Scottish & Southern Electricity Networks

TRANSMISSION

Spittal to Loch Buidhe to Beauly 400 kV OHL Connection

Environmental Impact Assessment

Volume 5 | Technical Appendix

Appendix 8.7 | Report to Inform Habitat Regulations Appraisal (Caithness and Sutherland Peatlands SPA)

July 2025

Scottish & Southern Electricity Networks

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Spittal – Loch Buidhe – Beauly 400 kV OHL Connection

Habitats Regulations Appraisal (HRA) Report to inform Appropriate Assessment Caithness and Sutherland Peatlands Special Protection Area and Ramsar Site

July 2025

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TRANSMISSION

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1 INTRODUCTION

1.1.1 This report has been produced to inform the Habitats Regulations Appraisal (HRA) process for Scottish and Southern Electricity Networks Transmission ("SSEN Transmission") application for consent to construct and operate the Spittal to Loch Buidhe to Beauly 400 kV Overhead Line (OHL) Connection (the "Proposed Development"). The project description and overview of the HRA process are presented in the HRA Screening Assessment Report (Screening Assessment) (**Volume 5, Appendix 8.7**). The Screening Assessment presents the HRA Stage 1 Screening Stage assessment of the Proposed Development with respect to its potential to have a Likely Significant Effect (LSE) on European and Ramsar sites of nature conservation importance, either alone or in-combination with other plans or projects.

1.1.2 Separate reports have been produced for each European or Ramsar site identified in the HRA Screening Report as requiring further assessment.

1.1.3 This report provides information to allow the Competent Authority (i.e. the Scottish Ministers for the Proposed Development) to undertake an HRA Stage 2 Appropriate Assessment (AA) for the Caithness and Sutherland Peatlands Special Protection Area (SPA) and Ramsar site (bird features only; non-bird interests are considered in a separate report for the Caithness and Sutherland Peatlands SAC and Ramsar Site (non-bird features)). The SPA is 147,726.55 ha in size and is designated[1] as it qualifies under Article 4.1 of the Birds Directive by regularly supporting populations of European importance as set out in Annex 1 (of the Birds Directive): 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 alpina schinzii*) (1993 and 1994, 1,860 pairs, 20% of the GB population).

1.1.4 The Caithness and Sutherland Peatlands SPA further qualifies under Article 4.2 by regularly supporting populations of European importance of the migratory species: common scoter (*Melanitta nigra)* (2007, at least 21 pairs, <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, <0.1% of the Western Siberia/ Northwestern/ Northeastern Europe biogeographic population and at least 10.8% of the GB population).

1.1.5 The Ramsar Site[2] is 145,960.53 ha in size and qualifies under Ramsar Criterion 1 by virtue of it supporting a variety of wetland types, Criterion 2 by supporting nationally scare plants, a nationally scarce water beetle, otter (*Lutra lutra*) and fresh water pearl mussel (*Margaritifera Margaritifera*) and by supporting breeding populations listed under the SPA description above of red-throated diver, black-throated diver, golden plover, wood sandpiper and dunlin. The Ramsar Site also qualifies under Ramsar Criterion 4 by supporting breeding populations listed under the SPA description above of wigeon, common scoter and greenshank. Effects on non-ornithological features of the Ramsar site are assessed in a separate document.

[1] NatureScot Site Link – Caithness and Sutherland Peatlands SPA Citation https://www.nature.scot/sites/default/files/special-protection-area/8476/spa-citation.pdf

[2] NatureScot Site Link – Caithness and Sutherland Peatlands Ramsar Citation https://www.nature.scot/sites/default/files/ramsar-site/8412/ramsar-site-citation.pdf

2 METHODOLOGY

2.1 Introduction

2.1.1 The approach to the HRA has followed that set out in the Conservation of Habitats and Species Regulations 2017, as amended ('The Habitats Regulations') and NatureScot guidance on the consideration of plans or projects affecting SACs and SPAs [3] [4] [5]. It has also taken account of a range of other guidance material including the DTA Publications HRA Handbook [6] and that produced by the European Commission (EC) 2018a [7], 2018b [8], 2007 [9], 2002 [10].

2.2 Overview of the HRA Process

2.2.1 The HRA process comprises four main stages:

- **Stage 1 Screening** to identify the likely effects of a project on a European site and consider whether the effects are likely to be significant.
- **Stage 2 Appropriate Assessment** to determine whether the integrity of the European site will be adversely affected by the Project.
- **Stage 3 Assessment of Alternative Solutions** to establish if there are any that will result in a lesser effect on the European site.
- **Stage 4 Imperative Reasons of Overriding Public Interest (IROPI)** and **Compensatory Measures** to establish whether it is necessary for the project to proceed despite the effects on the European site, and to confirm that necessary compensatory measures are in place to maintain the coherence of the National Site Network.

2.2.2 The term "Habitats Regulations Appraisal" encompasses both the initial screening stage and, where required, the follow-on Stages 2 – 4. Stage 1 Screening was described in the HRA Screening Report and will not be considered in this report. Stage 2 is discussed in more detail in the following section.

2.3 Stage 2 – Appropriate Assessment

2.3.1 An AA is undertaken by the Competent Authority to determine potential effects of a project upon the integrity of European sites. As the person applying for consent, the Applicant should provide and analyse sufficient information to allow the Scottish Ministers to determine whether the aspects of the project pertinent to their consents will or will not adversely affect the integrity of European sites.

2.3.2 AA should exclusively focus on the qualifying features of the European site, and it must consider any impacts on the conservation objectives of those qualifying interests. It should also be based on and supported by evidence that can stand up to scientific scrutiny. EC guidance states that without proper reasoning the assessment does not fulfil its purpose and cannot be considered 'appropriate' and therefore the development cannot be consented. In terms of what is reasonable, guidance states "*to identify the potential risks, so far as they may be reasonably foreseeable in the light of such information as can be reasonably obtained*" [11].

3 NatureScot (Updated 2025) Habitats Regulations Appraisal (HRA) Guidance. Accessed July 2025 at https://www.nature.scot/professional-advice/planning-and-development/environmental-assessment/habitats-regulations-appraisal-hra
4 NatureScot (2022). European Site Casework Guidance – How to consider plans and projects affecting Special Areas of Conservation (SACs) and Special Protection Areas (SPAs).
5 NatureScot (2019). Guidance Note - The handling of mitigation in Habitats Regulations Appraisal - the People Over Wind CJEU judgement.
6 Tyldesley, D. and Chapman, C. (2013) The Habitats Regulations Assessment Handbook, December 2024 edition UK, DTA Publications Limited.
7 European Commission (2018). Managing Natura 2000 sites. The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC.
8 European Commission (2018). Guidance on energy transmission Infrastructure and EU nature legislation.
9 European Commission (2007). Guidance Document on Article 6(4) of the Habitats Directive 92/43/EEC.
10 European Commission (2002). Assessment of plans and projects significantly affecting Natura 2000 sites.
11 NatureScot (2001). Natura casework guidance: Consideration of proposals affecting SPAs and SACs.

2.3.3 In undertaking an AA, there are two phases:

- a scientific evaluation of all the likely significant effects of the project on the relevant qualifying interests of a European site; and
- a conclusion based on outcomes of the scientific evaluation as to whether the integrity of a European site will be compromised.

2.3.4 The initial onus when carrying out AA is to prove that no adverse impacts due to a project will occur, either alone or in-combination with other projects, which would compromise a European site's integrity (Section 63(5) & (6) of the Habitats Regulations). Site integrity can be defined as: "*The coherence of its ecological structure and function, across its whole area that enables it to sustain the habitat, complex of habitats and/or the levels of populations of the species for which it was classified*" [12].

2.3.5 The assessment will consider any avoidance or mitigation measures which will be implemented to avoid or reduce the level of impact from the project. The Competent Authority may also consider the use of conditions or restrictions to help avoid adverse effects on site integrity.

2.3.6 If the AA concludes that the integrity of the European site would be adversely affected, consent can only be granted if there are no alternative solutions, IROPI is applicable and compensatory measures have been secured (Section 64 of the Habitats Regulations).

12 NatureScot (2014). Natura casework guidance: How to consider plans and projects affecting Special Areas of Conservation (SACs) and Special Protection Areas (SPAs).

3 INFORMATION TO INFORM THE APPROPRIATE ASSESSMENT

3.1 Introduction

3.1.1 The Screening Assessment determined that an AA was required for the Caithness and Sutherland Peatlands SPA and Ramsar site because the potential for LSEs cannot be ruled out for the following qualifying interest features for which the SPA was designated[13]:

- wigeon (*Anas penelope*);
- common scoter (*Melanitta nigra*)
- golden plover (*Pluvialis apricaria*);
- dunlin (*Calidris alpina*);
- greenshank (*Tringa nebularia*);
- red-throated diver (*Gavia stellata*);
- golden eagle (*Aquila chrysaetos*);
- hen harrier (*Circus cyaneus*);
- short-eared owl (*Asio flammeus*); and
- merlin (*Falco columbarius*).

