event during construction.	Multiple events during construction, although over a short period of time at each pole location.

Parameter	Potential Effect		
	Direct Habitat Loss	Severance	Disturbance
Reversibility	Reversible (assuming seedbank of AWI features undisturbed)	Reversible	Reversible
Likelihood	Certain	Unlikely	Probable
Significance (EclA)	Not Significant	Not Significant	Not significant
Translation (EIA Regulations)	Not Significant	Not Significant	Not Significant

Habitats of Conservation Concern

8.99 The Study Area supports only small areas of habitat of conservation concern, limited to broadleaved woodland and very small areas of mire, heath and marshy grassland. The woodland resource ranges from mature, diverse structures (including AWI features, as above) to immature, heavily disturbed features. Mire and heath habitats are largely limited to the western end of the route, where they are generally designated as SINCS (as above). However, these habitats are in poor condition, extensively influenced by agricultural land management. Marshy grassland is of limited ecological importance in its own right – it's inclusion as a Habitat of Conservation Concern relates to its potential GWDTE status. Potential effects on GWDTEs are detailed in **Chapter 7**.

8.100 The nature of the development comprised in the New 132kV OHL is such that habitat loss will be minimal. There is no discernible habitat loss associated with the installation of poles. Laydown areas will be temporary. Access will largely be taken over existing routes or informally, over existing vegetation. As described in **Chapter 4**, some access track will require to be floated or of cut-and-fill construction. These are relatively few, although final access methods will be determined at a later stage. For the purposes of habitat loss calculations, only tracks that require floating or cut-and-fill methods will be measured, although it is noted that these will be temporary and restored once the OHL is commissioned. Similarly, the construction compound is included in habitat loss calculations, but it is noted that this will be restored upon commission. All woodland to be felled, both to facilitate construction and for windthrow purposes, are included in habitat loss calculations.

8.101 **Table 8.12** provides detail of habitat loss relative to the 'absolute' area (i.e. all habitat within the Study Area).

Table 8.12: Habitat Loss Calculations

NVC Plant Community/Phase 1 Habitat Code		Area		Relative Area to be Lost (%)
Code	Vegetation Type	Absolute (ha)	Loss (ha)	
N/A	Broadleaved woodland	22.27	5.15	23.13
N/A	Mixed woodland	5.70	0	0
M17 and M25	Mire	4.23	0	0
H10	Heath	13.76	0	0
Totals		45.96	5.15	11.2

8.102 Disturbance could also arise through the installation of access tracks and the presence of construction staff. The assessment of significance recognises the limited timescale associated with the construction phase of works.

8.103 In considering the above, the significance of potential effects on habitats of conservation concern is detailed in **Table 8.13**

Table 8.13: Potential Effects – New 132kV OHL Construction – Habitats of Conservation Concern

Parameter	Potential Effect	
	Direct Habitat Loss	Disturbance
Extent	Of all identified Habitats of Conservation Concern, only broadleaved woodland is likely to be lost. Approximately 23% of the Study Area resource will be felled.	Given the limited nature of the works, the short duration of works at each pole location and the small number of predicted site personnel, the extent of disturbance would be limited to the immediate area of effect. The effect would be limited to accidental damage, pollution, littering, minor sedimentation etc.
Magnitude	The magnitude extends to the removal of small, sustainable, parts of otherwise viable, well-connected woodland resources. It is noted that much of the woodland to be lost is immature and sparse.	The magnitude of the effect will be constrained to the immediate area of the effect.
Duration	6 months of construction	Likely to be temporary.
Frequency	Single event during construction	Multiple events during construction, although over a short period of time at each pole location.
Reversibility	Reversible	Reversible
Likelihood	Certain	Probable
Significance (EclA)	Not significant	Not significant
Translation (EIA Regulations)	Not significant	Not significant

Breeding Birds

8.104 Potential effects on breeding birds include direct habitat loss, as a consequence of vegetation removal; disturbance as a consequence of construction activity, and mortality, if nesting sites are destroyed during construction activity. It should be noted that the Study Area supports ground-nesting species.

