VOLUME 2: CHAPTER 9 – ECOLOGY, ORNITHOLOGY AND NATURE CONSERVATION

Figures and Visualisations (Volume 3a and 3b of this EIA Report)

Appendices (Volume 4 of this EIA Report)

9. ECOLOGY, ORNITHOLOGY AND NATURE CONSERVATION

9.1 Introduction

This Environmental Impact Assessment Report (EIAR) chapter provides an assessment of the potential effects of the Proposed Development on ecology, ornithology and nature conservation. It is supported by the following figures provided in **Volume 3**:

- Figure 9.1a – Designated Sites within 2 km;
- Figure 9.1b – SPAs within 10 km;
- Figure 9.2a – UK Habitat Classification;
- Figure 9.2b – Ground Water Dependent Terrestrial Ecosystems (GWDTE);
- Figure 9.3 – Protected Species;
- Figure 9.5a – Flight Activity within 2 km, 2023;
- Figure 9.5b – Flight Activity within 2 km, 2024; and
- Figure 9.6 – Goose Roost Waterfowl Flights.

Further technical detail and assessment is provided in the following technical appendices in **Volume 4**:

- Appendix 9.1 – Habitat and Fauna Survey Report;
- Appendix 9.2 – Baseline Bird Survey Report; and
- Appendix 9.3 – Baseline Bat Report.

This Chapter's core focus is on ecology, ornithology and nature conservation. However, some of the subject matter covered reaches across technical chapters with crossover between topics. This includes **Chapter 12 – Hydrology, Hydrogeology, Geology and Soils**.

The specific objectives of this chapter are to:

- Describe the baseline;
- Describe the potential effects, including direct, indirect and cumulative effects;
- Describe the mitigation measures proposed to address likely significant effects; and,
- Assess the significance of any residual effects remaining following the implementation of mitigation.

9.2 Legislation, Policy and Guidance

- The Conservation of Natural Habitats and Wild Flora and Fauna (the Habitats Directive)1992 (92/43/3EEC)[1];
- Directive 2009/147/EC on the Conservation of Wild Birds ('Birds Directive')[2];
- The Wildlife and Natural Environment (Scotland) Act 2011[3];
- Nature Conservation (Scotland) Act 2004[4];
- The Conservation (Natural Habitats &c.) Regulations 1994 (as amended)[5];
- The Wildlife and Countryside Act 1981 (as amended)[6];

[1] European Parliament (1992) Directive 1992/92/43/3EEC [online] Available at: Directive - 92/43 - EN - Habitats Directive - EUR-Lex (europa.eu)

[2] European Parliament (2009) Directive 2009/147/EC [Online] Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32009L0147&from=EN

[3] Scottish Government (2011) The Wildlife and Natural Environment (Scotland) Act 2011 [Online] Available at: Wildlife and Natural Environment (Scotland) Act 2011 (legislation.gov.uk)

[4] UK Government (2004) Nature Conservation (Scotland) Act 2004 [Online] Available at: http://www.legislation.gov.uk/asp/2004/6/contents

[5] European Parliament (1994) the Conservation (Natural Habitats, &c.) Regulations 1994 [Online] Available at: http://www.legislation.gov.uk/uksi/1994/2716/contents/made

[6] UK Government (1981) The Wildlife and Countryside Act 1981 (as amended) [Online] Available at: http://www.legislation.gov.uk/ukpga/1981/69

- The Protection of Badgers Act 1992[7];
- The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017[8];
- The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017[9];
- Environmental Impact Assessment Directive 2014/52/EU4[10];
- Chartered Institute of Ecology and Environmental Management. (2018). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, and Coastal[11];
- Chartered Institute of Ecology and Environmental Management. (2013). Guidelines for Preliminary Ecological Appraisals[12];
- Institute of Environmental Management and Assessment. (2005). Guidelines for Environmental Impact Assessment[13];
- Scottish Natural Heritage (2013) A handbook on environmental impact assessment[14];
- NatureScot. (2023) Advising on Peatland, Carbon-Rich Soils and Priority Peatland Habitats in Development Management[15];
- NatureScot. (2024) Developing with Nature[16];
- Scottish Biodiversity Strategy: It's in Your Hands (2004)[17]/2020 Challenge for Scotland's Biodiversity (2013)[18];
- National Planning Framework 4 (NPF4) (Scottish Government, 2023)[19]; and
- The Highland Council LDP: Policy 58 Protected Species[20].

9.3 Assessment Methodology and Significance Criteria

9.3.1 Scope of the Assessment

The assessment considers the effects of the Proposed Development on designated nature conservation sites for ecology and ornithology, woodland listed on the Ancient Woodland Inventory (AWI), and habitats and protected species. Site surveys were undertaken between September 2023 and September 2024.

Biodiversity Net Gain (BNG) calculations using SSEN Biodiversity Site Optioneering Toolkit were undertaken, and a summary provided in this report (**Section 9.5.7**).

9.3.2 Extent of the Study Area

The search area for statutory designated sites is 2 km (**Section 9.4.1**), excepting Special Protection Areas (SPAs), proposed SPAs, and other designations whose qualifying features include bird species (**Volume 3 Figure 9.1a and 9.1b**). The search areas for these designated sites are informed by the connectivity distances

[7] UK Government (1992) The Protection of Badgers Act 1992 [Online] Available at: Protection of Badgers Act 1992 (legislation.gov.uk)

[8] Scottish Government (2017) the Electricity Works (EIA) (Scotland) Regulations 2017 [Online] Available at: https://www.legislation.gov.uk/ssi/2017/101/contents/made

[9] Scottish Government (2017) The Town and Country Planning (EIA) (Scotland) Regulations 2017 [online] Available at: The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017 (legislation.gov.uk)

[10] European Parliament (2014) Directive 2014/52/EU [Online] Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014L0052&from=EN

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

[12] CIEEM (2021) Guidelines for Preliminary Ecological Appraisals. Chartered Institute of Ecology and Environmental Management, Winchester.

[13] IEMA (2005) Guidelines for Environmental Impact Assessment. Institute of Environmental Management and Assessment, Oxford.

[14] SNH (2013) A Handbook on Environmental Impact Assessment. Scottish Natural Heritage, Oxford.

[15] NatureScot (2023) Advising on Carbon-rich Soils, Deep Peat and Priority Peatland Habitat in Development Management [Online] Available at: Guidance - Advising on carbon-rich soils, deep peat and priority peatland habitat in development management.pdf (nature.scot)

[16] NatureScot (2024) Developing With nature [Online) Available at: Developing with Nature guidance | NatureScot

17 Scottish Executive (2004) Scotland's Biodiversity It's in your Hands [Online] Available at: https://www.webarchive.org.uk/wayback/archive/20180515152802/http://www.gov.scot/Publications/2004/05/19366/37250

[18] Scottish Government (2013) 2020 Challenge for Scotland's Biodiversity [Online] Available at: https://www2.gov.scot/Resource/0042/00425276.pdf

[19] Scottish Government (2023) https://www.gov.scot/publications/national-planning-framework-4/

[20] The Highland Council (2012) Highland-wide Local Development Plan [Online] Available at: https://www.highland.gov.uk/info/178/local_and_statutory_development_plans/199/highland-wide_local_development_plan

for the designated features, as defined by NatureScot[21]. The connectivity distance is the distance that species are likely to disperse or forage outside of their home range (not including migration). For species not listed in the NatureScot connectivity distance guidance, the search area is 10 km.

AWI and records of protected species were assessed within 2 km (extended to 6 km for golden eagle (*Aquila chrysaetos*) and white-tailed eagle (*Haliaeetus albicilla*)) of the Proposed Development.

The survey area for ecological surveys comprised of the red-line boundary containing the Proposed Development as well as a 250 m buffer, where access allowed (**Volume 3 Figure 9.2**).

The survey area for ornithological surveys conducted to inform the baseline for the proposed new Spittal – Loch Buidhe – Beauly OHL 400 kV encompassed the red-line boundary containing the Proposed Development as well as a 500 m buffer (**Volume 3 Figure 9.3**).

9.3.3 Consultation Undertaken to Date

Consultation undertaken is outlined in **Chapter 6 Scope and Consultation** of this EIAR. A summary of consultation relevant to Ecology and Ornithology is presented in **Table 9.1**.

[21] NatureScot. (2016). *Assessing Connectivity with Special Protection Areas (SPAs) – Guidance.* Version 3 – June 2016. NatureScot, Battleby, Perth.

Table 9.1: Consultation on Ecological Features

Consultee	Date of last Consultation	Summary and Response
NatureScot (NS)	Response to Scoping: 17 January 2024	<u>Protected Areas</u> NS recognised that it has been identified that the Proposed Development has potential ornithological connectivity, hydrological connectivity and proximity to the following protected areas: 1. Caithness Lochs Special Protection Area (SPA) and Ramsar site, including Loch Calder, Loch Scarmclate and Loch Watten Sites of Special Scientific Interest (SSSIs); 2. Caithness and Sutherland Peatlands SPA and Ramsar site (including relevant component SSSIs); 3. River Thurso Special Area of Conservation (SAC); 4. Banniskirk Quarry SSSI; and 5. Achanarras Quarry SSSI. NS are content that the proposed desk studies and baseline survey methodologies are sufficient to provide the necessary information to assess any potential impact to these sites. NS also agree with SSEN Transmission on matters that have been proposed to be scoped out of the assessment with regards to designated sites. • No required response from SSEN Transmission. • <u>Peatlands and Carbon-Rich Soils</u> NS recognise that preliminary ground investigations indicate that peat is present within the Site, backed by NS's 'Carbon and peatland Map 2016', indicating that most of the Site is underlain by mineral soils, with substantial areas of Class 3 peat also present as well as two small areas of Class 4 peat. Whilst NS recognise that these are not considered high priority peatland habitats; the use of NS guidance 'Advising on Peatland, Carbon-Rich Soils and Priority Peatland Habitats in Development Management' 2023, is advocated. • <u>Demonstrating Positive Effects for Biodiversity</u> NS recognise SSEN Transmission's target for all projects gaining consent to have a 10 % net gain for biodiversity. NS state that within the EIA Report, information on predicted losses, proposed compensation and delivery of additional positive effects should be clearly summarised. The information must be sufficient to allow the consenting authority and relevant stakeholders to see clearly how effects will be addressed, and compensation and enhancement delivered. NS advocate the use of their guidance 'Developing with Nature' 2024 is consulted for both examples of common measures to enhance biodiversity and for its example template in how to display the information within the EIAR. • SSEN Transmission will produce a Biodiversity Net Gain (BNG) Assessment report, with reference to NS guidance. The report will detail the approach to assessment and toolkit results (including baseline units, post development units, temporary impacts, and irreplaceable

		habitat impacts). The BNG Assessment report will include the proposed planting design to achieve the target biodiversity units. A Long-Term Habitat Management Plan will be produced to support the creation and/or enhancement of proposed post-development habitats in order to meet the proposed target conditions.
The Highland Council (THC)	Response to Scoping: 6 February 2024	THC's response to Scoping is summarised in the following points: 1. An EIAR chapter covering ecology, habitats and ornithology will be required. This must provide a baseline survey of the flora and fauna interest within the Site. Habitat enhancement and mitigation measures should be detailed, in the contexts of both biodiversity and conservation. Details of any habitat enhancement programme (such as native-tree planting, stock exclusion, etc) for the Proposed Development should be provided. It is expected that the EIAR will address whether or not the development could assist or impede delivery elements of relevant Biodiversity Action Plans. Refer to Section 9.4 of the EIAR. 2. The EIAR should cover the ecological resources of the Site including protected species and species within the Highland Nature Biodiversity Action plan. It is expected that the proposals shall demonstrate compliance with NPF4 policy 3b and that using the DEFRA metric, a minimum of 10% of biodiversity enhancement overall, can be brought about. Refer to **Section 9.5.7**. 3. The EIAR should address the likely impacts on the nature conservation interests of all the designated sites in the vicinity of the Proposed Development; as well as the aquatic interests within local watercourses, including downstream interests that may be affected. Refer to **Sections 9.5.4** and **9.5.5** of the EIAR. • SSEN Transmission acknowledge THC's response and have incorporated points 1-3 within the EIAR produced.