3.1.2 The LSEs on qualifying interest features within the SPA and Ramsar Site are considered to result from the potential for:

- direct loss of supporting habitat within and outwith the SPA;
- indirect loss of habitat due to disturbance and displacement;
- direct loss from mortality due to collision with infrastructure; and
- barrier effects as a result of the presence of infrastructure.

3.1.3 The potential effects where LSE was predicted for each qualifying interest features are listed in **Table 3-1.**

Table 3-1: Caithness and Sutherland Peatlands SPA and Ramsar - features for which Potential LSEs have been identified

Feature	Designated Site	Potential LSEs			
		Direct habitat loss	Indirect habitat loss	Accidental mortality	Barrier effects
Wigeon, breeding	Caithness and Sutherland Peatlands SPA and Ramsar		✓		
Common scoter, breeding	Caithness and Sutherland Peatlands SPA and Ramsar		✓	✓	✓
Golden plover, breeding	Caithness and Sutherland Peatlands SPA and Ramsar	✓	✓		

[13] NatureScot Site Link – Caithness and Sutherland Peatlands SPA Citation https://www.nature.scot/sites/default/files/special-protection-area/8476/spa-citation.pdf

Feature	Designated Site	Potential LSEs			
		Direct habitat loss	Indirect habitat loss	Accidental mortality	Barrier effects
Dunlin, breeding	Caithness and Sutherland Peatlands SPA and Ramsar	✓	✓		
Greenshank, breeding	Caithness and Sutherland Peatlands SPA and Ramsar	✓	✓		
Red-throated diver, breeding	Caithness and Sutherland Peatlands SPA and Ramsar			✓	✓
Golden eagle, breeding	Caithness and Sutherland Peatlands SPA		✓	✓	✓
Hen harrier, breeding	Caithness and Sutherland Peatlands SPA	✓	✓	✓	✓
Short-eared owl, breeding	Caithness and Sutherland Peatlands SPA		✓	✓	✓
Merlin, breeding	Caithness and Sutherland Peatlands SPA	✓	✓	✓	✓

3.1.4 This section assesses the impacts of the Proposed Development on the qualifying interest features in relation to the conservation objectives for the site. The aim is to identify whether no adverse effect can be concluded (as described in **Section 2**), or whether there will be adverse effects on the integrity of the Caithness and Sutherland Peatlands SPA and Ramsar site.

3.1.5 The assessment has drawn on the ornithology survey findings which are presented within **Volume 2, Chapter 9 Ornithology** of the Environmental Impact Assessment Report ("EIA Report") and associated Technical Appendices in **Volume 5**.

3.2 Conservation Objectives and Latest Assessed Condition

3.2.1 The Conservation Objectives (COs)[14] for the qualifying interest features of the Caithness and Sutherland Peatlands SPA are set out in **Table 3-2**. There are no COs set for Ramsar sites.

Table 3-2: Conservation Objectives for Caithness and Sutherland Peatlands SPA

Qualifying Interest Feature	Conservation Objectives
The overarching COs for all features of the Caithness and Sutherland Peatlands SPA	• To avoid deterioration of the habitats of the qualifying species or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained; and • To ensure for the qualifying species that the following are maintained in the long term:

[14] NatureScot Site Link – Caithness and Sutherland Peatlands SPA COs https://www.nature.scot/sites/default/files/special-protection-area/8476/conservation-objectives.pdf

Qualifying Interest Feature	Conservation Objectives
	• Population of the species as a viable component of the site; • Distribution of the species within the site; • Distribution and extent of habitats supporting the species; • Structure, function and supporting processes of habitats supporting the species; and • No significant disturbance of the species.

3.2.2 The latest assessed site condition of the qualifying interest features of the SPA / Ramsar site are listed in **Table 3-3**, as detailed on the NatureScot SiteLink[15][16] site.

Table 3-3 Summary of Site Condition

Qualifying Interest Feature	Latest Assessed Condition	Date of Assessment	Negative Pressures
Wigeon, breeding	Favourable Maintained	8 Jun 2018	Burning
Common scoter, breeding	Unfavourable declining	15 March 2017	To be identified
Golden plover, breeding	Favourable Maintained	28 Jun 2023	Burning Foresty operations Recreation/disturbance Water management
Dunlin, breeding	Favourable Maintained	28 Jun 2023	Burning Forestry operations Water management
Greenshank, breeding	Favourable Maintained	28 Jun 2023	Water management
Red-throated diver, breeding	Favourable Maintained	31 Jul 2006	Burning Over grazing (deer)
Golden eagle, breeding	Favourable Maintained	31 Aug 2016	Burning Recreation/disturbance
Hen harrier, breeding	Favourable Maintained	21 Jun 2016	Burning Over grazing
Short-eared owl, breeding	Condition Not Assessed	-	Burning
Merlin, breeding	Favourable Maintained	31 Jul 2004	Burning Recreation/disturbance

3.3 Potential Impacts and Relevant Mitigation Measures

3.3.1 Figure 1 illustrates the location of the Proposed Development in relation to the Caithness and Sutherland Peatlands SPA / Ramsar site. The proposed development lies within the SPA / Ramsar site. Permanent infrastructure associated with Towers no. 24, 25, 26, 27, 28, 33, 34, 35, 36, and 37 and a short section of permanent access track are situated within the SPA / Ramsar site. The Screening Assessment, taking a

[15] NatureScot 2025. Caithness and Sutherland Peatlands SPA. Accessed Jan 2025 at: https://sitelink.nature.scot/site/8476
[16] NatureScot 2025. Caithness and Sutherland Peatlands Ramsar. Accessed Jan 2025 at: https://sitelink.nature.scot/site/8412

precautionary approach, concluded that in the absence of mitigation, it is possible that construction activities could result in LSEs on the SPA / Ramsar site from direct and indirect impacts on qualifying interest feature species.

3.3.2 Embedded project mitigation measures are set out in the Environmental Impact Assessment Report (EIAR) and the General Environmental Management Plans (GEMPs) (**Volume 5, Appendix 3.3: GEMPS**), Species Protection Plans (SPPs) (**Volume 5, Appendix 3.4: SPPs**) and will be further reinforced in the final Construction Environmental Management Plan (CEMP) (an outline CEMP has been included in **Volume 5, Appendix 3.6**).

3.3.3 The Bird SPP has been developed in consultation with NatureScot and kept under review to ensure that it is in line with current guidance, and, if appropriate, updated accordingly. Measures within the Bird SPP relevant to the SPA / Ramsar site include, but are not limited to:

- The Ecological Clerk of Works (ECoW) will review whether construction activities are likely to affect breeding birds and, if so, what mitigation options are available. A hierarchical approach to mitigation will be applied to any occupied bird habitat that may be affected under the Project works. Priority will be given to assessing and mitigating impacts to species listed on Schedule 1 of the Wildlife and Countryside Act (1981 as amended).
- The ECoW will attend site on a regular basis throughout the construction period to ensure all environmental mitigation relevant to breeding birds is delivered.
- A hierarchical approach to mitigation of Programme / Avoid / Risk Assess will be applied to any birds that may be affected under the Project works. Works to be programmed outwith breeding season, where practicable.
- Appropriate protection zones will be put in place (see Appendix A of Bird SPP and will be set by the ECoW. The minimum and maximum protection distance for capercaillie is recommended to be 500 – 750m [17].
- A Protected Species Risk Assessment will be completed by the ECoW when works need to be done in protection zones, to assess if disturbance can be avoided.
- An emergency procedure will be implemented if breeding birds are encountered, with all works within 50 m (non-scheduled species) or max protection distance (scheduled species) immediately ceasing.
- Specific mitigation such as dissuasion techniques (habitat management, active dissuasion/disturbance) and removal of disused nests.

3.3.4 The embedded mitigation measures set out in the EIAR follow industry best practice and are routinely deployed on SSEN Transmission projects. They will be stipulated in construction contracts and the implementation and audit of these measures will be overseen by a suitably qualified and experienced Environmental / Ecological Clerk of Works (ECoW).

3.3.5 Additional mitigation measures were also identified in relation to LSE on SPA/Ramsar site qualifying features, including the following:

3.3.6 Common Scoter:

- Common scoter was recorded on Loch Stemster in April 2024, suggesting birds utilise the site as a staging post to breeding lochans further inland. All works within the advised common scoter disturbance distance (500 m) of Loch Stemster in April and May will be overseen by an ECoW with buffer zones implemented to avoid disturbance to common scoter on the loch.

[17] Disturbance Distances in selected Scottish Bird Species – NatureScot Guidance | NatureScot

- A flock of post breeding common scoter was recorded on Loch Toftingall in August 2024, indicating that the loch is likely to be an important staging post for post-breeding SPA birds. All felling and construction work undertaken during August and September will be overseen by an ECoW, with buffer zones implemented to avoid disturbance to common scoter flocks on the loch.
- Bird flight diverters will be installed along the earth wire of the Proposed Development adjacent to both lochs (towers 14-22 and 46- 51). Given the potential for common scoter to migrate at night, flight diverters which are visible at night will be installed..

3.3.7 Red-throated diver:

- Flight diverters installed at Loch Toftingall (towers 14-22) will reduce the risk of collision of SPA red-throated divers foraging at this loch.