8.105 In considering the above, the significance of potential effects on breeding birds is detailed in **Table 8.14**

Table 8.14: Potential Effects – New 132kV OHL Construction – Breeding Birds

Parameter	Potential Effect		
	Direct Habitat Loss	Disturbance	Mortality
Extent	Direct habitat loss will be experienced across the Study Area, primarily in woodland habitat. Habitat loss will be limited in extent.	In the absence of mitigation, disturbance to nesting birds could be widespread across the OHL corridor, during the breeding season.	Mortality could, without mitigation be widespread during the breeding season, when nests (both off and on the ground) are vulnerable to vegetation removal, plant movements and an increased presence in construction staff.
Magnitude	The breeding success of a wide range of species could be affected, however it is recognised that extensive alternative suitable habitat will persist.	Disturbance can affect breeding success. In theory, breeding populations across the entire OHL corridor could be affected, although this is unlikely to have a significant effect at the population level, given the extensive availability of alternative suitable habitat and the likelihood of further breeding territories nearby.	Mortality could affect breeding success across the entire OHL corridor, however it is unlikely that all nests would be destroyed.
Duration	Permanent	Duration of breeding season	Temporary at the population level

Parameter	Potential Effect		
	Direct Habitat Loss	Disturbance	Mortality
Frequency	Single event during construction	Potentially frequent during the breeding season	Potentially frequent during the breeding season
Reversibility	Reversible	Reversible	Reversible at the population level
Likelihood	Certain	Probable	Probable
Significance (EclA)	Not significant	Significant at Study Area Level	Significant at Study Area Level
Translation (EIA Regulations)	Not significant	Minor Significance	Minor Significance

Wintering Birds

8.106 Effects on wintering birds during the construction phase are limited to direct habitat loss and disturbance (displacement) where flocks gather to forage, primarily species such as redshank, geese species, swan species and other waterfowl and waders. Survey work undertaken in the autumn and winter of 2018/19 found limited evidence of redshank within the Study Area. However curlew, greylag goose and lapwing flocks were recorded foraging in fields associated with the New 132kV OHL corridor.

8.107 In considering the above, the significance of potential effects on wintering birds is detailed in **Table 8.15**.

Table 8.15: Potential Effects – New 132kV OHL Construction – Wintering Birds

Parameter	Potential Effect	
	Direct Habitat Loss	Disturbance
Extent	Limited to a small number of foraging areas in the east of the OHL corridor.	Limited to comparatively small flocks of three species (curlew, greylag goose and lapwing).
Magnitude	Limited as comparatively small flocks will be affected and extensive alternative suitable habitat exists adjacent to the corridor.	Limited as flocks are likely to displace to suitable nearby alternative habitat.
Duration	Temporary	Temporary
Frequency	Single event during construction	Potentially frequent during the winter months
Reversibility	Reversible	Reversible
Likelihood	Certain	Probable
Significance (EclA)	Not significant	Not significant
Translation (EIA Regulations)	Not significant	Not significant

Proposed Mitigation

8.108 Additional mitigation measures in the form of both specific and general site wide mitigation are set out for potential negative significant (EclA) effects in **Table 8.16**. Specific mitigation is designed to reduce the significance of effects, while general site-wide mitigation provides a mechanism for measures that will support compliance with wildlife legislation, irrespective of the significance of effects.

8.109 Mitigation measures set out in the table below represent a combination of standard, well-rehearsed techniques and measures specifically designed for the EDM Project. It is extremely likely that these mitigation measures will be successful.

Table 8.16: New 132kV OHL Construction - Proposed Mitigation

Ecological Feature	Effect	Specific Mitigation	General site-wide mitigation
Breeding Birds	Disturbance	<ul style="list-style-type: none"> Avoidance of vegetation clearance during the breeding season (March – August). Detailed immediate pre-construction checks where vegetation clearance cannot be avoided during the breeding season. Demarcation of sensitive areas with tape, by the ECoW, prior to works commencing. Sensitive areas will include stands of trees, scrub, hedgerows and upland habitats. 	<ul style="list-style-type: none"> Application of standard pollution prevention measures as detailed in the CDEMP. Tool-box talks for all contractor staff prior to works commencing, with regular 'top-up' talks during the breeding season/ecologically sensitive season. Presence of an Environmental Clerk of Works (ECoW) during all operations to provide ongoing support and monitoring. The ECoW role should be developed in accordance with current good practice guidelines^{xiii}.
	Mortality	<ul style="list-style-type: none"> Avoidance of vegetation clearance during the breeding season (March – August). Detailed pre-construction checks where vegetation clearance cannot be avoided during the breeding season. Where nests are found, the ECoW should establish appropriate exclusion zones. 	