9.3.4 Methods of Baseline Data Collection

Desk Study

NatureScot SiteLink[22] and open-source data sets[23] were used to identify all relevant statutory designated sites. The search area for statutory designated sites is based on the limited Zone of Influence (ZoI) considered likely as a result of the construction and operation of the Proposed Development. Any designated sites identified with no connectivity to the Proposed Development have been scoped out and are not discussed within this report.

A request for information regarding designated sites, species records and, information on the habitats present was submitted to the Highland Biological Record Centre (HBRC) along the proposed Spittal – Loch Buidhe – Beauly OHL 400 kV, including the Proposed Development location.

A request for information regarding bird species data, was submitted to the Royal Society for the Protection of Birds (RSPB) and the Highland Raptor Study Group (HRSG) along the proposed new Spittal – Loch Buidhe – Beauly OHL 400 kV, including the Proposed Development location.

In addition to the above, desk-based baseline data reviewed included information from freely downloadable datasets which were searched for information on statutory and non-statutory designated sites as well any protected/ notable flora and fauna. Only records within the last 25 years have been considered for inclusion in the baseline.

Ecological Surveys

Habitat and Fauna Walkover Survey

A UK Habitat (UKHab) survey was undertaken in September 2023 by ERM within the survey area which comprised the Proposed Development, and a 250 m buffer to identify potential Ground Water Dependent Terrestrial Ecosystems (GWDTEs) that could be impacted. The survey was based on the methods described in the UK Habitat Classification User Manual (2018)[24], as extended for use in Environmental Assessment[25]. Habitats are presented in this report using UKHab classification **(Volume 3 Figure 9.2a)**.

A National Vegetation Classification (NVC) survey of habitats with the potential to support GWDTE was undertaken by ERM within the survey area (**Volume 3 Figure 9.2a**). The survey was based on the methods described in Joint Nature Conservation Committee (JNCC) National Vegetation Classification: Users' handbook[26] with communities identified by eye. Target notes of features of interest were recorded with a geographic reference and photograph taken.

A walkover survey for protected and priority species was undertaken during the habitat walkover, which included a search for signs / sightings of species likely to occur in the locality and in the habitats present. Accessible areas of habitat suitable for otter (*Lutra lutra*), water vole (*Arvicola amphibius*), badger (*Meles meles*), pine marten (*Martes martes*), red squirrel (*Sciurus vulgaris*) and Scottish wildcat (*Felis silvestris grampia*) within the survey area were surveyed for evidence of their presence. The survey method for each species, followed NatureScot guidance[27], and is detailed in the Habitat and Fauna Survey Walkover Report (**Volume 4 Appendix 9.1**). The presence, or potential presence, of any other species of note (e.g. Scottish Biodiversity List species, Local Biodiversity Action Plan species, reptiles and amphibians) was also recorded. Protected species data recorded during the walkover survey is presented in **Volume 3 Figure 9.3**.

Habitats suitable for bats were assessed for their likely suitability to support foraging / commuting bats and bat roosts, taking account of guidance from the Bat Conservation Trust (BCT)28. The assessment of the potential for bat roosts in the habitats was made from ground-based observations throughout the survey area. High level

[22] https://sitelink.nature.scot/home

[23] https://spatialdata.gov.scot/geonetwork/srv/eng/catalog.search#/home

[24] Butcher, B., Carey, P., Edmonds, R., Norton, L., and Treweek, J. (2020). The UK Habitat Classifcation User Manual, Version 1.1. Available at: https://ukhab.org/

[25] Institute of Environmental Assessment (1995) Guidelines for Baseline Ecological Assessment, Spon, London.

[26] Joint Nature Conservation Committee National Vegetation Classification: Users' handbook (2006), Peterborough.

[27] NatureScot (2024) Planning and Development: Protected Species. Available at: Planning and development: protected species | NatureScot

[28] Collins, J. (ed.) (2023) Bat Surveys for Professional Ecologists: Good Practice Guidelines.4th edition. The Bat Conservation Trust, London.

assessments of trees and structures with potential to support roosting bats were undertaken. In areas of more mature dense conifers, assessment was restricted largely to the edges of the plantations along tracks / rides, as access into the plantation was not possible. Detailed inspections and climbing surveys were not undertaken.

Bat Activity Surveys

Following the Habitat and Fauna Walkover Survey, it was deemed necessary to undertake targeted Bat Activity Surveys between April and October 2024, comprising a combination of Automated Static Detector Surveys and Bat Night-time Walkovers. Surveys followed BCT guidance[37]; the full methodology is presented in the Baseline Bat Report (**Volume 4 Appendix 9.3**).

Ornithological Surveys

The following surveys were undertaken to inform the baseline environment for the Proposed Development. The surveys undertaken will also provide information for the proposed new Spittal – Loch Buidhe – Beauly OHL 400 kV, and so in some cases form part of wider survey effort.

Breeding Bird Surveys

Breeding Bird Survey (BBS) visits were undertaken between May and August 2023. The survey approach was based on a modified Brown and Shepherd[29] (1993) walkover method. Three visits were completed covering the proposed substation location and 500m buffer, as well as a 1 km route corridor for the proposed Spittal – Loch Buidhe – Beauly OHL 400 kV. The approach to the Breeding Bird Surveys was informed by NatureScot guidance on surveys for power lines and onshore wind farm developments (2017)[30]. The survey walkover encompassed all habitats, with particular focus on those which may be of potential ornithological importance and of higher bird density. The area surveyed is shown in **Volume 3 Figure 9.4.**

Vantage Point Surveys

Flight activity (Vantage Point (VP)) surveys were conducted to inform the assessment of the Spittal – Loch Buidhe – Beauly OHL 400 kV between May 2023 and April 2024. The most northerly VP location provided coverage of the location of the Proposed Development. Surveys employed standard methodology recommended by NatureScot (2017). Surveyors undertook static watches from fixed locations and recorded flight activity of target species, comprised of species afforded additional conservation designations, and / or species of conservation concern. Watches were spread as evenly as possible across the calendar year, with typically one watch comprising six hours (hrs) being undertaken each month, in order to capture a sample survey of flight activity over one year with a total of at least 72 hrs survey undertaken across the year, with 36 hrs undertaken during the breeding and 36 hrs undertaken during the non-breeding season. Flights were categorised into three height bands: A (0-5 m), B (>5 to 70 m) and C (>70 m). The surveys were primarily undertaken to inform the assessment off the Spittal – Loch Buidhe – Beauly OHL 400 kV but provide useful information on the use of the Proposed Development boundary and wider area by birds.

Wintering Goose Roost Surveys

Winter goose surveys were undertaken at two waterbodies within 2 km of the Proposed Development, due to their suitability as overnight roosts for wintering geese and swans. The surveys aimed to identify overnight roosting sites used by geese and swans and commuting flight paths to these sites.

The waterbodies were surveyed once per month from November 2023 -February 2024, with surveys following best practice methods (Gilbert et al., 1998)[31] and commenced at either dusk or dawn. Dawn observations at each potential roost site started at least 0.5 hours before sunrise and ended 1 hour after sunrise. Dusk observations at each waterbody started at least 1.5 hours before sunset and ended 0.5 hours after sunset. The results of VP and goose roost surveys are shown in **Volume 3 Figure 9.5**.

[29] Brown, A. F. and Shepherd, K. B. (1993) *A method for censusing upland breeding waders*. Bird Study, 40, pp. 189-195.
[30] NatureScot (2017). *Recommended Bird Survey Methods to Inform Impact Assessment of Onshore Wind Farms*. Version 2. Guidance.
[31] Gilbert, G., Gibbons, D.W., & Evans, J. (1998) *Bird Monitoring Methods: A Manual of Techniques for UK Key Species*. The Royal Society for the protection of Birds, Sandy, Bedfordshire, England.

Targeted goose foraging surveys were also undertaken as part of the Spittal – Loch Buidhe – Beauly OHL 400 kV project, targeting areas of goose foraging identified in Mitchel et al (2012)[32]. The closest area for targeted surveys was located approximately 750m northeast of the Proposed Development. The need for targeted surveys of the Proposed Development were screened out based on the habitat present on site, the lack of records of goose foraging for the Proposed Development location in Mitchel et al, and the coverage of the Proposed Development provided from the flight activity and goose roost surveys.

9.3.5 Impact Assessment

This ecology assessment uses the methodology outlined in **Chapter 5 EIA Process and Methodology** to determine magnitude of change.

This impact assessment follows an approach whereby the sensitivity of an ecological receptor has been determined and assessed against the magnitude of the effect the activities associated with the Proposed Development may have on that receptor and the subsequent significance. The approach takes into account the CIEEM Guidelines for Ecological Impact Assessment in the UK and Ireland and refers to not significant, rather than negligible.

Mitigation for the Proposed Development is split into categories, design mitigation, embedded mitigation, and additional mitigation (**Section 9.6**). The Proposed Development was selected via an iterative design process as described in **Chapter 3**. This ensured that the mitigation hierarchy was applied and impacts on sensitive receptors were avoided where feasible. Embedded mitigation will comprise of SSEN's Transmission General Environmental Management Plans (GEMPs) a post-submission Construction Environmental Management Plan (CEMP), Construction Traffic Management Plan (CTMP) and Species Protection Plans (SPPs). Additional mitigation sets out any further mitigation required to reduce the residual impact to not significant.