3.3.8 Golden eagle:

- Bird flight diverters which will be installed to reduce collision risk to a number of other species will also benefit golden eagle in areas where concentrations of flights were recorded. This includes sections proposed for red-throated diver and common scoter (towers 46-51 and towers 14-22) and hen harrier (towers 24-29, 33-38 and 55-66).

3.3.9 Hen harrier:

- Bird flight diverters will be installed between towers 24-28 and 33-38 where the Proposed Development passes through the Caithness and Sutherland Peatlands SPA / Ramsar site and towers 55-66 where relatively high levels of flight activity were recorded to reduce collision risk to hen harriers breeding in the SPA. Bird flight diverters which will be installed to reduce collision risk to a number of other species will also benefit hen harriers in areas where concentrations of flights were recorded. This includes sections proposed for common scoter (towers 46-51) and herring gull (95-99).

3.4 Assessment of Effects

3.4.1 The Proposed Development passes through the Caithness and Sutherland Peatlands SPA / Ramsar site for approximately 2.5 km. **Table 3-4** below sets out the permanent and temporary loss of habitat within the SPA / Ramsar site.

Construction of the Proposed Development will result in approximately 0.18 ha of permanent direct habitat loss and approximately 7.46 ha of temporary direct habitat loss within the SPA / Ramsar site boundary. Indirect effects resulting in potential changes in plant species composition around proposed infrastructure may also occur, but these are not expected to alter the suitability of affected habitats for qualifying bird species. The habitats lost to the Proposed Development within the SPA / Ramsar site predominantly comprise blanket bog and wet grassland. The area of permanent habitat lost equates to approximately 0.0001% of the total area of the SPA / Ramsar site.

Wigeon

Indirect Habitat Loss

No breeding territories of wigeon were recorded during baseline surveys in 2023 or 2024 within Section A, including within the SPA/Ramsar site. The Proposed Development will not affect any named waterbodies, however there are a number of small bog pools in the SPA/Ramsar site, which could potentially support breeding pairs of wigeon, within potential disturbance distance of the Proposed Development.

3.4.2 Embedded mitigation measures, including avoiding construction works that could disturb breeding birds, and oversight of works by an ECoW will avoid disturbance to breeding pairs. If birds are displaced from suitable breeding habitat during construction of the Proposed Development, they are likely to use suitable alternative

habitat which is abundant to the east and west of the Proposed Development. As a result, no adverse effects on wigeon in relation to the conservation objectives for the site are predicted.

Common scoter

Indirect Habitat Loss

3.4.3 No breeding territories were recorded during baseline surveys in 2023 or 2024 and disturbance or displacement of breeding birds as a result of construction of the Proposed Development is not predicted. Embedded mitigation measures will avoid disturbance to any breeding pairs that attempt to establish new territories on waterbodies within potential disturbance distance (500 m) of the Proposed Development prior to or during construction. During baseline surveys, adult and juvenile birds were recorded towards the end of the breeding season on Loch Toftingall (approximately 1km north of the SPA/Ramsar site), likely representing a staging post for juvenile and post-breeding birds prior to birds moving offshore to winter. Two adult birds recorded in April on Loch Stemster but not recorded breeding there later in the year may represent spring passage birds migrating to a breeding lochan further inland, and also potentially part of the SPA / Ramsar site population, representing another pair, with all birds recorded representing up to 24 % of the SPA / Ramsar population. Construction activity during the passage period has the potential to result in disturbance to this loch. As a result, all works within the advised common scoter disturbance distance (500 m) of Loch Toftingall in April and May and Loch Stemster in August and September will be overseen by an ECoW with buffer zones implemented to avoid disturbance to common scoter on the lochs. With these measures in place, disturbance to staging common scoter will be negligible and no adverse effects on common scoter from habitat loss in relation to the conservation objectives for the site are predicted.

Accidental Mortality

3.4.4 Common scoter was not recorded in flight during FAS however birds were record on both Loch Toftingall and Loch Stemster. Common scoter is known to migrate at night and birds are likely to cross the Proposed Alignment on route to breeding lochans on passage. Although seaduck can forage feed over 24hrs during the breeding seasons in Arctic areas with continual daylight, they tend to be diurnal at lower latitudes[18] and therefore regular nocturnal flights during the breeding season are considered unlikely. However, given the presence of common scoter recorded on Loch of Toftingall and Loch Stemster, and the potential for these lochs to act as staging posts for birds moving between wintering and breeding grounds, there is the potential for flight activity to be concentrated at these lochs. As a result bird flight diverters will be installed along the earth wire of the Proposed Development within 1 km of both lochs (towers 13-23 and 44- 52). Given the potential for common scoter to migrate at night, flight diverters which are visible at night will be installed. With additional mitigation measures in place, no adverse effects on common scoter from collision mortality in relation to the conservation objectives for the site are predicted.

Barrier Effects

3.4.5 Common scoter was not recorded in flight during FAS and no regular flights across the Proposed Development are predicted. Common scoter is known to migrate at night and birds are likely to cross the Proposed Alignment on route to breeding lochans on passage. Although seaduck can forage feed over 24hrs during the breeding seasons in Arctic areas with continual daylight, they tend to be diurnal at lower latitudes[19] and therefore regular nocturnal flights during the breeding season are considered unlikely. There is an existing 132 kV OHL which runs in parallel or in proximity to the Proposed Development in Section A between Halsary Wind Farm and

[18] Hancock, M.H., Robson, H.J., Smith, T,D. & Douse, A. (2019) Spatial and temporal patterns of foraging activity by breeding Common Scoters (*Melanitta nigra*) in Scotland. Ornis Fennica 96: 124–141. 2019

[19] Hancock, M.H., Robson, H.J., Smith, T,D. & Douse, A. (2019) Spatial and temporal patterns of foraging activity by breeding Common Scoters (*Melanitta nigra*) in Scotland. Ornis Fennica 96: 124–141. 2019

Ousdale in Section A which birds migrating to breeding sites within the SPA from the east must already cross, indicating existing OHLs do not pose a barrier to migration. As a result it is considered that birds would not treat the Proposed Development as a barrier to movement and no adverse effects from barrier effects on common scoter in relation to the conservation objectives for the site are predicted.

Golden plover

3.4.6 No golden plover flights were recorded crossing the proposed alignment within potential connectivity distance of the SPA/Ramsar site and so collision and barrier effects have been screened out.

Direct Habitat Loss

3.4.7 Construction of the Proposed Development is predicted to result in a permanent direct loss of 0.18 ha of habitat within the Caithness and Sutherland Peatlands SPA and Ramsar site. This equates to approximately 0.0001 % of the total area of the SPA/Ramsar site. There will be a temporary direct loss of approximately 7.46 ha of habitat within the SPA /Ramsar site however it is anticipated that golden plover will return to suitable foraging habitat after construction. Across Section A of the Proposed Development (which is the section within potential connectivity distance of the core range of golden plover (of 3 km) there will be a total permanent loss of approximately 26.5 ha of suitable grassland and moorland habitat for foraging and nesting golden plover, although the majority of this habitat will be beyond 3 km from the SPA. Given the very small percentage of the SPA/Ramsar site permanently lost as a result of the Proposed Development, and the reversable nature of the temporary loss, the impact on supporting habitat for golden plover is considered to be negligible and will not result in an adverse effect on golden plover in relation to the conservation objectives of the site. There is abundant alternative suitable habitat within 3 km of the SPA which golden plover will be able to utilise. and the loss of approximately 24 ha of supporting habitat outside of the SPA is also not predicted to result in an adverse effect on golden plover in relation to the conservation objectives for the site.

Indirect Habitat Loss through Disturbance and Displacement

3.4.8 No golden plover territories were recorded during breeding bird surveys in 2023 or 2024 within the species advised disturbance distance of 500 m from the Proposed Development. Two golden plover territories were recorded within the SPA/Ramsar site, however both were beyond 700m from the Proposed Development. Embedded mitigation measures will avoid disturbance to any nest sites if birds establish new territories close to the Proposed Development during construction. Birds foraging across the Proposed Development, including those from the Caithness and Sutherlands Peatlands SPA/Ramsar site population, may be temporarily displaced during construction, however construction activity will be limited to discrete locations at any one time leaving abundant suitable foraging habitat available. Birds are anticipated to return to forage in habitats under and around the OHL during operation. As a result. no adverse effects on golden plover from disturbance and displacement in relation to the conservation objectives for the site are predicted

Dunlin

3.4.9 No dunlin flights were recorded crossing the proposed alignment within potential connectivity distance of the SPA/Ramsar site and so collision and barrier effects have been screened out.