Residual Construction Effects

8.110 Subject to adherence with all embedded/good practice mitigation as well as specific and general site-wide mitigation measures, no significant residual effects (EIA) are anticipated on designated sites, for habitat loss, or breeding and wintering birds.

Assessment of Effects – Existing 132kV OHL - Removal

Identification of Potential Effects

8.111 Potential effects associated with the removal of the Existing 132kV OHL have been identified through consideration of information provided in Chapter 4, standard guidance and guidelines and the professional judgment of the assessment team. Table 8.17 relates ecological features to potential effects during the construction phase. It is assumed all effects will be negative, unless stated otherwise.

Table 8.17: Existing 132kV OHL Removal - Potential Effect Identification

Ecological Feature	Development Activity	Potential Effect Pathway	Potential Effect
Designated Sites (statutory and non-statutory)	<ul style="list-style-type: none"> Vegetation removal to facilitate tower removal Deconstruction of tower, including the use of plant, equipment and presence of site staff 	<ul style="list-style-type: none"> Physical removal of habitat Changes in water quality and volume Changes in hydrological regime of peatland habitats Pollution event 	Direct Habitat Loss
			Disturbance
Breeding bird assemblages	<ul style="list-style-type: none"> Vegetation removal to facilitate tower removal Deconstruction of tower, including the use of plant, equipment and presence of site staff 	<ul style="list-style-type: none"> Physical removal of habitat Accidental disturbance from site staff and plant 	Direct Habitat Loss
			Mortality
			Disturbance
Wintering bird assemblages	<ul style="list-style-type: none"> Vegetation removal to facilitate tower removal 	<ul style="list-style-type: none"> Physical removal of habitat 	Direct Habitat Loss

Ecological Feature	Development Activity	Potential Effect Pathway	Potential Effect
	<ul style="list-style-type: none"> Deconstruction of tower, including the use of plant, equipment and presence of site staff 	<ul style="list-style-type: none"> Accidental disturbance from site staff and plant 	Mortality
			Disturbance

Assessment of Effect Significance

8.112 In this section, drawing on Table 8.17, an assessment is made of the significance of potential effects on ecological features during tower removal. Assessments are undertaken on the assumption that the embedded mitigation comprising embedded/good practice measures, as detailed in Chapter 4 and Appendix 4.1 will be successfully applied.

Designated Sites

8.113 The Existing 132kV OHL currently routes through two SSSIs; Dargavel Burn and Formakin. Consultation has been undertaken with SNH, to identify the most appropriate means of removal in these areas. SNH suggested that buried infrastructure (i.e. concrete hardstanding) remains in place, as a means of minimising disturbance. Further details are provided in Chapter 4.

8.114 In relation to existing infrastructure within the SINCs previously assessed, minimal, informal access will be taken to remove towers. All of these are within close proximity of the New 132kV OHL line and will rely largely on infrastructure associated with its construction.

8.115 In considering the above, the significance of potential effects on designated sites is detailed in Table 8.18.

Table 8.18: Potential Effects – Existing 132kV OHL Removal – Designated Sites

Parameter	Potential Effect	
	Direct Habitat Loss	Disturbance
Extent	Two towers are located within the Dargavel Burn SSSI and one tower in the Formakin SSSI. Access to all three towers will be informal with vegetation loss limited to individual trees or shrubs that cannot be routed around. Note that neither site qualifies for their tree or shrub vegetation. Removal of this type of vegetation may be beneficial to the qualifying features, which include fen and grassland habitats. However, both sites support sensitive ground flora (fen and grassland respectively) and could be subject to damage during vehicle movement.	The presence of plant and construction staff may result in limited disturbance to sensitive vegetation associated with both SSSIs. This is likely to be limited due to the limited footprint of access tracks, the use of low-pressure vehicles, the short duration of works and the small number of personnel involved.
Magnitude	Direct habitat loss within designated sites is unlikely to affect the structure or function of either SSSI.	Disturbance within designated sites is unlikely to affect the structure or function of either SSSI.
Duration	Temporary	Temporary
Frequency	Single event during removal	Potentially frequent during removal, although it is noted that this will be for a short time.
Reversibility	Reversible	Reversible
Likelihood	Certain	Probable
Significance (EclA)	Not significant	Not significant
Translation (EIA Regulations)	Not Significant	Not significant

Breeding Birds

8.116 The majority of the Existing 132kV OHL corridor passes through agricultural pasture land, used either for silage production or livestock grazing, as well as some smaller areas of arable farmland. The species associated with these areas tend to be corvids, wood pigeon (and occasionally stock dove), gulls, and common farmland passerines such as starling, chaffinch, goldfinch, skylark and occasional house sparrow. Less common farmland passerines recorded were reed bunting, yellowhammer and tree sparrow.