Given the type of development, there will be little or no effects on habitats and species in the surrounding area during the operational phase of the Proposed Development. Hence the focus of the assessment is largely on the construction effects identified as a result of the Proposed Development.

9.3.6 Limitations and Assumptions

Limitations appropriate to this chapter mainly pertain to the Habitat and Fauna Survey Walkover, which are detailed in **Volume 4 Appendix 9.1** and summarised below;

- Wet, boggy ground conditions were common throughout the survey area and tall-grown grassland habitats and areas of heathland made it difficult to spot potential scat and historical/ inactive badger sets. It is possible that field signs of badgers, red squirrel, pine marten and wildcat could be present within the survey area but were not recorded as they had been covered over by the environment.
- Although all burns and drains within the survey area were assessed, it was not possible to fully survey along their full extent for field signs of otter, water vole or potential badger setts (refer to **Volume 4 Appendix 9.1** for full details of areas affected). Reasons for this include the extent of dense vegetation, unsafe fast flowing water and steep sided margins.
- Due to the density of some coniferous woodland plantations, or the presence of areas of wind-blown trees, making them unable to access without causing injury, in depth fauna species walkover surveys were unable to take place within these habitats (refer to **Volume 4 Appendix 9.1** for full details of areas affected).

Due to survey coverage and access being generally good across the survey area, good characterisation of habitats and likely species present was possible. These limitations, both individually and in combination, are therefore not considered to be significant. However, it should be noted that absence of evidence does not confirm absence of target species and may only suggest likely absence. There is potential for species not recorded from desk study or survey (e.g., those colonising post consent) to occur within the Proposed Development and pre-construction surveys should be undertaken in advance of the works to provide targeted survey of the Proposed Development.

[32] https://www.bto.org/sites/default/files/mitchel_2012_mapping_distirbution_feeding_pinkfooted_and_greylag_geese_scotland_wwtsnh_report.pdf

Due to the project programme and land access limitations, breeding bird surveys in 2023 did not commence until May 2023. Given the nature of the site and the type of breeding bird assemblage recorded, this is not considered to be a significant limitation.

9.3.7 Sensitive Receptors

Designated sites, priority habitats[33], and protected species[34], are sensitive receptors. Assessment of sensitive receptors was undertaken as described in **Section 9.3.2** above using the following distances from the Proposed Development:

- Special Protection Area (SPA) within 10 km;
- Special Area of Conservation (SAC), Special Sites of Scientific Interest (SSSI) and Ramsar designated sites within 2 km;
- Local Nature Conservation Sites (LNCS) within 2 km;
- Woodland listed on the AWI, Plantation on Ancient Woodland Site (PAWS) and TPOs within 2 km;
- Priority habitats and GWDTEs within the survey area as described in **Section 9.4.1** (refer to **Volume 4 Appendix 9.1** for full details); and
- Protected species within 2 km (extended to 6 km for Schedule 1 bird species) (desk study) and within the survey area as described in **Section 9.4.1** (refer to **Volume 4 Appendix 9.1, 9.2, 9.3** for full details).

9.4 Baseline Conditions

9.4.1 Current Baseline

Designated Sites

No sites designated for their nature conservation importance lie within the boundary of the Proposed Development and only one site, the River Thurso SAC, was identified within 2 km of the Proposed Development. There are two geological SSSIs within 2 km of the Site.

Statutory and non-statutory designated sites within connectivity distance of the Proposed Development are listed in **Table 9.2** and presented in **Volume 3 Figure 9.1a** and **Volume 3 Figure 9.1b**. Geological natural heritage designations have been included for completeness but are not considered further in this Chapter (see **Chapter 12 Hydrology, Hydrogeology, Geology and Soils**).

Table 9.2 Designated Sites for Nature Conservation relevant to the Proposed Development

Site Name and Designation	Qualifying features	Proximity (closest point) to the Proposed Development
Banniskirk Quarry Geological SSSI	Geological: Silurian-Devonian Chordata palaeontology (fossil fish) Biological: None	230 m
Achanarras Quarry Geological SSSI	Geological: Silurian-Devonian Chordata palaeontology (fossil fish); and Non-marine Devonian stratigraphy (rocks that surround the fossil fish). Biological: None	1.9 km

[33] Habitats listed on the Scottish Biodiversity List, a list of animals, plants and habitats considered to be of principal importance for biodiversity conservation in Scotland. Available at: https://www.nature.scot/scotlands-biodiversity/scottish-biodiversity-strategy-and-cop15/scottish-biodiversity-list

[34] Certain species are afforded specific legal protections, meaning it can be illegal to disturb, harass, capture, or kill, injure animals or birds or to pick or damage certain wild plants. An overview of relevant protected species and the legal framework that applies in Scotland is available at: https://www.nature.scot/professional-advice/protected-areas-and-species/protected-species.

River Thurso SAC	**Annex II species** Atlantic Salmon (*Salmo salar)*	1.48 km
Caithness Lochs SPA and Ramsar Site including: Loch Scarmclate SSSI, Loch Watten SSSI and Loch Calder SSSI	The SPA and Ramsar site is designated for regularly supporting: **Annex 1 species:** Whooper swan *Cygnus cygnus* (1993/94-1997/98 winter peak mean of 240 representing 4% of Great Britain (GB) and 1% of Icelandic population); and Greenland white-fronted goose *Anser albifrons flavirostris* (1993/94-97/98 winter peak mean of 440 representing 3% of GB and 1% of Greenlandic population). **Migratory Waterfowl:** Greylag goose *Anser anser* (1993/94-1997/98 winter peak mean of 7,190 representing 7% of the GB and Icelandic populations).	3.2 km
Caithness and Sutherland Peatlands* SPA, Ramsar, including: Blar nam Faoileag SSSI, Strathmore Peatlands SSSI, Shielton Peatlands SSSI and Loch Caluim Flows SSSI	The SPA is designated for regularly supporting: **Annex 1 species:** Red-throated diver *Gavia stellata* (2006, 46 pairs, 3.5% of the GB population); Black-throated diver *Gavia arctica* (1994, 26 pairs, 15% of the GB population); Hen harrier *Circus cyaneus* (1993 to 1997, mean of at least 14 pairs, at least 2.8% of the GB population); Golden eagle Aquila *chrysaetos* (1992, 5 pairs, 1% of the GB population); Merlin *Falco columbarius* (1993 and 1994, an estimated 54 pairs, 4% of the GB population); Golden plover *Pluvialis apricaria* (1993 and 1994, 1,064 pairs, 5% of the GB population); Wood sandpiper *Tringa glareola* (up to 5 pairs, up to 40% of the GB population); Short-eared owl *Asio flammeus* (30 pairs, 2% of the GB population); and Dunlin Calidris A*lpina schinzii* (1993 and 1994, 1,860 pairs, 20% of the GB population). **Migratory birds:** Common scoter *Melanitta nigra* (2007, at least 21 pairs, at least <0.1% of the Western Siberia/Western & Northern Europe/Northwestern Africa biogeographic population and at least 40.4% of the GB population); Greenshank *Tringa nebularia* (2009, at least 653 pairs, at least 0.9% of the Europe/Western Africa biogeographic population and at least 59.4% of the GB population); and Wigeon *Anas penelope* (1993/94, at least 43 pairs, at least <0.1% of the Western Siberia/Northwestern/Northeastern Europe biogeographic population and at least 10.8% of the GB population). The Ramsar site is designated for regularly supporting: **Invertebrates:** Freshwater pearl mussel *Margaritifera margaritifera* which occurs in the River Naver. **Mammals:** Otter *Lutra lutra* which are wide ranging throughout the site. **Ramsar Criterion 2:** Red-throated diver (2006, 46 pairs, 3.5% of the GB population); Black-throated diver (1994, 26 pairs, 15% of the GB population); Golden plover (1993 and 1994, 1,064 pairs, 5% of the GB population); Wood sandpiper (up to 5 pairs, up to 40% of the GB population); and Dunlin (1993 and 1994, 1,860 pairs, 20% of the GB population).	6.6 km

	Ramsar Criterion 4 (waterfowl): Wigeon (1993/94, at least 43 pairs, at least 10.8% of the GB population); Common scoter (2007, at least 21 pairs, at least 40.4% of the GB population); and Greenshank (2009, at least 653 pairs, at least 59.4% of the GB population).	

Note: Designations are listed in order of importance: Special Protection Area (SPA), Special Area of Conservation (SAC), Ramsar and Sites of Special Scientific Interest (SSSI). Sites with multiple designations within the same footprint have been combined.

*Caithness and Sutherland Peatlands is also designated as a World Heritage Site (WHS). The qualifying feature of the WHS is peatland habitat. Due to the distance from the Proposed Development, lack of hydrological connection and discrete nature of the Proposed Development, it is considered that the WHS will not be affected as a result of the Proposed Development. The Caithness and Sutherlands Peatland WHS is therefore screened out of the impact assessment.

Caithness and Sutherland Peatlands is also designated as an SAC, however due to the lack of connectivity between the Proposed Development and the qualifying features of the SAC, it has not been included here.

There are two areas of woodland listed on the Ancient Woodland Inventory (AWI)[35] within 2 km of the Proposed Development (**Volume 3 Figure 9.1a**).

Habitats

Table 9.3 and the following sections present a summary of the findings of the UKHab survey undertaken. The detailed survey findings including species assemblage are contained in **Volume 4 Appendix 9.1** Habitat and Fauna Survey Walkover Report. Habitat mapping is presented in **Volume 3 Figure 9.2a.**

Table 9.3: UKHab Classifications Recorded Within the Survey Area.

Broad Habitat Type	UKHab Code	Habitat Name	Area (Ha)
Grassland	g1a6	Other lowland dry acid grassland	26.32
	g3	Neutral grassland	1.07
	g3c	Other neutral grassland	1.09
	g3c8	Holcus-Juncus neutral grassland	31.65
	g4	Modified grassland	57.12
Woodland and forest	w1c6	Beech forests on neutral to rich soils (H9130)	0.66
	w1f7	Other lowland mixed deciduous woodland	3.85
	w1g	Other woodland; broadleaved	7.59
	w1h	Other woodland; mixed	17.17
	w1h5	Other woodland; mixed; mainly broadleaved	9.12
	w1h6	Other woodland; mixed; mainly conifer	7.25
Heathland and shrub	h1b5	Dry heaths; upland (H4030)	3.76
	h1b6	Wetland heath with cross-leaved heath; upland (H4010)	15.78
	h3e	Gorse scrub	1.29
Wetland	f1a	Blanket bog	5.18
Cropland	c1	Arable and horticulture	7.76
	c1f	Horticulture	0.30
Urban	u1	Built-up areas and gardens	6.28
	u1a	Open mosaic habitats on previously developed land	0.07
	u1b	Developed land; sealed surface	0.90
	u1d	Suburban/ mosaic of developed/ natural surface	0.15
	u1e	Built linear features	2.94
Rivers and lake	r1g	Other standing waters	0.10
	r2b	Other rivers and streams	0.12

[35] Land that is currently wooded and has been continually wooded, at least since 1750.