Direct Habitat Loss

3.4.10 Construction of the Proposed Development is predicted to result in a permanent direct loss of approximately 0.18 ha of habitat within the Caithness and Sutherland Peatlands SPA and Ramsar site. This equates to approximately 0.0001 % of the total area of the SPA/Ramsar site. There will be a temporary direct loss of 7.46 ha of habitat within the SPA /Ramsar site however it is anticipated that dunlin will return to suitable foraging habitat after construction. Across Section A of the Proposed Development (which is the section within potential connectivity distance of the core range for dunlin of 500 m) there will be a total permanent loss of

approximately 26.5 ha of suitable grassland and moorland habitat for foraging and nesting dunlin although the majority of this habitat will be beyond 500 m from the SPA. Given the very small percentage of the SPA/Ramsar site permanently lost as a result of the Proposed Development, and the reversable nature of the temporary loss, the impact on supporting habitat for dunlin is considered to be negligible and will not result in an adverse effect on dunlin in relation to the conservation objectives of the site. There is abundant alternative suitable habitat within 500 m of the SPA which dunlin will be able to utilise, and the permanent loss of approximately 26.5 ha of supporting habitat outside of the SPA is not predicted to result in an adverse effect on dunlin in relation to the conservation objectives for the site.

Indirect Habitat Loss through Disturbance and Displacement

3.4.11 Three possible dunlin territories were recorded during baseline surveys, however none of the territories were within the species' NatureScot advised 200 m disturbance distance of the Proposed Development, and none were within the species core range of 500 m of the SPA/Ramsar site. The closest territory was approximately 700m to the west of the Proposed Development. Embedded mitigation measures will avoid disturbance to any nest site if birds establish new territories close to the Proposed Development during construction. Birds foraging across the Proposed Development, including those from the Caithness and Sutherlands Peatlands SPA/Ramsar site population, may be temporarily displaced during construction. However construction activity will be limited to discrete locations at any one time leaving abundant suitable foraging habitat available. Birds are anticipated to return to forage in habitats under and around the OHL during operation. As a result, no adverse effects on dunlin from disturbance and displacement in relation to the conservation objectives for the site are predicted

Red-throated diver

3.4.12 During the breeding season, red-throated divers typically exhibit a connectivity range of less than 8 km; however, regular flights of 11-13.5 km have been observed in the Western Isles. In the non-breeding season, the species is pelagic. No breeding red-throated diver were recorded within potential disturbance distance of the Proposed Development within the SPA /Ramsar site and so impacts from loss of habitat or disturbance were screened out.

Accidental Mortality

3.4.13 During the Flight Activity Surveys (FAS) of Section A, thirteen flights of red-throated divers were recorded. Five of these were recorded within the red-throated diver connectivity distance of 8km from the SPA/Ramsar site, none of which crossed the proposed alignment. In Section B, a single flight was observed which was within connectivity distance of the SPA/Ramsar site and which did not cross the proposed alignment. While the recorded flight numbers were relatively low, it is plausible that actual flight activity is higher than indicated, as additional flights, particularly at dawn or dusk to foraging lochs, may have been underrepresented in the surveys.

3.4.14 Whilst red-throated divers have been calculated to have a good ability to avoid onshore wind farms (99.5% avoidance64) similar calculations have not been made for avoidance of OHLs. It is likely that red-throated divers coming to and from coastal foraging areas will have crossed and avoided the existing 132 kV OHL which runs parallel to the Proposed Development approximately 3-4 km to the east, thereby indicating some ability to avoid similar infrastructure.

3.4.15 Flights recorded within connectivity distance of the SPA /Ramsar site included birds above Loch Toftingall and above Loch Brora. As a result, mitigation measures have bene proposed, comprising installing bird flight diverters between towers 219 - 223 to mitigate collision risk for birds foraging at Loch Brora and between towers 14-22 at Loch Toftingall where birds originating from the Caithness and Sutherland Peatlands

SPA/Ramsar site may forage. With these mitigation measures in place, no adverse effects on common scoter from collision mortality in relation to the conservation objectives for the site are predicted.

Barrier Effects

3.4.16 Barrier effects occur where the vertical configuration of wires and towers creates an actual or perceived barrier which birds may not cross. There are existing 132 kV OHL and 275 kV OHL which run in parallel or in proximity for much of the length to the Proposed Development which baseline surveys have shown are frequently crossed by birds. This demonstrates that birds habituate to the presence of OHLs. Due to the bird's ability to adapt their behaviour to avoid OHLs, the presence of the Proposed Development is not anticipated to have a negative effect on the integrity of red-throated diver at Caithness and Sutherland Peatlands SPA. There are not predicted to be any barrier effects on red-throated diver movement no adverse effects from barrier effects on red-throated diver in relation to the conservation objectives for the site are predicted.

Greenshank

3.4.17 No greenshank flights were recorded to crossing the Proposed Alignment during baseline surveys. Collision mortality and barrier effects have therefore not been screened in.

Direct Habitat Loss

3.4.18 Construction of the Proposed Development is predicted to result in a permanent direct loss of approximately 0.18 ha of habitat within the Caithness and Sutherland Peatlands SPA/Ramsar site. This equates to approximately 0.0001 % of the total area of the SPA/Ramsar site. There will be a temporary loss of 7.46 ha of habitat within the SPA/Ramsar site however it is anticipated that greenshank will return to suitable foraging habitat after construction. Across Section A of the Proposed Development (which is the section within potential connectivity distance of the core range for dunlin of 500 m) there will be a total permanent loss of approximately 15.95 ha of suitable grassland and moorland habitat for foraging and nesting greenshank although the majority of this habitat will be beyond 500 m from the SPA. Given the very small percentage of the SPA/Ramsar site permanently lost as a result of the Proposed Development, and the reversable nature of the temporary loss, the impact on supporting habitat for greenshank is considered to be negligible and will not result in an adverse effect on greenshank in relation to the conservation objectives of the site. There is abundant alternative suitable habitat within 500 m of the SPA which greenshank will be able to utilise, and the permanent loss of approximately 15.95 ha of supporting habitat outside of the SPA is not predicted to result in an adverse effect on greenshank in relation to the conservation objectives for the site.

Indirect Habitat Loss

3.4.19 During breeding bird surveys, two possible greenshank territories were recorded. One was recorded north of Loch Rangnag approximately 730 m west of the Proposed Development. Another possible territory not identified during breeding bird surveys may be present south of Halsary Windfarm where territorial behaviour was recorded during FAS, with adult birds recorded mobbing a buzzard and singing approximately 980 m east of the Proposed Development. Both territories are within the core foraging range of greenshank (2km) from the SPA/Ramsar site and are therefore considered to be part of the SPA/Ramsar site population. However neither territory is within the NatureScot advised disturbance distance of 500m of the Proposed Development. Embedded mitigation measures will avoid disturbance to any nest site if birds establish new territories close to the Proposed Development during construction. Birds foraging across the Proposed Development, including those from the Caithness and Sutherlands Peatlands population, may be temporarily displaced during construction. However, construction activity will be limited to discrete locations at any one time leaving abundant suitable foraging habitat available. Birds are anticipated to return to forage in habitats under and around the OHL during operation. As a result, no adverse effects on greenshank from disturbance and displacement in relation to the conservation objectives for the site are predicted.

Golden eagle

Direct Habitat Loss

3.4.20 Construction of the Proposed Development is predicted to result in approximately 0.18 ha of permanent direct habitat loss within the SPA / Ramsar site boundary. This equates to approximately 0.0001% of the total area of the SPA/Ramsar site. There will be a temporary loss of approximately 7.46 ha of habitat within the SPA /Ramsar site however it is anticipated that golden eagle will return to suitable foraging habitat after construction. Across Section A of the Proposed Development (which is the section within potential connectivity distance of the core range for golden eagle of 6km from the SPA), approximately 26.6 ha of suitable habitat for foraging golden eagle will be permanently lost and approximately 150 ha temporarily lost although the majority of this habitat will be beyond 500 m from the SPA. A further approximately 50 ha of habitat will be permanently converted as a result of felling forestry along the proposed alignment. Given the very small percentage of the SPA/Ramsar site permanently lost as a result of the Proposed Development, and the reversable nature of the temporary loss, the impact on supporting habitat for golden eagle is considered to be negligible and will not result in an adverse effect on golden eagle in relation to the conservation objectives of the site. There is abundant alternative suitable habitat within 6 km of the SPA which golden eagle will be able to utilise, and the permanent loss of approximately 26.6 ha of supporting habitat outside of the SPA is not predicted to result in an adverse effect on golden eagle in relation to the conservation objectives for the site.

Indirect Habitat Loss through Disturbance and Displacement

3.4.21 No golden eagle territories were identified within the NatureScot advised disturbance distance for the species (1km) during baseline surveys or from desk based records for the last five years and so no disturbance of nest sites of the SPA population will occur.

3.4.22 There is the possibility that the Proposed Alignment could result in a loss of suitable hunting habitat within each territory during construction of the Proposed Development. During operation it is assumed that eagles will fly and hunt across the Proposed Development, with baseline surveys confirming flights by golden eagles across existing OHLs. In a study of behavioural response to grid infrastructure by a related species (Bonelli's eagle), response was observed to vary between individual eagles, with some birds being attracted by the additional perch points offered by the new lattice towers, whereas others exhibit avoidance behaviour of the new structure (Marques, A. et al., 2022) [20].

3.4.23 Three territories were identified within the species 6 km core foraging range from the Proposed Development within Section A. None of the territories were located within the Caithness and Sutherland Peatlands SPA/Ramsar site however one nest site is approximately 500 m from the Caithness and Sutherland Peatlands SPA/Ramsar site and the pair here may form part of the qualifying feature golden eagle population.