8.117 In the west of the corridor are several areas of open moorland and heath, where several snipe and curlew territories were identified. Other typical species associated with these habitats included, meadow pipit, skylark and stonechat.

8.118 There are numerous areas of mature woodland, scrub and hedgerows along the Existing 132kV OHL route. Typical species in these habitats include thrushes, tits, finches, great spotted woodpecker, treecreeper, buzzard, sparrowhawk, and kestrel. Summer migrants associated with these habitats include willow warbler, chiffchaff, blackcap, and whitethroat. Tree pipit was recorded within Knockmountain FCS forestry block.

8.119 Potential effects on breeding birds include direct habitat loss, as a consequence of vegetation removal; disturbance as a consequence of decommissioning activity, and mortality, if nesting sites are destroyed during decommissioning activity. It should be noted that the Study Area supports ground-nesting species.

8.120 In considering the above, the significance of potential effects on breeding birds is detailed in **Table 8.19**.

Table 8.19: Potential Effects – Existing 132kV OHL Removal – Breeding Birds

Parameter	Potential Effect		
	Direct Habitat Loss	Disturbance	Mortality
Extent	Direct habitat loss associated with the removal of the existing OHL line will be limited to small areas of vegetation along access routes that cannot be routed around.	In the absence of mitigation, disturbance to nesting birds could be widespread across the OHL corridor, during the breeding season.	Mortality could be widespread during the breeding season, when nests (both off and on the ground) are vulnerable to vegetation removal, plant movements and an increased presence in construction staff.
Magnitude	A very small proportion of available, suitable habitat will be affected.	Disturbance can affect breeding success. In theory, breeding populations across the entire OHL corridor could be affected, although this is unlikely to have a significant effect at the population level, given the extensive availability of alternative suitable habitat and the likelihood of further breeding territories nearby.	Mortality could affect breeding success across the entire OHL corridor, however it is unlikely that all nests would be destroyed.
Duration	Permanent	Duration of breeding season	Temporary at the population level
Frequency	Single event during removal	Potentially frequent during the breeding season	Potentially frequent during the breeding season
Reversibility	Reversible	Reversible	Reversible at the population level
Likelihood	Certain	Probable	Probable
Significance (EclA)	Not significant	Significant at Study Area Level	Significant at Study Area Level
Translation (EIA Regulations)	Not significant	Minor Significance	Minor Significance

Wintering Birds

8.121 Effects on wintering birds during the decommissioning and removal of the Existing 132kV OHL are limited to direct habitat loss and disturbance (displacement) where flocks gather to forage, primarily species such as redshank, geese species, swan species and other waterfowl and waders.

8.122 Survey work undertaken in the autumn and winter of 2018/19 found limited evidence of redshank within the Study Area. However curlew, greylag goose and lapwing flocks were recorded foraging in fields associated with the Existing 132kV OHL corridor.

8.123 In considering the above, the significance of potential effects on breeding birds is detailed in **Table 8.20**.

Table 8.20: Potential Effects – Existing 132kV OHL Removal – Wintering Birds

Parameter	Potential Effect	
	Direct Habitat Loss	Disturbance
Extent	Limited to a small number of foraging areas in the east of the OHL corridor.	Limited to comparatively small flocks of three species – curlew, greylag goose and lapwing flocks.
Magnitude	Limited as comparatively small flocks will be affected, and extensive alternative suitable habitat exists adjacent to the corridor.	Limited as flocks are likely to displace to suitable nearby alternative habitat.
Duration	Temporary	Temporary
Frequency	Single event during construction	Potentially frequent during the winter months
Reversibility	Reversible	Reversible
Likelihood	Certain	Probable
Significance (EclA)	Not significant	Not significant
Translation (EIA Regulations)	Not significant	Not significant

Proposed Mitigation

8.124 Additional mitigation measures in the form of both specific and general site wide mitigation are set out for potential negative significant (EclA) effects in **Table 8.21**. Specific mitigation is designed to reduce the significance of effects, while general site-wide mitigation provides a mechanism for measures that will support compliance with wildlife legislation, irrespective of the significance of effects.