Grassland

g1a6 Other lowland acid grassland - occurred predominantly within the north and the centre of the Proposed Development boundary.

g3 Neutral grassland - was recorded within the west Proposed Development boundary and subject to grazing pressure from cattle.

g3c Other neutral grassland - was recorded in the west of the survey area, outwith the Proposed Development boundary.

***g3c8 Holcus-Juncus* neutral grassland** – was the most abundant habitat recorded within the survey area, the majority of the fields within the central and southern sections of the Proposed Development boundary were categorised as Holcus-Juncus neutral grassland.

g4 Modified Grassland - was found outwith the Proposed Development boundary, predominantly in the east of the survey area, with sections also identified south and west of the Proposed Development boundary.

Woodland and Forest

w1c6 Beech forests on neutral to rich soils - the access track leading to Banniskirk House, in the north of the survey area, outside of the Proposed Development boundary was classified as w1c6.

w1f7 Other lowland mixed deciduous woodland - this habitat was located outside of the Proposed development boundary, in one small section within the south east of the survey area.

w1g Other woodland; broadleaved – this habitat was predominantly located within the north of the survey area, outwith the Proposed Development boundary; separated from the Proposed Development by less diverse stands of mixed woodland. One very small and isolated area, comprised of only a few trees **(Volume 4 Appendix 9.3**) was present within the north of the Proposed Development boundary.

w1h Other woodland; mixed – the dominant woodland type recorded within the survey area, this habitat was located within the west of the Proposed Development boundary, as well as within the wider survey area, easy of the Proposed Development.

w1h5 Other woodland; mixed; mainly broadleaved - occurred outwith the Proposed Development boundary in the north east, south and south east of the survey area. The largest area of this habitat, located south of the Proposed Development boundary, was isolated from other woodland habitats, flanked on both sides by modified grassland.

w1h6 Other woodland; mixed; mainly conifer - this habitat was located in the north west and south west of the survey area. In terms of woodland habitats, it was the second lowest registration, the two areas identified isolated from each other within the survey area.

Heathland and Scrub

h1b5 Dry heaths; upland (H4030) and **h1b6 Wet heathland with cross-leaved heath; upland (H4010)** – recorded within the Proposed Development boundary only, the second largest area of single habitat recorded within the Development Boundary, after Holcus-Juncus neutral grassland.

h3e Gorse scrub - present within the Proposed Development boundary only, with one small patch adjacent to an area of upland heathland (h1b5).

Wetland

f1a Blanket bog - located within the Proposed Development boundary only. The habitat was heavily degraded, drained due to the presence of field drains whist the overlying vegetation had been heavily poached by sheep and cattle.

Cropland

c1 Arable and horticulture - an area of arable pastureland, recorded outwith the Proposed Development boundary within the east of the survey area, was utilised as ley.

c1f Horticulture - an unmanaged garden of vegetation plot and flower beds, associated with Banniskirk House, was located within the north of the survey area. This area was largely overgrown with brambles.

Urban

u1 Built-up areas and gardens - two residential properties with cultivated grounds were recorded within the north of the survey area.

u1a Open mosaic habitats on previously developed land - a disturbed area of soil where vegetation has grown back was recorded within the southeast of the survey area.

u1b Developed land; sealed surface - two areas were identified within the survey area, an operating quarry within the southeast of the Survey Area and; the A9, which bordered the western extent of the survey area.

u1d Suburban/ mosaic of developed/ natural surface - Banniskirk House and associated gardens and lawn was recorded within the north of the survey area.

u1e Built linear features - surface footpaths were recorded in the north and centre of the survey area.

Rivers and Lakes

r1g Other standing waters - a large waterbody was present within the wider survey area, southeast of the Proposed Development boundary. At the time of survey, it was observed as a shallow, permanent pond which was heavily vegetated. Various field drains were recorded throughout the Proposed Development boundary and wider survey area.

r2b Other rivers and streams - the Burn of Halkirk ran adjacent to the northern and eastern boundaries of the Proposed Development and within the wider survey area to the east.

GWDTE

NVC habitats classified as moderate or high GWDTE that were recorded within the survey area during the habitat walkover are presented in **Table 9.4**. The mapped results of the NVC survey are presented by groundwater dependency in **Volume 3 Figure 9.2b**.

Table 9.4: Potentially Groundwater Dependent NVC Communities Identified

NVC Code	NVC Community Name	Groundwater Dependency
M15	*Tricophorum cespitosum* – *Erica tetralix* wet heath	Moderate - High
M16	*Erica tetralix* – *Sphagnum compactum* wet heath	Moderate
M23	Juncus effusus / acutiflorus – Galium palustre rush-pasture	Moderate
MG10	*Holcus lanatus* – *Juncus effusus* rush-pasture	Moderate
U6	*Juncus squarrosus* – *Festuca ovina grassland*	Moderate

Habitat types are described below, communities are listed in alphanumeric order as recorded in the classification, not in order of ecological value.

M15 *Trichophorum cespitosum - Erica tetralix* wet heath - M15 occurs within a small area in the centre of the survey area within acid grassland. This community is considered to have moderate - high potential to be ground water dependent.

M16 *Erica tetralix – Sphagnum compactum* wet heath - M16 widespread within the survey area throughout grassland and heathland habitats. This community is considered to have moderate potential to be ground water dependent.

M23 *Juncus effusus / acutiflorus – Galium palustre* rush-pasture - One area in the centre of the survey area includes M23, within dry heathland habitat, and is considered to have moderate potential to be ground water dependent.

MG10 *Holcus lanatus – Juncus effusus* rush-pasture - This community occurs primarily to the south of the survey area, within *Holcus* – *Juncus* grassland, and is considered to have moderate potential to be ground water dependent.

U6 *Holcus lanatus – Juncus squarrosus – Festuca ovina grassland* - This community occurs within a small area in the centre of the survey area, within acid grassland, and is considered to have moderate potential to be ground water dependent.

Notable Flora

No flora species of significant conservation value (e.g. Priority or SBL species) were identified during the habitat surveys. A full botanical species list for the survey can be found in **Volume 4 Appendix 9.1** Habitat and Fauna Survey Walkover Report.

Protected Species

Protected Species (Non-Avian) Data Received via Data Requests

The Desk Study identified, through publicly available sources such as information held by the National Biodiversity Network Atlas (NBN Atlas) available for commercial use (under CC-BY licence), records of Scottish wildcat (*Felis silvestris*), otter (*Lutra lutra*) and water vole (*Arvicola amphibius*) within 2 km of the Proposed Development.

Data purchased from the HBRC, pertinent to the Study Area can be found in **Table 9.5.**

Table 9.5: HBRC Records Within the Study Area

Scientific Name	Common Name	Location	Number of records
Lutra lutra	Otter	1 km north of the Proposed Development	1
Bombus distinguendus	Great yellow bumblebee	0.8 km southwest of the Proposed Development	1
Lissotriton vulgaris	Smooth newt	1.1 km southwest of the Proposed Development	1

Protected Species (Non-Avian) Data from Surveys Undertaken

The following sections summarise the findings of surveys undertaken for the Proposed Development (**Volume 4 Appendix 9.A** Habitat and Fauna Survey Walkover Report). The findings are presented in **Volume 3 Figure 9.3.**

Badger (Meles meles)

No evidence of badger activity was recorded during the fauna species walkover surveys. Suitable habitat for badger foraging was present across some of the survey area with grassland that is currently or has previously been used for livestock. Areas of broadleaved woodland and coniferous plantation recorded were deemed suitable for use by badger for sett creation.

Pine marten (Martes martes)

No evidence of pine marten activity was recorded during the fauna species walkover survey. Areas of woodland habitat suitable for pine marten were present within the survey area.

Otter

No evidence of otter activity was recorded during the fauna species walkover survey. Water features located throughout the survey area, notably the Burn of Halkirk, located along the north and eastern boundary of the Proposed Development, as well as an unnamed waterbody in the south east of the survey area were considered suitable to support otter (including commuting, foraging, and resting up sites). However, the numerous field drains and smaller, unnamed burns throughout the survey area would likely only be used as

commuting corridors due to their shallow depth, narrow width and lack of suitability to support otter prey species, such as fish.

Water vole

No evidence of water vole activity was recorded during the fauna species walkover survey. Well vegetated sections of the Burn of Halkirk, located along the north and eastern boundary of the Proposed Development, where water flow rate slowed and the width of the watercourse increased, were deemed suitable habitat for water vole. Numerous field drains were also identified during the fauna species walkover survey which varied in their suitability to support water vole. An unnamed waterbody in the south east of the survey area was also deemed to provide suitable habitat for the species.

Red squirrel (Sciurus vulgaris)

No signs of red squirrel were noted during the walkover survey. There was suitable habitat for this species within the survey area within areas of broadleaved, mixed and coniferous woodland. Areas accessible were searched for signs of red squirrel activity, including dreys and feeding signs.

Wildcat

No field signs of wildcat were identified during the fauna species walkover survey. Wildcat have a preference for a mosaic of habitats including woodland edges, uplands with rough grazing and moorlands with limited pastures[36]. The majority of the survey area was considered unsuitable for wildcat; habitats were comprised of various modified grasslands that are currently or have previously been used for livestock. The wider landscape is similarly dominated by land utilised for arable or pastoral farming practices. The majority of woodland recorded within the vicinity of the Proposed Development were isolated blocks of conifer plantation, deemed to have little ecological value, to the south and south east of the survey area. One block of ancient woodland was identified within the survey area to the north of the Proposed Development, however connectivity to similar suitable habitats within the wider landscape is restricted by the dominance of open, grassland habitats utilised for farming.

Bats

Bat Roost Potential

There are various farm steadings present within the survey area. All except two of these buildings are located west of the Proposed Development and are separated from the Proposed Development by the A9, a major trunk road. Two further buildings are present to the north of the Proposed Development boundary, at distances of approximately 80 m and 190 m. None of the buildings within the survey area will be structurally impacted as a result of the Proposed Development. Temporary, construction related disturbance to any potential bat roosts within the buildings (e.g. noise and/ or light disturbance) has been scoped out of the assessment as there will be no development within the 30 m avoidance buffer (between the buildings within the survey area and the footprint of the Proposed Development) for bat roost disturbance. As such, the buildings within the survey area were not subject to a Bat Roost Assessment.