3.4.24 This territory is 5.5 km west of the of the Proposed Development. Three flights were recorded within the core foraging range from the nest site during baseline surveys, of which two crossed the Proposed Alignment. The relatively low level of activity recorded during baseline surveys is suggestive that the location of the Proposed Development does not represent a key component of the foraging habitat for the pair occupying this territory, with more suitable foraging habitat situated to the west of the Proposed Development closer to the nest site. Assuming a 6 km core territory and avoidance of birds from a 1 km corridor along the Proposed Alignment during construction, birds would be displaced from approximately 5.2 km^2 within the territory during construction, representing approximately 4.6% of their hunting range. Given the abundant alternative foraging habitat closers to the nest site, and the temporary and localised nature of any disturbance and displacement

[20] Individual variability of responses to power lines on a long-lived territorial raptor. Marques, A.T., Palma, L., Lourenço, R., Cangarato, R., Leitão, A., Mascarenhas, M., Tavares, J.T., Tomé, R., Moreira, F. & Beja, P. 2022 Ecology and Evolution. doi: 10.1002/ece3.8811

during construction, no adverse effects on golden eagle from disturbance and displacement in relation to the conservation objectives for the site are predicted.

Accidental Mortality

3.4.25 Golden eagle was recorded in flight on 36 occasions with 29 instances of flights crossing the Proposed Alignment at CRH in Section A. No flights within 6km of the SPA were recorded crossing the proposed alignment in other Sections of the Proposed Development. Flight activity was fairly evenly spaced along the alignment in Section A with the largest concentration of flight activity centred north and west of Helmsdale. Seven flights were recorded crossing the proposed alignment within the core foraging range for golden eagle (6 km) of the Caithness and Sutherland Peatlands SPA/Ramsar site.

3.4.26 FAS recorded a number of instances of golden eagle crossing existing 132Kv and 275Kv OHLs across Section A indicating the species ability to successfully cross existing OHLs. Avoidance rates have not been calculated for OHLs for bird species in Scotland, however, avoidance rates calculated for onshore wind farms suggest golden eagles have a good ability to avoid obstacles in flight (99% avoidance). The risk of collision with OHLs is considered to be relatively low, however on a precautionary basis bird flight diverters will be installed between towers 14-22, towers 24-29, towers 33-38, towers 46-51 and towers 55-66 to reduce collision risk. With mitigation measures in place, collision risk impacts are predicted to be negligible, and no adverse effects on golden eagle from collision mortality in relation to the conservation objectives for the site are predicted.

Barrier Effects

3.4.27 Barrier effects occur where the vertical configuration of conductors and towers creates an actual or perceived barrier which birds may not cross. There is an existing 132 kV OHL which runs in parallel or in proximity to the Proposed Development between Halsary Wind Farm and Ousdale in Section A, at East Clyne and between the River Fleet and Kyle of Sutherland in Section B and C where baseline FAS recorded golden eagles crossing the existing overhead line. This, together with survey data from other areas of Scotland, demonstrates that birds habituate to the presence of OHLs. It is considered that birds would not treat the Proposed Development as a barrier to movement. As a result, no adverse effects on golden eagle from barrier effects in relation to the conservation objectives for the site are predicted.

Hen harrier

Direct Habitat Loss

3.4.28 Construction of the Proposed Development is predicted to result in approximately 0.18 ha of permanent direct habitat loss within the SPA / Ramsar site boundary. This equates to approximately 0.0001% of the total area of the SPA/Ramsar site. There will be a temporary loss of approximately 7.46 ha of habitat within the SPA /Ramsar site however it is anticipated that hen harrier will return to suitable foraging habitat after construction. Across Section A of the Proposed Development (which is the section within potential connectivity distance of the core range for hen harrier of 2km from the SPA, approximately 26.6 ha of suitable habitat for breeding, foraging and roosting by hen harrier will be permanently lost and approximately 150 ha temporarily lost although the majority of this habitat will be beyond 500 m from the SPA. A further approximately 50 ha of habitat will be permanently converted as a result of felling forestry along the Proposed Alignment. Given the very small percentage of the SPA/Ramsar site permanently lost as a result of the Proposed Development, and the reversable nature of the temporary loss, the impact on supporting habitat for hen harrier is considered to be negligible and will not result in an adverse effect on hen harrier in relation to the conservation objectives of the site. There is abundant alternative suitable habitat within 2 km of the SPA which hen harrier will be able to

utilise, and the permanent loss of approximately 26.6 ha of supporting habitat outside of the SPA is not predicted to result in an adverse effect on hen harrier in relation to the conservation objectives for the site.

Indirect Habitat Loss through Disturbance and Displacement

3.4.29 During construction breeding hen harrier may be displaced within the NatureScot advised 350-750 m disturbance distance for the species. Hen harriers have a core foraging range of 2 km. Construction activity will result in a temporary loss of habitat associated with displacement of birds from construction areas; however, this impact will be restricted to individual tower locations at any one time and will be short term and temporary in nature.

3.4.30 Three probable, one possible and three historic breeding territories were identified through baseline surveys or data provided by HRSG within 750 m of Section A of the Proposed Development. Of these, one probable territory was recorded within Caithness and Sutherland Peatlands SPA/Ramsar site and all three records from HRSG were of territories within 2 km of the SPA/Ramsar site and could form part of the SPA/Ramsar site population. If all four of the territories linked to the SPA population were disturbed and displaced, this would affect 29% of the SPA population of 14 pairs. However embedded mitigation measures, including avoiding construction works that could disturb breeding birds, and oversight of works by an ECoW will avoid disturbance to breeding pairs. If birds are displaced from suitable breeding habitat during construction of the Proposed Development, they are likely to use suitable alternative habitat which is abundant to the east and west of the Proposed Development and which has been used historically. Displacement during operation is not predicted. As a result no adverse effects on hen harrier from disturbance and displacement in relation to the conservation objectives for the site are predicted.

Accidental Mortality

3.4.31 Hen harrier was recorded in flight on 99 occasions within Section A with 31 flights crossing the Proposed Alignment, 20 of which were at CRH. 11 of these flights at CRH were within the core foraging range of the species of 2 km from the SPA. No other Sections of the Proposed Development are within 2 km of the SPA. Avoidance rates have not been calculated for OHLs for bird species in Scotland; however, avoidance rates calculated for onshore wind farms suggest hen harrier have a good ability to avoid obstacles in flight (99 % avoidance). Baseline surveys recorded hen harriers foraging across and under existing OHLs and the species is considered to generally have a low risk of collision with OHLs. However anecdotal evidence indicates a higher risk of juvenile birds colliding with OHLs. As a result, given the relatively high concentration of historic territories in the north of Section A bird flight diverters will be installed between towers 24-29, tower 33-38 and between tower 55-66. Bird flight diverters which will be installed to reduce collision risk to a number of other species will also benefit hen harriers in areas where concentrations of flights were recorded. This includes sections proposed for common scoter (towers 46-51) and herring gull (95-99). With additional mitigation measures in place, no adverse effects no on hen harrier from collision mortality in relation to the conservation objectives for the site are predicted.

Barrier Effects

3.4.32 Barrier effects occur where the vertical configuration of conductors and towers creates an actual or perceived barrier which birds may not cross. There is an existing 132 kV OHL which runs in parallel or in proximity to the Proposed Development between Halsary Wind Farm and Ousdale in Section A, at East Clyne and between the River Fleet and Kyle of Sutherland in Section B and C where baseline FAS frequently recorded hen harriers crossing these existing overhead lines. This, together with survey data from other areas of Scotland, demonstrates that birds habituate to the presence of OHLs. As a result it is considered that birds would not treat

the Proposed Development as a barrier to movement. As a result, no adverse effects on hen harrier from barrier effects in relation to the conservation objectives for the site are predicted.

Short eared owl

Direct Habitat Loss

3.4.33 Construction of the Proposed Development is predicted to result in approximately 0.18 ha of permanent direct habitat loss within the SPA / Ramsar site boundary. This equates to approximately 0.0001% of the total area of the SPA/Ramsar site. There will be a temporary direct loss of approximately 7.46 ha of habitat within the SPA /Ramsar site however it is anticipated that short-eared owl will return to suitable foraging habitat after construction. Across Section A of the Proposed Development (which is the section within potential connectivity distance of the core range for short-eared owl of 2km from the SPA, approximately 26.6 ha of suitable habitat for breeding, foraging and roosting by short-eared owl will be permanently lost and approximately 150 ha temporarily lost although the majority of this habitat will be beyond 500 m from the SPA. A further approximately 50 ha of habitat will be permanently converted as a result of felling forestry along the Proposed Alignment. Given the very small percentage of the SPA/Ramsar site permanently lost as a result of the Proposed Development, and the reversable nature of the temporary loss, the impact on supporting habitat for short-eared owl is considered to be negligible and will not result in an adverse effect on short eared owl in relation to the conservation objectives of the site. There is abundant alternative suitable habitat within 2 km of the SPA which short-eared owl will be able to utilise, and the permanent loss of approximately 26.6 ha of supporting habitat outside of the SPA is not predicted to result in an adverse effect on short-eared owl in relation to the conservation objectives for the site.