8.125 Mitigation measures set out in the table below represent a combination of standard, well-rehearsed techniques and measures specifically designed for the EDM Project. It is extremely likely that these mitigation measures will be successful.

Table 8.21: Existing 132kV OHL Removal - Proposed Mitigation

Ecological Feature	Effect	Specific Mitigation	General site-wide mitigation
Breeding Birds	Disturbance	<ul style="list-style-type: none"> Avoidance of vegetation clearance during the breeding season (March – August). Detailed pre-construction checks where vegetation clearance cannot be avoided during the breeding season. Demarcation of sensitive areas with tape, by the ECoW, prior to works commencing. Sensitive areas will include stands of trees, scrub, hedgerows and upland habitats. 	<ul style="list-style-type: none"> Application of standard pollution prevention measures as detailed in the CDEMP. The CDEMP will include details on how extraction within designated sites should be completed, including reference to the retention of sub-surface infrastructure and the use of bog-matting on sensitive habitat. Tool-box talks for all contractor staff prior to works commencing, with regular 'top-up' talks during

Ecological Feature	Effect	Specific Mitigation	General site-wide mitigation
	Mortality	<ul style="list-style-type: none"> Avoidance of vegetation clearance during the breeding season (March – August). Detailed pre-construction checks where vegetation clearance cannot be avoided during the breeding season. Where nests are found, the ECoW should establish appropriate exclusion zones. 	<ul style="list-style-type: none"> the breeding season/ecologically sensitive season. Presence of an Environmental Clerk of Works (ECoW) during all operations to provide ongoing support and monitoring. The ECoW role should be developed in accordance with current good practice guidelines.

Residual Construction Effects

8.126 Subject to adherence with all embedded mitigation, good practice and specific and general site-wide mitigation measures, **no significant residual effects** are anticipated.

Assessment of Effects – New 132kV OHL - Operation

Identification of Potential Effects

8.127 Potential effects associated with the operation of the New 132kV OHL have been identified through consideration of information provided in **Chapter 4**, standard guidance and guidelines and the professional judgment of the assessment team. **Table 8.22** relates ecological features to potential effects during the operational phase. It is assumed all effects will be negative, unless stated otherwise.

Table 8.22: New 132kV OHL Operation - Potential Effect Identification

Ecological Feature	Development Activity	Potential Effect Pathway	Potential Effect
Breeding and wintering birds	Ongoing presence of OHL	Collision	Mortality

Assessment of Effect Significance

Breeding and Wintering Birds

8.128 Ornithological field studies identified a range of species normally considered to be at risk of collision with OHLs. These are generally considered to be raptors, geese, swans and other waterfowl and waders. **Table 8.8** provides a summary of the data collected. Analysis of the data, presented in **Appendix 8.3**, highlights that, based on species counts and flight patterns, collision with the new OHL were unlikely, but ranked those species most likely to be affected as:

- Curlew;
- Greylag goose;
- Lapwing;
- Herring gull; and
- Pink-footed goose.

8.129 Each of these species is considered to be of conservation concern, due to declining populations in the UK. In considering the above, the significance of potential effects on breeding birds is detailed in **Table 8.23**.

Table 8.23: Potential Effects – New OHL Operation – Breeding and Wintering Birds

Parameter	Potential Effect
	Mortality
Extent	Individual birds across a small number of species may be affected, primarily in the eastern end of the route where agricultural land offers foraging opportunities for wintering birds.
Magnitude	Small numbers of species of conservation concern may be affected during the non-breeding season. The overall viability of the population at the Study Area level are unlikely to be affected. It is noted that the removal of the existing 132kV reduces the existing baseline collision risk.
Duration	Permanent
Frequency	Infrequent, primarily during the non-breeding season
Reversibility	Reversible at population level
Likelihood	Unlikely
Significance (EclA)	Significant – Study Area
Translation (EIA Regulations)	Minor Significance

Proposed Mitigation

8.130 Additional mitigation measures in the form of specific mitigation designed to reduce the significance of the effects set out for potential negative significant (EclA) effects in **Table 8.24**.