The majority of the woodland within the survey area, both inside the Proposed Development boundary and within the wider survey area to the south and east, was identified to be mixed plantation woodland; comprised of mainly coniferous and some limited broadleaved species. No trees with bat roost potential were identified within these woodland blocks. Conifer trees are generally considered to offer negligible potential to support roosting bats due to their lack of potential roosting features (PRFs)[36]. One area of broadleaved woodland in the north east of the survey area, sections of which were identified during the desk study as ancient woodland, encompassed trees which offered suitable PRFs (such as, split limbs, rot holes and hazard beams), suggesting roosting bats could be supported in the area. This area of broadleaved woodland was separated from the Proposed Development by a band of mixed woodland running adjacent to its northern boundary,

[36] Andrews H, et al (2013) Bat Tree Habitat Key. AEcol, Bridgwater

Bat Habitat Assessment

Habitats offering good foraging and commuting potential for bats include the areas of woodland, primarily the broadleaved woodland in the north east of the survey area; grassland habitats and areas of standing water (an unnamed waterbody was located in the south east of the survey area) and/ or running water, in particular the Burn of Halkirk which has broadleaved woodland running adjacent to it.

Bat Activity Assessment

Bat Activity Surveys revealed that bat activity within the survey area was low and dominated by common (*Pipistrellus pipistrellus*) and soprano (*Pipistrellus pygmaeus*) pipistrelle bats, both common and widespread species throughout Scotland. During automatic, static surveys a total of 519 bat passes were recorded over 195.17 survey hours, this equates to approximately 1 bat pass every 2 hours. During Night-time Walkover surveys only 15 bat passes were recorded.

Other Fauna

Amphibians and Reptiles

No sightings or evidence of amphibian activity was recorded during the fauna species walkover survey. Suitable habitat to support common species of amphibians, such as common frog (*Rana temporaria*) and common toad (*Bufo bufo*), existed in the form of grassland and bog habitats as well as numerous ditches throughout the survey area and an unnamed waterbody located in the south east.

No sightings or evidence of reptile activity was recorded during the fauna species walkover survey. The mosaic of grassland and woodland edge habitats present within the survey area was considered to offer suitable cover, shelter and foraging habitat for reptiles such as, common lizard (*Zootoca vivipara*) and adder (*Vipera berus*).

Invasive Non-Native Species

No invasive non-native fauna or flora species were recorded in the survey area at the time of survey.

Protected Species (Avian) Data Received via Data Requests

Records from RSPB indicate breeding lapwing (*Vanellus vanellus*), curlew (*Numenius arquata*) and snipe (*Gallinago gallinago*) within 2 km of the Proposed Development, as well as wintering pink-footed geese (*Anser brachyrhynchus*).

No breeding records of Wildlife and Countryside Act 1981 (as amended) Schedule 1 raptor records were identified from the HRSG data within 6 km of the Proposed Development.

Protected Species (Avian) Data from Surveys Undertaken

Breeding Bird Surveys

A total of 21 breeding bird species were recorded within the Survey Area as confirmed (CO), probable (PR) or possible (PO) breeding species during site surveys. Results are presented in **Table 9.6**. Full details of the Breeding Bird Surveys results are listed in **Volume 4 Appendix 9.2** and presented in **Volume 3 Figure 9.4.**

Table 9.6: Breeding Bird Species recorded as confirmed / probable / possible breeders within 2 km of the Proposed Development

Species	Number of territories / years			Conservation Status
	2023			
	CO	PR	PO	
Black bird (*Turdus merula*)			2	BoCC green list
Black cap (*Sylvia atricapilla*)			2	BoCC green list
Blue tit (*Cyanistes caeruleus)*			1	BoCC green list
Buzzard (*Buteo buteo*)		2		BoCC green list
Carrion crow (*Corvus corone)*			1	SBL

Chaffinch (*Fringilla Coelebs)*			4	BoCC green list
Coal tit (*Periparus ater*)			1	BoCC green list
Curlew (*Numenius Arquata)*		1	2	SBL BoCC red list
Goldfinch (*Carduelis carduelis*)			1	BoCC green list
Great tit (*Parus major)*			1	BoCC green list
Greenfinch (*Chloris chloris)*			2	BoCC red list
Lapwing (*Vanellus vanellus*)			1	SLB BoCC red list
Long-tailed tit (*Aegithalos Caudatus*)			1	BoCC green list
Meadow pipit (*Anthus pratensis)*		3	8	BoCC amber list
Pheasant (*Phasianus colchicus)*			1	n/a
Robin (*Erithacus rubecula)*				BoCC green list
Skylark (*Alauda Arvensis)*		1	3	SLB BoCC red list
Siskin (*Spinus spinus*)			2	SBL BoCC green list
Swallow (*Hirundo rustica)*			1	BoCC green list
Woodpigeon (*Columba Palumbus)*			1	BoCC amber list
Willow warbler (*Phylloscopus trochilus)*			1	SBL BoCC amber list

An additional 12 non-breeding species were recorded during the BBS visits. Of these, two and three species are red and amber BoCC listed, respectively, and two are on the SBL.

Flight Activity Surveys

All flights recorded within the 2 km viewshed from the VP covering the Proposed Development are shown in **Volume 3 Figure 9.5.** Data from VP surveys recorded flight activity by the following five species over at least part of the Proposed Development:

- herring gull (Larus argentatus) – on 20th February, 9 birds flew east to west, through the centre of the Site, over the location of the planned substation at height band B;
- common gull (*Larus canus*) – three fights:
  - On 7th March, a single bird flew through the southern corner of the Site within height band B, in a westerly direction; and,
  - on 10th April, 12 birds entered the north east corner of the Site and circled above the location of the proposed substation at height band B before heading off in an easterly direction;
  - on 14th September, 4 birds flew across the north eastern boundary of the Proposed Development, before heading east;
- greylag goose (*Anser anser*) – two fights:
  - on 10th April at approximately 08:41, two birds flew east to west, through the centre of the Site, over the location of the planned substation, within height band B; and,
  - on 10th April at approximately 09:25, three birds entered the Site from the south east corner and flew over the location of the planned substation, within height band C, in a westerly direction;
- pink-footed goose (*Anser brachyrhynchus*) – three flights

- on 10th April, 80 birds flew over the Site from the south west corner and flew in a northeasterly direction over the location of the planned substation, within height band B;
- on 1st November, 250 birds flew across the Proposed Development site from the southeast, passing over the site and heading to the northwest at height band C.
- on 29th November 25 birds flew across the north eastern edge of the Proposed Development from the southeast, at height band C.
- In addition, on 29th November, 12 unidentified geese (likely to be greylag or pink-footed geese) were also recorded passing over the site in a north westerly direction at height band C.

- golden eagle (*Aquila chrysaetos*) – on 23rd April, a single bird circled over the south east corner of the Site, within height band B, then turned and headed back in the easterly direction from which it came.

Wintering Goose Roost Surveys

No roosting or loafing geese were recorded on either waterbody within 2 km of the Proposed Development. No geese were recorded foraging on or within 500 m of the Proposed Development site, or commuting from known roosts to forage on the Proposed Development site.

However, a flock of 30 whooper swans was recorded on the loch south east of Banniskirk mains, approximately 1.1. km east of the Proposed Development, during flight activity surveys in September. Flocks of un-identified swans of up to 18 birds were recorded during March and April. Flocks of mute swans were recorded, with a flock of 50 birds recorded in September, and five birds in April.

Foraging goose surveys were undertaken across arable fields to the south and east of the Proposed Development as part of surveys for the proposed Spittal – Loch Buidhe – Beauly OHL 400 kV, with the nearest record of foraging geese approximately 3 km east of the Proposed Development. Waterfowl flights recorded during the goose VP surveys are shown in **Volume 3 Figure 9.6**.

9.4.2 Future Baseline

Should the Proposed Development not proceed, the future baseline situation would be expected to remain as per the baseline survey findings, with similar populations of protected species being maintained, as is currently the case; with the exception of natural population fluctuations and trends and the impact of climate change.

Scotland's environment[37] predicts that changes in climate that Scotland is already experiencing are projected to continue and intensify:

- Average temperatures will increase across all seasons;
- Typical summers will be warmer and drier;
- Typical winters will be milder and wetter;
- Intense, heavy rainfall events will increase in both winter and summer;
- Sea levels will rise;
- Reduced frost and snowfall; and
- Weather will remain variable and may become more variable.
- Impacts of climate change as described; wetter, warmer winters and extreme rainfall events in all seasons may lead to a reduced viability for some areas of forestry. Hotter drier summers may lead to exacerbated drying of wetland / peat forming habitats and other GWDTEs.

9.5 Assessment of Effects, Mitigation and Residual Effects

The assessment considers the potential impacts on designated sites, habitats, GWDTE, and protected species that could occur from the Proposed Development during design, construction and operation, for example:

- direct habitat loss due to permanent and temporary facilities;

[37] Scotland's Environment https://www.environment.gov.scot/our-environment/climate/changing-climate/#:~:text=Typical%20summers%20will%20be%20warmer,Sea%20levels%20will%20rise Accessed 19.07.2024.

- effects on habitats in the surrounds (e.g., from incursion by workforce, lighting, pollution / spillages, dust, effects on surface / groundwater);
- direct effects on fauna, including their killing and injury and the destruction of their places of shelter; and
- indirect effects on fauna species including disturbance / displacement.

9.5.1 Mitigation by Design

The Proposed Development was selected via an iterative design process as described in **Chapter 4 The Site Selection Process and Alternatives**. This applied the mitigation hierarchy and impacts to sensitive receptors were avoided where feasible and in balance with other competing interests.

9.5.2 Biodiversity Net Gain

A Biodiversity Net Gain (BNG) assessment was undertaken for the Proposed Development, with the aim of securing a positive effect for biodiversity through improvements to the condition and quality of baseline habitats present. A summary of the findings of the BNG assessment are presented in **Section 9.5.7**.

9.5.3 Embedded Mitigation

Embedded mitigation measures will be implemented during the construction work, including the timing of installation and careful siting of permanent and temporary structures to avoid or minimise interaction with sensitive receptors.

Compliance with project wide and site-specific environmental management procedures, with reference to SSEN Transmission GEMPs, will be implemented through the CEMP. This will describe the proposed approach to construction methods and environmental protection during construction of the Proposed Development, including details of ecological constraints and measures (e.g., no night-time working, control of light spill, noise emissions, pollution, avoiding incursion into habitats to be retained), procedures for surface water management and, pollution prevention guidelines.

SSEN Transmission has established GEMPs, which will be implemented through the CEMP. Based on ecologically sensitive receptors identified in this Impact Assessment, relevant GEMPs include, but are not limited to:

- Working in or Near Water;
- Bad Weather;
- Working in Sensitive Habitats;
- Forestry;
- Working with Concrete;
- Oil Storage and Refuelling;
- Waste Management;
- Soil Management;
- Dust Management;
- Biosecurity (On Land); and
- Restoration.