Indirect Habitat Loss

3.4.34 During construction breeding short-eared owl may be displaced within the NatureScot advised 300-500 m disturbance distance for the species. Short-eared owls have a core foraging range of 2 km. Construction activity will result in a temporary loss of habitat associated with displacement of birds from construction areas; however, this impact will be restricted to individual tower locations at any one time and will be short term and temporary in nature.

3.4.35 No breeding territories of short-eared owl were recorded during breeding bird surveys of Section A and no territories were identified through the desk-based assessment, although given the secretive nature of the species, breeding territories can be hard to detect. One flight was recorded during winter raptor roost surveys, but it did not cross the Proposed Alignment, and no roosting activity was recorded during surveys.

3.4.36 Embedded mitigation measures, including avoiding construction works that could disturb breeding or roosting birds, and oversight of works by an ECoW will avoid disturbance to breeding pairs or winter roosts. If birds are displaced from suitable breeding or roosting habitat during construction of the Proposed Development, they are likely to use suitable alternative habitat which is abundant to the east and west of the Proposed Development. Displacement during operation is not predicted. As a result, no adverse effects on short eared owl from disturbance and displacement in relation to the conservation objectives for the site are predicted.

Accidental Mortality

3.4.37 No short-eared owl flights were recorded to cross the Proposed Alignment at CRH, with the majority of all flights recorded below CRH of birds hunting low over grassland. The risk of collision mortality is therefore considered

to be negligible and no adverse effects on short eared owl from collision mortality in relation to the conservation objectives for the site are predicted.

Barrier Effects

3.4.38 Barrier effects occur where the vertical configuration of conductors and towers creates an actual or perceived barrier which birds may not cross. There were relatively few flights recorded of short-eared owl during FAS, with the majority of flights below CRH. Birds are expected to fly under the conductors of Proposed Development, and for no barrier effects to occur. As a result, no adverse effects on short eared owl from barrier effects in relation to the conservation objectives for the site are predicted.

Merlin

Direct Habitat Loss

3.4.39 Construction of the Proposed Development is predicted to result in approximately 0.18 ha of permanent diect habitat loss within the SPA / Ramsar site boundary. This equates to approximately 0.0001% of the total area of the SPA/Ramsar site. There will be a temporary direct loss of approximately 7.46 ha of habitat within the SPA /Ramsar site however it is anticipated that merlin will return to suitable foraging habitat after construction. Across Section A of the Proposed Development (which is the section within potential connectivity distance of the core range for merlin of 5km from the SPA, approximately 26.6 ha of suitable habitat for breeding, foraging and roosting by merlin will be permanently lost and approximately 150 ha temporarily lost although the majority of this habitat will be beyond 500 m from the SPA. A further approximately 50 ha of habitat will be permanently converted as a result of felling forestry along the Proposed Alignment. Given the very small percentage of the SPA/Ramsar site permanently lost as a result of the Proposed Development, and the reversable nature of the temporary loss, the impact on supporting habitat for merlin is considered to be negligible and will not result in an adverse effect on merlin in relation to the conservation objectives of the site. There is abundant alternative suitable habitat within 5 km of the SPA which merlin will be able to utilise, and the permanent loss of approximately 26.6 ha of supporting habitat outside of the SPA is not predicted to result in an adverse effect on merlin in relation to the conservation objectives for the site.

Indirect Habitat Loss

3.4.40 During construction breeding merlin may be displaced within the NatureScot advised 300-500 m disturbance distance for the species. Merlin have a core foraging range of 5 km. Construction activity will result in a temporary loss of habitat associated with displacement of birds from construction areas; however, this impact will be restricted to individual tower locations at any one time and will be short term and temporary in nature.

3.4.41 Baseline surveys recorded three possible breeding merlin territories were recorded during baseline surveys of Section A. No territories within the SPA/Ramsar site were identified, and all territories were beyond 5km from the SPA/Ramsar site.

3.4.42 Embedded mitigation measures, including avoiding construction works that could disturb breeding birds, and oversight of works by an ECoW will avoid disturbance to breeding pairs. If birds are displaced from suitable breeding habitat during construction of the Proposed Development, they are likely to use suitable alternative habitat which is abundant to the east and west of the Proposed Development. Some pairs re-nest within 300 m of a previous year's nest in subsequent years, and some up to 3.5 km from previous nest (Hardey et al, 2013).

Displacement during operation is not predicted. As a result, no adverse effects on merlin from disturbance and displacement in relation to the conservation objectives for the site are predicted.

Accidental Mortality

3.4.43 Merlin was recorded in flight on 40 occasions with 14 flights crossing the Proposed Alignment within Section A, at CRH. All other Sections of the alignment are beyond 5km from the SPA/Ramsar site. None of the flights recorded crossing the proposed alignment where within merlin's core foraging range of 5km from the SPA/Ramsar site. Merlin typically hunt over moorland rapidly pursuing passerine prey and are highly manoeuvrable. As a result, the risk of collision mortality is considered to be negligible and no adverse effects on merlin from collision mortality in relation to the conservation objectives for the site are predicted.

Barrier Effects

3.4.44 Barrier effects occur where the vertical configuration of conductors and towers creates an actual or perceived barrier which birds may not cross. There is an existing 132 kV OHL which runs in parallel or in proximity to the Proposed Development in Section A between Halsary Wind Farm and Ousdale in Section A, at East Clyne and between The River Fleet and Cornhill in Section B. Baseline FAS frequently recorded merlin crossing these existing overhead lines. As a result, it is considered that birds would not treat the Proposed Development as a barrier to movement and no adverse effects on short eared owl from barrier effects in relation to the conservation objectives for the site are predicted.

3.5 In-combination Assessment

3.5.1 **Table 3-5** below sets out those projects within potential connectivity distance of the Caithness and Sutherland Peatlands SPA/Ramsar site which could result in in-combination effects on the sites with the Proposed Development.

Table 3-4: Relevant Current and Planned Developments Situated Within Potential Connectivity Distance of Caithness and Sutherland Peatlands SPA/Ramsar Site with potential for In-Combination Effects

Development	Distance from Proposed Development	Relevant Sections of the Proposed Development	Status	Ornithology Features Identified in neighbouring EIA reports	Potential For In combination Effects
List of Projects considered for "inter-project" effects					
Ayre Wind Farm Grid Connection	Adjacent	A	Scoping Application Decision Issued	Golden eagle as a qualifying feature of Caithness and Sutherland Peatlands SPA;	There is insufficient information available at this time on the impacts of the Ayre Offshore Wind Farm Grid Connection to undertake an in-combination assessment. It is assumed that when it is prepared, the HRA for Ayre Offshore Wind Farm Grid Connection will assess in-combination effects with the Proposed Development.
Watten Wind Farm	Adjacent	A	Under Consideration	Hen harrier, merlin, breeding red-throated diver as qualifying features of Caithness and Sutherland Peatlands SPA.	NatureScot concluded that with appropriate mitigation measures in place, including a habitat management plan, the project would not adversely impact the features of the SPAs.
Garvary Wind Farm	Adjacent	B, C	Under Consideration	Breeding: red-throated diver, black-throated diver, golden plover, dunlin, wood sandpiper, golden eagle, hen harrier, short-eared owl, and merlin as qualifying features of Caithness and Sutherland Peatlands SPA / Ramsar site.	The EIAR identified potentially significant impacts upon the SPA and its qualifying species, though subsequent assessment concluded that as a stand-alone development, it presented no significant impacts. The cumulative assessment concluded that there were no significant effects arising from disturbance and displacement upon qualifying species and designated sites, but did identify potentially significant cumulative impacts of collision risk (in relation to the SPA populations), for golden plover, golden eagle and hen harrier, and therefore a (cumulative) collision risk assessment was carried out for the these species. The assessment concluded that with the adoption of embedded mitigation measures and a specific management plan for golden eagle, the cumulative collision risk for all species was low / not significant.