Table 8.24: New 132kV OHL Operation - Proposed Mitigation

Ecological Feature	Effect	Specific Mitigation
Breeding and wintering Birds	Mortality	<ul style="list-style-type: none"> Installation of visible line markers, to deter birds from collision. Wires will be marked, between poles 31-70 and 128-148, with devices that are as large as possible and installed from pole to pole. Markers should be installed as close together as possible (at least every 5 to 10m on power lines), and in contrasting colours e.g. black and white for maximum visibility in different weather and light conditions. Line markers should be maintained regularly to ensure they continue to protect birds from collision.

Residual Construction Effects

8.131 Subject to adherence with all embedded mitigation, good practice and specific mitigation measures, **no significant residual effects** are anticipated.

Interrelationship between Effects

8.132 It is anticipated that effects discussed in this chapter are or relevance to effects detailed in **Chapter 7**. Mitigation described in both chapters will reduce the significance of effects on designated sites, particularly the Dargavel Burn SSSI.

8.133 Data set out in the technical appendices of this chapter have informed the assessment of potential effects on GWDTEs, detailed in **Chapter 7**.

Further Survey Requirements and Monitoring

8.134 Prior to construction, further protected species surveys will be undertaken to ensure the construction of the New 132kV OHL and removal of the Existing 132kV OHL are completed in compliance with all relevant nature conservation legislation.

8.135 An Environmental Clerk of Works (ECoW) will be appointed prior to construction and removal and will be responsible for monitoring compliance with nature conservation legislation, the CDEMP and mitigation contained within this chapter. The ECoW will be authorised to provide support in relation to micro-siting to avoid sensitive ecological features.

8.136 During operation, line markers, designed to prevent bird collision, will be monitored regularly to ensure their ongoing viability.

- ⁱ Scottish Biodiversity List (2013). Available at <https://www.gov.scot/Topics/Environment/Wildlife-Habitats/16118/Biodiversitylist/SBL>
- ⁱⁱ Renfrewshire Biodiversity Action Plan (2018 – 2022). Available at http://www.renfrewshire.gov.uk/media/6303/Renfrewshire-Biodiversity-Action-Plan-2018-2022/pdf/Biodiversity_Action_Plan_FINAL.pdf?m=1527000856037 and Local Biodiversity Action Plan for East Renfrewshire, Renfrewshire & Inverclyde (2004-2011) available at <https://www.inverclyde.gov.uk/planning-and-the-environment/planning-policy/natural-heritage/biodiversity-and-natural-heritage-designations>
- ⁱⁱⁱ Guidelines for Ecological Impact Assessment in the UK and Ireland – Terrestrial, Freshwater and Coastal. 2nd Edition. CIEEM (2016)
- ^{iv} Available at <https://www.nature.scot/professional-advice/planning-and-development/advice-planners-and-developers>
- ^v SNH (2016). Guidance: Assessment and mitigation of impacts of power lines and guyed meteorological masts on birds. SNH, Battleby, UK.
- ^{vi} SNH (2014). Recommended Bird Survey Methods to Inform Impact Assessment of Onshore Wind Farms. SNH, Battleby, UK.

Summary of Significant Effects

8.137 No significant effects on ecology or ornithology (i.e. effects considered 'major' or 'moderate' in EIA terminology) were identified prior to, or following, the application of mitigation.

- ^{vii} SEPA (2014). Guidance Note 31 – Guidance on Assessing the Impacts of Development Proposals on Groundwater Abstractions and Groundwater Dependent Terrestrial Ecosystems (GWDTE).
- ^{viii} Available at <https://sitelink.nature.scot/home>.
- ^{ix} Available from <https://www.inverclyde.gov.uk/planning-and-the-environment/planning-policy/natural-heritage/natural-heritage-designations>
- ^x Available at <https://gateway.snh.gov.uk/natural-spaces/dataset.jsp?dsid=AWI>
- ^{xi} Available at <https://nbnatlas.org/>
- ^{xii} Available at <https://www.rspb.org.uk/birds-and-wildlife/wildlife-guides/uk-conservation-status-explained/>
- ^{xiii} Burns, O. & Jackson-Matthews, S. (2016). Environmental Clerks of Works. Good Practice Guidance