SSEN Transmission has well-established Species Protection Plans (SPPs) for a number of protected species, which have been developed in consultation with NatureScot and are currently being used across other SSEN Transmission projects. Each SPP provides details on what actions are required should species be encountered during construction of the Proposed Development. Based on the ecologically sensitive receptors identified in this Impact Assessment, relevant protection plans include, but are not limited to:

- Badger SPP;
- Bat SPP;

- Bird SPP;
- Freshwater Pearl Mussel SPP;
- Otter SPP;
- Red squirrel SPP;
- Water vole SPP;
- Wildcat SPP; and
- Pine marten SPP.

Embedded measures to protect biodiversity will include a pre-construction site survey of the Proposed Development boundary by a suitably qualified Ecological Clerk of Works (ECoW), focussing on habitats and species to be directly and indirectly impacted by the Proposed Development. The purpose of the survey would be to confirm any changes to, and update of the baseline, to confirm the data on which this impact assessment is based, are still true. Should a new species be identified, the appropriate SPPs (included within the CEMP) would be followed during construction of the Proposed Development and an assessment undertaken to understand the impacts the Proposed Development may have on that species, as well as any further measures that should be put in place, for example, protected species licensing.

A CTMP for the Proposed Development is also in draft and will be updated iteratively in advance of the start of construction and throughout the construction phase. Whilst it is not an ecology-focused plan it will help to avoid / manage effects on ecological features in the surrounds of the areas to be directly affected, for example to prevent spillages, discharges, and unnecessary incursion into habitats, as well as implementing speed limits etc. which may avoid or reduce direct mortality of species associated with vehicle collisions.

9.5.4 Assessment – Construction Effects

Designations

The closest designated site to the Proposed Development (and the only site designated for nature conservation within 2 km of the Proposed Development) is the River Thurso SAC, which is located approximately 1.48 km north west of the Proposed Development. The qualifying interest of the River Thurso SAC is Atlantic salmon (*Salmo salar*). Construction of the Proposed Development could result in run off of sediment into watercourses upstream of the SAC, which could result in reduction in habitat quality. In the event of a spill of fuel or chemical or of very high levels of suspended sediment, direct mortality of fish downstream could occur. The SAC is located over 1 km from the Proposed Development however, which will allow a degree of dispersal and dilution of any sediment or pollution. Due to the distance of the SAC from the Proposed Development, following embedded mitigation measures (which will mitigate pollution and sedimentation effects on the water environment (**Chapter 12 Hydrology, Hydrogeology, Geology and Soils**), no effects are predicted on the River Thurso.

Caithness Lochs SPA and Caithness and Sutherland Peatlands SPA were recorded 3.2 km north west and 6.6 km north west, respectively, of the Proposed Development. The SPAs are designated for supporting an assemblage of Annex 1 bird and regularly occurring migratory species (**Table 9.2**). The Proposed Development is within published connectivity distance[21]for the core range or foraging distance for red-throated diver and black-throated diver from the Caithness and Sutherland Peatlands SPA/Ramsar Site and within connectivity distance for whooper swan, greylag goose and Greenland white-fronted goose from Caithness Lochs SPA/Ramsar Site. Given the lack of suitable foraging habitat for divers within or close to the Proposed Development, no impacts on qualifying features of the Caithness and Sutherlands Peatlands SPA/Ramsar site are predicted. As the Proposed Development is within the core foraging range of whooper swan, greylag geese and Greenland white-fronted geese from Caithness Lochs SPA, effects on the Caithness Lochs SPA/Ramsar Site were subject to assessment within a Report to Inform HRA. Likely Significant Effects (LSEs) on Greenland white-fronted goose and greylag goose could not be scoped out during HRA screening and both were subject to a Shadow Appropriate Assessment (AA). The Shadow AA predicted that, following proposed mitigation measures, there would be **no adverse effect** on either receptor, and impacts will be **not significant**.

Two areas of ancient woodland were identified within 2 km of the Proposed Development, approximately 35 and 45 m north of the Proposed Development boundary. However, the construction footprint of the Proposed Development is located over 600 m from the closest area of ancient woodland. Furthermore, the land within the north of the Proposed Development boundary, closest to the ancient woodland, has been assigned for biodiversity enhancement. As such, no impacts on designated woodland are anticipated.

Habitats

The following section presents the construction phase impacts on habitats from the Proposed Development. A summary of permanent and temporary habitat impacts is presented in **Table 9.6**.

Grassland is the dominant habitat affected. Permanent loss of grassland habitat caused by the Proposed Development will occur from the creation of the substation platform upon which the substation infrastructure will be built. Further to this, permanent loss of grassland will be required to accommodate access tracks and Sustainable Drainage Systems (SuDS). It is currently anticipated that a single main construction compound will be required, the location of which is presented in **Volume 3 Figure 9.2.** The construction compound, detention ponds/ mound storage and earthworks associated with the construction of the substation platform will result in temporary habitat loss. The Principal Contractor will be responsible for removing the compound and reinstatement of habitat following completion of construction, including planting of the earthworks denuded of habitat during the construction phase.

Within the footprint of the Proposed Development area(s) of habitat classed as having moderate and moderate - high GWDTE will be lost due to the construction of the Proposed Development. Within this habitat, NVC surveys identified M15 *Scirpus cespitosus - Erica tetralix* wet heath and *M16 Erica tetralix – Sphagnum compactum* wet heath. Other areas of potential GWDTE include M23 *Juncus effusus / acutiflorus – Galium palustre* rush-pasture, MG10 *Holcus lanatus – Juncus effusus* rush-pasture and U6 *Juncus squarrosus - Festuca ovina* grassland.

Standard embedded mitigation measures will be implemented during the construction work including changes to work activities and mitigation during wetter periods and careful siting of permanent and temporary structures to avoid or minimise interaction with sensitive receptors.

A relatively small area of locally frequent GWDTE habitat[38] is to be permanently lost. Along with the implementation of embedded mitigation, the magnitude of the effects on GWDTE from the Proposed Development are predicted to be **negligible** and **no significant effects** are predicted.

The permanent[39] and temporary[40] loss of the habitats due to the construction of the Proposed Development are shown in **Table 9.7.** For those habitats listed in **Table 9.3** which are not mentioned in **Table 9.7**, there has been no impact (permanent or temporary) identified.

[38] Joint Nature Conservation Committee. National Vegetation Classification: Field Guide to Mires and Heaths. Joint Nature Conservation Committee, Peterborough. 2001.

[39] Permanent habitat loss – the permanent footprint of any component of the Project which will not be restored following construction.

[40] Temporary habitat loss – any component of the Project that will be restored following construction, for example temporary works area and temporary access tracks.

Table 9.7: Permanent and Temporary Habitat Impacts

Broad Habitat Type	Habitat Classification	Assessment	Substation - Permanent Habitat Loss (Ha)	Substation – Temporary Habitat Loss (Ha)
Grassland	Other lowland acid grassland	Upland acid grassland makes up 26.32 Ha within the Proposed Development boundary, this represents a potential loss of approximately 35%. This is a common and widespread habitat (Low Sensitivity), the habitat is abundant outwith the Proposed Development boundary (Low Magnitude) a minor impact is assigned and therefore **no significant impact** is anticipated.	9.25	2.61
	Neutral grassland	Neutral grassland makes up 1.07 Ha within the Proposed Development boundary, this represents a potential loss of approximately 24%. This is a common and widespread habitat (Low Sensitivity), the habitat is abundant outwith the Proposed Development boundary (Low Magnitude) a minor impact is assigned and therefore **no significant impact** is anticipated.	0.26	-
	Other neutral grassland	Other neutral grassland makes up 1.09 Ha within the Proposed Development boundary, this represents a potential loss of approximately 3%. This is a common and widespread habitat (Low Sensitivity), the habitat is abundant outwith the Proposed Development boundary (Low Magnitude) a minor impact is assigned and therefore **no significant impact** is anticipated.	0.03	0.00
	Holcus-Juncus neutral grassland	Holcus-Juncus neutral grassland makes up 31.65 Ha within the Proposed Development boundary this represents a potential loss of approximately 44%. This is a common and widespread habitat (Low Sensitivity), the habitat is abundant outwith the Proposed Development boundary (Low Magnitude) a minor impact is assigned and therefore **no significant impact** is anticipated.	7.98	5.79
Woodland and forest	Other woodland; mixed	Other woodland; mixed, makes up 17.17 Ha within the Proposed Development boundary this represents a potential loss of approximately 8%. Species recorded were primarily coniferous; coniferous woodlands typically display low species richness and are considered to have little ecological value (Low Sensitivity). A much greater extent of woodland (broadleaved, coniferous and mixed), with higher biodiversity value, was present outwith the Proposed Development boundary (Low Magnitude) a minor impact is assigned and therefore **no significant impact** is anticipated.	1.41	-

Heathland and shrub	Wetland heath with cross-leaved heath; upland	This habitat is afforded protection under the following legislation/ policies; Annex 1[14], SBL[27], LBAP[29]. Wetland heath with cross-leaved heath; upland, makes up 15.78 Ha within the Proposed Development boundary this represents a potential loss of approximately 42%. Due to the designations associated with this habitat (High Sensitivity) and the relatively small area impacted by the Proposed Development in the context of the wider environment (The Flow Country – approximately 880 Ha designated as a World Heritage Site on the basis of its peatland habitats) this is a small loss of relatively poor example of the habitat (Negligible Magnitude). A minor impact is assigned and therefore **no significant impact** is anticipated.	6.51	0.18
	Dry heaths; upland	This habitat is afforded protection under the following legislation/ policies; Annex 1[14], SBL[27], LBAP[29]. Dry heaths; upland, makes up 3.76 Ha within the Proposed Development boundary this represents a potential loss of approximately 96%. Due to the designations associated with this habitat (High Sensitivity) and the relatively small area impacted by the Proposed Development in the context of the wider environment (The Flow Country – approximately 880 Ha designated as a World Heritage Site on the basis of its peatland habitats) this is a small loss of relatively poor example of the habitat (Negligible Magnitude). A minor impact is assigned and therefore **no significant impact** is anticipated.	3.61	-
Wetland	Blanket bog	This habitat is afforded protection under the following legislation/ policies; Annex 1[14], SBL[27], LBAP[29]. Blanket bog makes up 5.18 Ha within the Proposed Development boundary this represents a potential loss of approximately 33%. Due to the designations associated with this habitat (High Sensitivity) and the relatively small area impacted by the Proposed Development in the context of the wider environment (The Flow Country – approximately 880 Ha designated as a World Heritage Site on the basis of its peatland habitats) this is a small loss of relatively poor example of the habitat (Negligible Magnitude). A minor impact is assigned and therefore **no significant impact** is anticipated.	0.73	0.50
Urban	Built linear features	No impact identified on account of a human made surface. **No significant impact**.	1.63	-

Protected Species

Badger

No signs of badger were observed during the protected species survey and no potential badger setts were identified within the survey area.