Development	Distance from Proposed Development	Relevant Sections of the Proposed Development	Status	Ornithology Features Identified in neighbouring EIA reports	Potential For In combination Effects
Balblair Wind Farm	Adjacent	C	Scoping Application Decision Issued	The project is currently at scoping stage. Based on the proposed location of Blablair Wind Farm, potential cumulative impacts could occur on Caithness and Sutherland Peatlands SPA/Ramsar site.	There is insufficient information available at this time on the impacts of Balblair Wind Farm to undertake an in-combination assessment. It is assumed that when it is prepared, the HRA for Balblair Wind Farm will assess in-combination effects with the Proposed Development.
Inveroykel Wind Farm	Adjacent	C	Scoping Application Decision Issued	Caithness and Sutherland SPA / Ramsar site qualifying features - red-throated diver, greenshank, golden eagle and hen harrier.	There is insufficient information available at the time of writing this report to undertake an in-combination assessment. It is assumed that when it is prepared, the HRA for Inveroykel Wind Farm will assess in-combination effects with the Proposed Development.
Loch Toftingall BESS	1 km west	A	Under Consideration	Black-throated diver, red-throated diver, wigeon, hen harrier, merlin, golden plover and greenshank as qualifying features of the Caithness and Sutherland Peatlands SPA/ Ramsar site.	The EIA and HRA predicted potentially significant effects on black-throated diver, red-throated diver, wigeon, hen harrier, merlin, golden plover and greenshank as qualifying features of the Caithness and Sutherland Peatlands SPA/ Ramsar site. The EIA concluded, overall, that the effects of the proposed BESS on all bird species are likely to be negligible with embedded mitigation, and no additional mitigation was proposed.
Golticlay Wind Farm Redesign	2 km east	A	Approved by Scottish Ministers	Hen harrier, golden plover, greenshank and merlin as qualifying features of the Caithness and Sutherland Peatlands SPA and Ramsar site.	The EIAR concluded that the proposed varied wind farm design would not have significant effect on any of the bird species scoped in to the assessment. Additionally, no LSE was predicted for any of the nearby SPAs, either alone or in-combination with other wind farm developments.
Hill of Lynchrobbie Wind Farm	2 km east	A	Scoping Application Decision Issued	The project is currently at scoping stage. Potential receptors identified which could be affected include qualifying features of the Caithness	There is insufficient information available at this time on the impacts of Hill of Lynchrobbie Wind Farm to undertake an in-combination assessment. It is assumed that when it is prepared, the HRA for Hill of Lynchrobbie

Development	Distance from Proposed Development	Relevant Sections of the Proposed Development	Status	Ornithology Features Identified in neighbouring EIA reports	Potential For In combination Effects
				and Sutherland Peatlands SPA / Ramsar.	Wind Farm will assess in-combination effects with the Proposed Development.
Acheilidh Wind Farm (fka Lairg III)	2 km north	B, C	S36 Raise Objection	Breeding black-throated diver as a qualifying feature of Caithness and Sutherland Peatlands SPA / Ramsar site;	With appropriate mitigation measures in place, including a habitat management plan and bird protection plan, NatureScot advised that the wind farm would not adversely impact the features of the SPA.
Tormsdale Wind Farm	2 km west	A	S36 Raise Objection	Hen harrier and short-eared owl as qualifying features of Caithness and Sutherland Peatlands SPA	In their latest response to the application, NatureScot identified potentially significant effects for hen harrier and short-eared owl as part of the Caithness and Sutherland Peatlands SPA.
Cogle Moss	8 km east	A	Application Permitted	Caithness and Sutherland Peatlands SPA / Ramsar qualifying features – wigeon, common scoter, golden plover, dunlin, greenshank, wood sandpiper, red-throated diver, black-throated diver, golden eagle hen harrier, short-eared owl, and merlin.	Permission was granted for the development in 2018, though no construction has been undertaken. The EIAR assessed potential collision impacts on golden plover and hen harrier from Caithness and Sutherland Peatlands SPA / Ramsar site and concluded effects on all receptors would be not significant.
Camster II Wind Farm	10 km northeast	A	Appeal Allowed	Caithness and Sutherland Peatlands SPA breeding hen harrier, merlin, short-eared owl and greenshank	The EIAR and HRA predicted potentially significant effects on Caithness and Sutherland Peatlands SPA / Ramsar site breeding hen harrier, merlin, short-eared owl and greenshank. However, NatureScot recommended that the project would not adversely impact the features of the SPA or any other ornithological features, with the mitigation set out in the EIAR in place, including a habitat management plan.
Achany Wind Farm Extension	10 km north	C	Approved by Scottish Ministers	Golden eagle, hen harrier and merlin, as qualifying features of Caithness and Sutherland Peatlands SPA / Ramsar site.	With appropriate mitigation measures in place, including a habitat management plan, NatureScot recommended that the wind farm extension would not adversely impact the features of the SPA / Ramsar site.

Development	Distance from Proposed Development	Relevant Sections of the Proposed Development	Status	Ornithology Features Identified in neighbouring EIA reports	Potential For In combination Effects
Allt An Tuir Renewable Energy Park	12 km northwest	C	Scoping Application Decision Issued	Golden plover, hen harrier, golden eagle, greenshank and dunlin as qualifying features of Caithness and Sutherland Peatlands SPA and Ramsar site.	The impact assessment predicted no significant residual impact on any of the listed species with mitigation measures in place.
Creag Riabhach Wind Farm Connection	13 km north	C	Under Construction	Data not available but route passes adjacent to Caithness and Sutherland Peatlands SPA / Ramsar site.	Tthe route of the OHL passes close to Caithness and Sutherland Peatlands SPA / Ramsar site. Scottish Ministers however concluded that with mitigation in place, no adverse effects on the integrity of the SPA/Ramsar site would occur alone or in-combination with other projects.
Limekiln Extension Wind Farm	15 km north	A	Approved by Scottish Ministers	Wood sandpiper, golden eagle and short-eared owl, red-throated diver, black-throated diver, common scoter, wigeon, golden plover, merlin, hen harrier as qualifying features of the Caithness and Sutherland Peatlands SPA/Ramsar site.	The latest variation applications states that effects on ornithology associated with the s36c Application for the five additional turbine development are considered to not be significant. That represented no change to the conclusions outlined in the 2020 EIAR.
Chleansaid Wind Farm	15 km north-west from section B 15 km north from section C	B, C	Approved by Scottish Ministers	Greylag goose, breeding black-throated diver as qualifying features of Caithness and Sutherland Peatlands SPA/Ramsar Site.	No significant effects were identified in the EIAR on SPA/Ramsar site bird populations.
Hollandmey Renewable Energy Development	15 km northeast	A	Approved by Scottish Ministers	Golden plover, Icelandic greylag goose and hen harrier as qualifying features of Caithness and Sutherland Peatlands SPA and/or Ramsar site.	It was concluded that with appropriate mitigation measures in place, including a habitat management plan, the project would not adversely impact the features of the SPA/Ramsar site.

Development	Distance from Proposed Development	Relevant Sections of the Proposed Development	Status	Ornithology Features Identified in neighbouring EIA reports	Potential For In combination Effects
Lochend Wind Farm extension	15 km northeast	A	Under Consideration	Hen harrier a qualifying feature of the Caithness and Sutherland Peatlands SPA.	Effects on hen harrier were taken forward for assessment in the EIAR, with the assessment predicting negligible or not significant effects with appropriate mitigation measures in place.
Slickly Wind Farm	16 km north west	A	Appeal Allowed	Hen harrier, golden plover and red-throated diver as qualifying features of Caithness and Sutherland Peatlands SPA/ Ramsar site.	The application was granted permission on appeal in 2022, with NatureScot advising that the project could proceed without affecting the integrity of the Caithness and Sutherland Peatlands SPA/Ramsar site with appropriate mitigation in place, including a habitat management plan.
Limekiln Wind Farm	17 km north-west	A	Approved by Scottish Ministers	Caithness and Sutherland Peatlands SPA / Ramsar qualifying features - wigeon, common scoter, red-throated diver, black-throated diver, golden plover, wood sandpiper, golden eagle, hen harrier, short-eared owl, and merlin.	The original EIAR report (2016) concluded that the likely effects on Designated Sites and for all bird species were not significant, subject to the application of embedded and additional mitigation. An additional Environmental Statement (2017) commissioned to assess the impact of the development upon golden eagle flight activity re-concluded that there was no predicted adverse impact.
Forss III Wind Farm	19 km north-west	A	Application Permitted	Caithness and Sutherland Peatlands SPA / Ramsar qualifying feature black-throated diver.	The EIAR for the related Forss Wind Farm (2020) used as the basis for this application, concluded that there were no likely significant effects upon Caithness and Sutherland Peatlands SPA / Ramsar site,
Limekiln Wind Farm Connection	19 km north-west	A	Under Construction	Caithness and Sutherland Peatlands SPA / Ramsar qualifying features - wigeon, golden plover, hen harrier and short-eared owl.	The EIAR concluded that there were negligible- low effects upon Caithness and Sutherland SPA / Ramsar site in relation to wigeon, golden plover, hen harrier and short-eared owl prior to the application of embedded mitigation measures.
Shinness Wind Farm	20 km north-west	B	Under Consideration	Caithness and Sutherland SPA / Ramsar site qualifying features – breeding black throated diver, red throated diver, dunlin, golden plover,	The EIAR assessed impacts on Caithness and Sutherland Peatlands SPA / Ramsar site for breeding black throated diver, red throated diver, dunlin, golden plover, greenshank, wood sandpiper, hen harrier, merlin