Suitable foraging habitat for badger is present across some of the survey area. However, much of the site is unsuitable for badger sett creation. Pre-construction surveys shall be undertaken within 100 m of construction works (given the expected high noise and vibration causing activities). Following preconstruction surveys, should a badger sett be identified, if avoidance is not possible, there is potential for an offence to be caused and a development licence would be required to disturb and / or destroy the sett. Combined with SSEN Transmission's embedded mitigation measures, including the badger SPP and GEMPs (e.g. forestry), effects on badgers, a common and widespread protected species in Scotland (Low sensitivity) from the Proposed Development are predicted to be of negligible magnitude and therefore **no significant effects** are predicted.

Pine Marten

No signs of pine marten were observed during the protected species survey and no potential pine marten shelters were identified within the survey area.

Woodland suitable to support pine marten was recorded within the survey area. Pre-construction surveys shall be undertaken within 100 m of construction works. Following preconstruction surveys, should a pine marten den be identified, if avoidance is not possible, there is potential for an offence to be caused and a development licence would be required to disturb and / or destroy the den. SSEN Transmission will utilise embedded mitigation measures, including their pine marten SPP and GEMPs (e.g. forestry) as standard to minimise the effects on any pine marten using the surrounding area. As a result of the measures described, effects on pine martens, a common and widespread protected species in the north of Scotland (Low sensitivity) from the Proposed Development are predicted to be of negligible magnitude therefore **no significant effects** are predicted.

Otter

No signs of otter were observed during the protected species survey and no potential otter shelters were identified within the survey area.

Watercourses within the survey area were considered sub-optimal for otters, primarily due to limited foraging opportunities; however, the Burn of Halkirk was noted to offer potential for the species. Less suitable watercourses within the survey area may be utilised by otters commuting between nearby, higher quality foraging habitat e.g. the River Thurso and Loch Watten. Pre-construction surveys of all watercourses within 200 m of construction works (up and downstream) shall be undertaken, given the expected high noise and vibration causing activities, to identify any changes to the baseline conditions. Following pre-construction surveys, should an otter shelter be identified, if avoidance is not possible and there is potential for an offence to be caused, a development licence would be required to disturb and / or destroy the shelter. SSEN Transmission will utilise embedded mitigation measures, including their otter SPP and GEMPs (e.g. working in or near water) to minimise the effects on any otters using the surrounding area and as a result, effects on otter (Medium sensitivity) from the Proposed Development are predicted to be of negligible magnitude therefore **no significant effects** are predicted.

Water vole

No signs of water vole were observed during the protected species survey and no potential water vole burrows were identified within the survey area.

Habitat capable of supporting water vole, in particular densely vegetated sections of the Burn of Halkirk, were recorded within the survey area. Pre-construction surveys of all watercourses within 30 m of construction works (up and downstream) shall be undertaken to identify any changes to the baseline conditions. Following pre-construction surveys, should water vole burrows be identified, If avoidance is not possible, there is potential for an offence to be caused and a development licence would be required to disturb and / or destroy the burrows. Combined with SSEN Transmission's embedded mitigation measures, including their water vole SPP and

GEMPs (e.g. working in or near water), effects on water vole (Medium sensitivity) from the Proposed Development are predicted to be of negligible magnitude and therefore **no significant effects** are predicted.

Red squirrel

No signs of red squirrel were observed during the protected species survey and no potential red squirrel shelters were identified within the survey area.

Woodland suitable to support red squirrel was recorded within the survey area. Pre-construction surveys shall be undertaken within 50 m of construction works. Following pre-construction surveys, should a red squirrel dreybe identified, if avoidance is not possible, there is potential for an offence to be caused and a development licence would be required to disturb and / or destroy the drey. SSEN Transmission will utilise embedded mitigation measures, including their red squirrel SPP and GEMPs (e.g. forestry) as standard to minimise the effects on red squirrel using the surrounding area. As a result, effects on red squirrel (Medium sensitivity) from the Proposed Development are predicted to be of negligible Magnitude therefore **no significant effects** are predicted.

Wildcat

No signs of wildcat were observed during the protected species survey and no potential wildcat shelters were identified within the survey area.

Habitats within the survey area were considered limited in their capacity to support wildcat. Much of the woodland was coniferous plantation forestry, considered to have little ecological value; more suitable blocks of broadleaved and mixed woodland were relatively isolated, with the wider landscape dominated by grassland habitats. Pre-construction surveys shall be undertaken within 200 m of construction works. Following preconstruction surveys, should a wildcat den be identified If avoidance is not possible, there is potential for an offence to be caused and a development license would be required to disturb and / or destroy the den. Combined with SSEN Transmission's embedded mitigation measures, including their wildcat SPP and GEMPs (e.g. forestry), effects on wildcat (High sensitivity) from the Proposed Development are predicted to be of negligible magnitude and therefore **not significant**.

Bats

Commuting and Foraging Habitat Assessment

Areas of primarily broadleaved woodland, grassland habitats and of standing, running water, in particular the Burn of Halkirk with adjacent broadleaved woodland, all offer good foraging and commuting potential for bats.

Loss of commuting and foraging habitats is anticipated to be minimal with the only suitable habitat affected being a small, isolated area of mixed plantation woodland, along with a few solitary broadleaved trees within the Proposed Development boundary. There is a greater extent of woodland within the wider survey area which will not be structurally impacted as a result of the Proposed Development. Combined with SSEN Transmission's embedded mitigation measures, including their bat SPP, effects on foraging and commuting bats (High Sensitivity) from the Proposed Development (Negligible Magnitude) are considered to be of negligible magnitude and therefore **not significant**.

Preliminary Bat Roost Assessment

No potential roost features were identified within the Proposed Development boundary.

The Proposed Development is situated within agricultural land, dominated by open habitats. One stand of mixed woodland, primarily comprised of coniferous trees, was recorded within the west of the Proposed Development boundary **(Volume 3 Figure 9.3**). Within the wider survey area nine trees were identified as having bat roost suitability, the closest tree was located approximately 60 m north of the Proposed Development boundary and approximately 300 m from the proposed substation platform where blasting activities may take place (**Volume 4 Appendix 9.1**). Given the distance of identified moderate potential roosts from proposed construction activity, not disturbance to roosts from construction noise is predicted.

Prior to felling all trees should be assessed (individually) for their potential to support roosting bats by an appropriately qualified and experienced person. Where a tree possesses negligible bat roost potential it shall be clearly marked and approved for felling.

Should a tree be identified as low, moderate or high bat roosting potential then appropriate survey effort should be undertaken in line with Bat Conservation Trust (BCT) guidelines prior to felling. Where necessary a licence may be required to remove and replace the roost. An ECoW shall be in attendance for any tree felling or delimbing and will supervise soft-felling as required whilst also ensuring the implementation of SSEN Transmission's bat SPP.

Combined with SSEN Transmission's embedded mitigation measures, including their bat SPP, effects on roosting bats (High Sensitivity) from the Proposed Development (Negligible Magnitude) are considered to be of negligible magnitude and therefore **not significant**.

Amphibian and Reptiles

No reptiles were recorded during the survey. Suitable reptile habitat, in the form of scrub and tussocky grassland, was present within the survey area and capable of supporting suitable basking and foraging behaviour.

Whilst reptiles were not recorded within the Proposed Development, it is likely that they are widespread and in low numbers in the wider area.

There are no licensing provisions to allow for the killing or injuring of reptiles and so measures must be put in place to minimise the risk of this happening and avoid an offence being committed. Timing works to avoid vegetation clearance and soil stripping during the period when reptiles may be hibernating (October – March) will avoid direct mortality. Pre-clearance checks of areas of vegetation, to be removed, by an appropriately qualified and experienced ECoW will reduce the likelihood of direct mortality.

Where avoidance is not possible, mitigation measures can be deployed such as fencing to prevent reptiles (and amphibians) from moving into areas where they could be killed or injured. Staged strimming of areas earmarked for development / disturbance can minimise risks to reptiles (and amphibians) by making existing habitat less favourable. By stacking the arisings away from work areas it is possible to create refuges for reptiles (and amphibians) to draw them away from work areas. Reptiles (and amphibians) can also be caught and translocated to suitable habitat so as not to be affected by the Proposed Development.

Implementation of measure to avoid the killing of reptiles will confer protection to amphibian species.

Combined with SSEN Transmission's embedded mitigation measures, effects on reptiles (and amphibians) (Low Sensitivity) from the Proposed Development are considered to be of negligible magnitude and therefore **not significant**.

Birds

Of the qualifying interest features of the Caithness Lochs SPA/ Ramsar site, Greenland white-fronted goose, graylag goose and whooper swan could potentially use the fields surrounding the Proposed Development to forage and/ or rest. The Proposed Development is within the published foraging connectivity distance of the Caithness Lochs for all of these species[21]. However, the Proposed Development will be constructed within land which has been classified under UK Habitat classifications as predominantly modified grassland; which is not considered to be optimal foraging habitat for wintering geese and swans, which prefer stubble fields and arable fields in autumn, with arable crops and sown grass (e.g *Lolium perene*) and arable crops through winter[41]. Baseline surveys did not record any SPA species using the fields which will be affected by the Proposed Development for foraging and/ or resting. Given the relatively enclosed nature of the sites with surrounding plantation woodlands which limit sightlines, its relatively small size, and the abundance of suitable alternative arable fields closer to the SPA/Ramsar Site, the affected fields represent a negligible part of the available foraging habitat, within the core foraging range for these species. Blasting and other high noise generating activity may cause disturbance to birds foraging on nearby fields, if blasting activity takes place over winter.

[41] https://www.bto.org/sites/default/files/mitchel_2012_mapping_distirbution_feeding_pinkfooted_and_greylag_geese_scotland_wwtsnh_report.pdf

Blasting will be infrequent (about once a week over a six-month period). However, the Project area is in an area with a number of active quarries, and crop scarers were recorded on site during baseline surveys. Birds are likely to be habituated or at least used to moving to other foraging areas in response to loud noises as part of the existing baseline. As a result, impacts are considered to be **not significant**.

A range of SBL, BoCC Red and Amber listed bird species were recorded during baseline breeding bird surveys that were typical of farmland, woodland and grassland habitats. Birds recorded are detailed within **Volume 4 Appendix 9.2** and included red listed species such as curlew, greenfinch, Lapwing and Skylark. The Proposed Development has a relativity small footprint and embedded mitigations measures of SSE SPPs will be adhered to during construction. The main impact to the breeding bird assemblage is temporary or permanent displacement caused by habitat loss and disturbance. However, there is suitable alternative habitat available locally and this is not expected to have a significant effect. Works should be undertaken outwith the breeding bird season as much as possible. Where work must be undertaken during the breeding bird season, nesting bird checks prior to vegetation removal will be undertaken by an ECoW no more than 48hrs prior to vegetation removal. If birds are found to be nesting, any works which may affect them should be delayed until the young have fledged and the nest abandoned naturally. With these measures in place, **no significant effects** on bird species from the Proposed Development are predicted.

9.5.5 Operational Phase

Designations

During operation of the Proposed Development, no effects are predicted upon sites designated for their international, national or local nature conservation importance. Effects on such designated sites from operation are predicted to be **not significant**.

Habitats

Operational impacts on habitats present within the Proposed Development are predicted to be not significant as the habitat lost have been accounted for during the construction phase. Maintenance of the habitats planted / reinstated will be necessary so they meet their target condition and will be undertaken in line with the Landscape Mitigation Plan (**Volume 3 Figure 8.5**). Habitat maintenance will be low impact and as such operational maintenance are predicted to be **not significant**.

Protected Species

During operation, site visits for operation and maintenance will be infrequent. Activities associated with routine habitat maintenance may yield temporary disturbing effects to protected species, which will be minimised through adherence to the appropriate SPP and GEMPs.

Following the implementation of proposed mitigation, significant effects on protected species which may be present during operation are predicted to be **not significant**.

Bats

During operation and maintenance of the proposed substation, the substation building(s) may become occupied by roosting bats. The presence of bat roosts within substation buildings may constrain some routine maintenance works which may need to be undertaken under licence. Inspections of substation building(s) should be undertaken in advance of any maintenance works which may lead to the disturbance or damage of a bat roost or the killing of bats. Works should adhere to the bat SPP and be undertaken in line with BCT guidance.

Following the implementation of proposed mitigation, significant effects on protected bat species which may be present during operation are predicted to be **not significant**.

Reptiles and Amphibians

During operation, activities associated with routine habitat maintenance may lead to the direct mortality of reptiles, implementation of safeguarding measures such as pre-works checks, and phased strimming of ground vegetation shall reduce the likelihood of killing reptiles (and amphibians).

Following the implementation of proposed mitigation, significant effects on protected reptile species which may be present during operation are predicted to be **not significant** and therefore **no significant effects** are predicted.

Birds

During operation of the Proposed Development, anticipated vehicular traffic and human activity are expected to be low. Coupled with the implementation of embedded mitigation, disturbance effects as a result of operational maintenance on the identified bird species that may be present during operation are predicted to be of negligible magnitude and therefore **no significant effects** are predicted.

Activities associated with routine habitat maintenance may result in temporary disturbance effects to nesting birds. This will be avoided through adherence to SSE's Bird SPP. As a result, impacts are predicted to be of negligible magnitude and therefore **not significant**.

9.5.6 Cumulative Effects

The greatest potential for cumulative effects arises when the construction phase of another development overlaps with the construction phase of the Proposed Development, although cumulative impacts may also occur from cumulative loss of habitat during the operational phases of projects. Details of all relevant identified current and planned developments are provided in **Table 5.2** in **Chapter 5: EIA Process and Methodology**, those relevant to ecology and ornithology receptors where cumulative impacts are considered likely are discussed below.

West of Orkney Windfarm Grid Connection

The EIAR for the proposed offshore windfarm concluded that no significant effects upon sensitive receptors were predicted during the construction phase.

It is therefore anticipated that the Proposed Development in combination with West of Orkney Windfarm Grid Connection is predicted to yield **no cumulative impacts**.

Ayre Windfarm Grid Connection

The proposed offshore Windfarm is **not considered a potential for cumulative effects** as construction for it is not due to commence until after construction for the proposed Development has concluded.

Watten Windfarm

Watten Windfarm is included in the list of developments considered for cumulative effects for completeness, in consistency with other chapters; however, at a distance of 5.5 km from the Proposed Development, the proposed Watten Windfarm is outwith the 4 km search area considered proportionate for cumulative effects associated with the Proposed Development.

It is therefore anticipated that the Proposed Development in combination with Watten Windfarm is predicted to yield **no cumulative impacts** on the majority of receptors. The potential exists for cumulative impacts on wide ranging species, including overwintering wildfowl from the Caithness Lochs SPA/Ramsar site. However, due to the lack of impacts on these receptors from the Proposed Development, **no cumulative impacts** are predicted.

Spittal to Peterhead Subsea High-voltage Direct Current (HVDC) and Underground Cable (UGC)

Timescales for construction of the proposed Spittal to Peterhead Subsea HVDC and UGC overlap that of the Proposed Development, hence its inclusion within the list of cumulative developments considered. However, given the nature of the development within the vicinity of the Proposed Development, an UGC, any environmental effects as a result of construction are likely to be low impact and temporary, with no anticipated operational effects.

It is therefore anticipated that the Proposed Development in combination with Spittal to Peterhead Subsea HVDC and UGC is predicted to yield **no cumulative impacts**.

Banniskirk to Spittal Substation HVDC UGC

Timescales for construction of the proposed Banniskirk to Spittal Substation HVDC UGC overlap that of the Proposed Development, hence its inclusion within the list of cumulative developments considered. However, given the nature of the development, an UGC, any environmental effects as a result of construction are likely to be low impact and temporary, with no anticipated operational effects.

It is therefore anticipated that the Proposed Development in combination with Banniskirk to Spittal Substation HVDC UGC is predicted to yield **no cumulative impacts**.

Beauly – Spittal 400 kV Overhead Line

The Beauly to Spittal OHL is not currently known to the planning system, other than through public consultations undertaken by SSEN Transmission.

Key impacts that are anticipated to arise for the proposed OHL potentially include impacts on protected species, including birds, including loss of habitat and loss of places of shelter. Further to this loss of habitats are likely to arise.

Standard mitigation as applied for the Proposed Development will also apply to the Beauly to Spittal OHL, minimising the potential impacts on species (through implementation of SPPs) and the effects of more environmentally hazardous construction activities (through implementation of GEMPs).

Habitat loss and effects on protected species as a result of the Proposed Development, following the implementation of proposed mitigation, are considered to be not significant.

It is therefore anticipated that the Proposed Development in combination with Beauly to Spittal OHL is predicted to yield **no cumulative impacts**.

9.5.7 Biodiversity Net Gain

The Proposed Development in relation to this initial baseline BNG assessment area comprises the habitats within the red line boundary. A summary of baseline biodiversity unit (BU) results for the Proposed Development can be found in **Table 9.8**.

Table 9.8: Baseline Biodiversity Unit results for the Site

Habitat Type	Baseline Biodiversity Units	Post-Development Biodiversity Units	Difference in Biodiversity Units	Difference in Biodiversity Units (%)	Biodiversity Units Required Off-site to achieve a 10% gain
Area Units	876.82 BU	643.11 BU	-233.72 BU	-27 %	321.39 BU
Linear (Watercourses) Units	103.75 LU (W)	36.24 LU (W)	-67.51 LU (W)	-65 %	77.86 LU (W)

Irreplaceable habitat within the site consists of blanket bog in good condition (2.13 ha). Blanket bog on site could not be retained due to ground clearance works and its occurrence under Proposed Infrastructure.

Opportunities for habitat creation on-site were limited by the nature of the Proposed Development, however Biodiversity Units will be optimised on-site through the creation of grassland, woodland and forest, wetland and riverine habitat. As it was not possible to deliver the net gain on-site, suitable offsite provision will be provided by the Applicant to deliver net gain to ensure that the Proposed Development will overall achieve positive effects for biodiversity, leaving the natural environment in a demonstrably better state than before development work began.

9.5.8 Mitigation

Mitigation for the Proposed Development is split into three categories, mitigation by design, embedded mitigation and additional mitigation.

Mitigation by Design

Details of mitigation by design are provided in **Chapter 3 The Site Selection process and alternatives**.

Embedded Mitigation

Details of embedded mitigation measures are provided in **Section 9.5.3**.

Additional Mitigation

Additional / specific mitigation is detailed within **Section 9.5.4 – 9.5.5** and sets out any further measures required to reduce the residual impact to not significant. These are also listed below. A summary of all measures is provided in **Chapter 15 Schedule of Mitigation.**

- Careful siting of permanent and temporary structures to avoid or minimise interaction with sensitive receptors;
- Where avoidance is not possible, mitigation measures can be deployed such as fencing to prevent reptiles (and amphibians) from moving into areas where they could be killed or injured;
- Staged strimming of areas earmarked for development / disturbance can minimise risks to reptiles (and amphibians) by making existing habitat less favourable;
- Works should be undertaken outwith the breeding bird season as much as possible. Where work must be undertaken during the breeding bird season, nesting bird checks prior to vegetation removal will be undertaken by an Environmental Clerk of Works (ECoW) no more than 48hrs prior to vegetation removal;
- If birds are found to be nesting, any works which may affect them should be delayed until the young have fledged and the nest abandoned naturally (to be confirmed by an ECoW);
- Maintenance of the habitats planted / reinstated will be necessary so they meet their target condition and will be undertaken in line with the Landscape Mitigation Plan; and
- Inspections of substation building(s) should be undertaken in advance of any maintenance works which may lead to the disturbance or damage of a bat roost or the killing of bats.

9.6 Summary

This Chapter has considered the potential effects of the Proposed Development on the ecological receptors. Habitat present within the footprint of the Proposed Development has the potential to support protected species. Preconstruction checks to confirm that no protected species are present prior to construction commencing are recommended. Abundant suitable habitat is present in the wider area for any displaced protected species.

The Proposed Development has followed the mitigation hierarchy to avoid harm to ecological features through careful site selection and mitigating effects through embedded and additional mitigation to ensure there are no residual significant effects.

Compensation for the permanent loss of habitat due to the Proposed Development has been implemented and is evidenced through the use of SSEN Transmission's Biodiversity Net Gain metric. Opportunities for habitat creation on-site were limited by the nature of the Proposed Development, however Biodiversity Units will be optimised on-site through the creation of grassland, woodland and forest, wetland and riverine habitat. As it was not possible to deliver the net gain on-site, suitable offsite provision will be provided by the Applicant to deliver net gain to ensure that the Proposed Development will overall achieve positive effects for biodiversity, leaving the natural environment in a demonstrably better state than before development work began.

The conclusions of the Report to Inform the Habitats Regulation Assessment are that given the sub-optimal habitat provided by the Proposed Development site, and the lack of records of geese and swans using the site for foraging during baseline surveys, and with suggested mitigation measures in place, the Proposed Development, alone or in combination, is not predicted to have an adverse effect on the integrity on the designated features of the Caithness Lochs SPA and Ramsar site.

Following the implementation of the proposed embedded and additional mitigation measures outlined throughout this Chapter, there are **no significant residual impacts** on sensitive receptors predicted as a result of the Proposed Development.