Development	Distance from Proposed Development	Relevant Sections of the Proposed Development	Status	Ornithology Features Identified in neighbouring EIA reports	Potential For In combination Effects
				greenshank, wood sandpiper, hen harrier, merlin and golden eagle.	and golden eagle. The EIAR concluded there would be no significant effects on the SPA /Ramsar site either alone or as a result of cumulative impacts.
Coillie Beith Wind Farm	21 km west	C	Scoping Application Decision Issued	The project is currently at scoping stage. Potentially significant effects predicted on qualifying features of the Caithness and Sutherland Peatlands SPA and Ramsar site.	There is insufficient information available at this time on the impacts of the Coillie Beith Wind Farm to undertake an in-combination assessment. It is assumed that when it is prepared, the HRA for Coillie Beith Wind Farm will assess in-combination effects with the Proposed Development.
Baledigle Wind Farm	22 km north west	A	Scoping Application Decision Issued	The project is currently at scoping stage. Numerous protected and notable bird species have been recorded within 10 km of the site within the last 15 years, some qualifying features of designated sites. Caithness and Sutherland Peatlands SPA//Ramsar site.	There is insufficient information available on the impacts of the Baledeigle Wind Farm at this time to undertake an in-combination assessment. It is assumed that when it is prepared, the HRA for Baledigle Wind Farm will assess in-combination effects with the Proposed Development.
Ackron Wind Farm	25 km west	A	Scoping Application Decision Issued	The project is currently at scoping stage. Potential for impacts on the qualifying features of Caithness and Sutherland Peatlands SPA / Ramsar site.	There is insufficient information available on the impacts of Ackron Wind Farm at this time to undertake an in-combination assessment. It is assumed that when it is prepared, the HRA for Ackron Wind Farm will assess in-combination effects with the Proposed Development.
Forsinain Forest Wind Farm	25 km north west	A	Scoping Application Decision Issued	The project is currently at scoping stage. Potential for impacts on qualifying feature species of the Caithness and	There is insufficient information available on the impacts of Forsinain Forest Wind Farm at this time to undertake an in-combination assessment. It is assumed that when it is prepared, the HRA for the Forsinain Forest Wind Farm will assess in-combination effects with the Proposed Development.

Development	Distance from Proposed Development	Relevant Sections of the Proposed Development	Status	Ornithology Features Identified in neighbouring EIA reports	Potential For In combination Effects
				Sutherland Peatlands SPA / Ramsar site.	
Kirkton Energy Park	25 km west	A	Awaiting Decision	Red- and black-throated diver, dunlin, golden plover, hen harrier, greenshank, greylag goose, lapwing, golden eagle, dunlin as qualifying features of Caithness and Sutherland Peatlands SPA/ Ramsar site;	The EIAR assessed impacts on greylag goose; pink-footed goose; curlew; lapwing; golden eagle; whooper swan; golden plover; dunlin; hen harrier; merlin; greenshank; and peregrine. However, with appropriate mitigation measures in place, including a habitat management plan, the EIAR concluded that the project would not adversely impact the features of the SPA or other ornithological receptors.
Strathy Wood Wind Farm Grid Connection	25 km west	A	Under Consideration	Golden plover, greenshank, red-throated diver, black-throated diver, hen harrier, merlin as qualifying features of Caithness and Sutherland Peatlands SPA and Ramsar site; Breeding common scoter, breeding black-throated diver and breeding bird assemblage as qualifying features of West Halladale SSSI Greylag goose, golden plover, curlew, dunlin, greenshank, red-throated and black throated divers, merlin, peregrine and golden eagle as qualifying features of Lochan Buidhe Mires SSSI	Potentially significant impacts were identified on red-throated diver and hen harrier and additional mitigation was implemented for both species. With the implementation of additional mitigation measures, the EIAR predicted that impacts on all ornithological receptors would be not significant.
Strathy South Wind Farm Grid Connection	25 km west	A	Scoping Application Decision Issued	Potential effects could occur for qualifying species of Caithness and Sutherland Peatlands SPA/ Ramsar.	With embedded mitigation measures in place, the EIA identified potentially significant effects from collision mortality on red-throated diver. As a result, additional mitigation was proposed comprising line marking at sensitive locations and installation of artificial nest rafts

Development	Distance from Proposed Development	Relevant Sections of the Proposed Development	Status	Ornithology Features Identified in neighbouring EIA reports	Potential For In combination Effects
					for breeding divers. With this mitigation in place, effects on all ornithological receptors were predicted to be not significant.
Melvich Wind Energy Hub	27 km north-west	A	Awaiting decision	The project is currently at scoping stage. Potential for impacts on Caithness and Sutherland Peatlands SPA / Ramsar site.	With the successful implementation of standard mitigation measures, the EIA predicted barely perceptible or low effects which were not significant for all ornithological receptors within the area. NatureScot's response requested additional information on black-throated diver but otherwise agreed other effects on SPA species could be mitigated.
Coille Line (fka Fiag) WF	28 km north-west	C	Scoping Application Decision Issued	The project is currently at scoping stage. Potential for impacts on the breeding bird features of Caithness and Sutherland Peatlands SPA/Ramsar site.	There is insufficient information available on the impacts of the Coille Line (fka Fiag) Wind Farm at this time to undertake an in-combination assessment. It is assumed that when it is prepared, the HRA for the Coille Line (fka Fiag) Wind Farm will assess in-combination effects with the Proposed Development.
Creag Riabhach Extension Wind Farm	28 km north	C	Approved by Scottish Ministers	Caithness and Sutherland Peatlands SPA / Ramsar qualifying features - golden plover, dunlin, greenshank, red-throated diver, black-throated diver, golden eagle, hen harrier, and merlin.	The EIAR identified potentially significant effects on Caithness and Sutherland Peatlands SPA / Ramsar site for the qualifying breeding species; golden plover, dunlin, greenshank, red-throated diver, black-throated diver, golden eagle, hen harrier and merlin, With the implementation of embedded mitigation measures, the EIAR predicted that impacts on all ornithological receptors would be not significant, and through additional mitigation provided by the proposed biodiversity enhancement restoration plan (BERP), minor-medium positive effects were predicted for golden plover, dunlin, greenshank, golden eagle and hen harrier.

Direct Loss of Habitat

3.5.2 Three projects were identified which overlap with the SPA/Ramsar site and which could result in direct loss of habitat from the SPA/Ramsar site, in combination with the Proposed Development. Habitat loss for other projects that were considered in the in-combination assessment is summarised in **Table 3-6**. Habitats affected included the qualifying interest habitats blanket bog and Northern Atlantic wet heath with *Erica tetralix*, and a range of non-qualifying interest habitats such as heath and upland acid grassland.

3.5.3 The Proposed Development will result in the permanent direct loss of 0.18 ha of habitat within Caithness and Sutherland Peatlands SPA/Ramsar site. This represents 0.0001% of the total SPA/Ramsar site area. In-combination with the three other projects identified, total permanent habitat loss is 0.623 ha, or 0.007% of the total SPA / Ramsar. Abundant alternative supporting habitat is available within the SPA/Ramsar site to support populations of the qualifying interest feature species. As a result, the loss of habitat in-combination with other projects has been assessed as not resulting in adverse effects on qualifying bird species in relation to the conservation objectives for the site.

Table 3-5: In-combination Habitat Loss within Caithness and Sutherland Peatlands SPA and Ramsar

Project	Distance from Proposed Development	Permanent Habitat Loss	Temporary Habitat Loss	Permanent Loss % of the Total Area of SPA
Proposed Development	-	0.18 ha	7.46 ha	0.0001%
Strathy South Wind Farm Connection	~25 km west	0.023 ha	0.03 ha	0.00001%
Strathy Wood Wind Farm Grid Connection	~25 km west	0.42 ha	1.07 ha	0.0002%
Tormsdale Wind Farm	~2 km west	0.15 ha	0.38	0.0001%
Total	**-**	**0.623**	**8.56**	**0.0005%**

Indirect Loss of Habitat from Disturbance and Displacement

3.5.4 There is the potential for cumulative disturbance and displacement from construction and operation of the above projects together with the Proposed Development. However with embedded mitigation measures in place, disturbance and displacement during construction are considered to be negligible and no in-combination effects are predicted. As a result, in-combination indirect loss of habitat from disturbance and displacement has been assessed as not resulting in adverse effects on qualifying bird species in relation to the conservation objectives for the site.

Collision Mortality and Barrier Effects

3.5.5 Additional mitigation measures have been identified to reduce impacts from the proposed development from collision mortality to negligible. With this mitigation in place, no in-combination effects are predicted. Similarly barrier effects are considered to be negligible for all species and no in-combination barrier effects are predicted. As a result, in-combination collision mortality and barrier effects have been assessed as not resulting in adverse effects on qualifying bird species in relation to the conservation objectives for the site.

3.6 Summary of Effect on Site Integrity

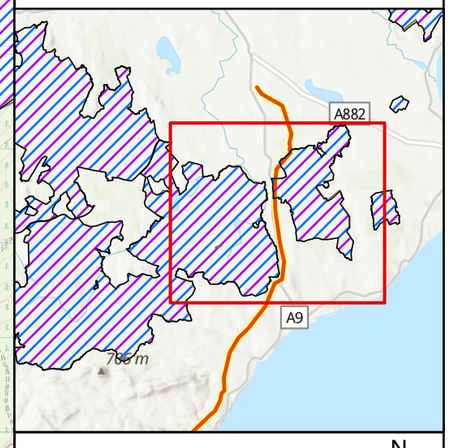
3.6.1 A summary of the SPA / Ramsar features for which LSE has been identified, and the assessment of effects on the integrity of Caithness and Sutherland Peatlands SPA and Ramsar site is presented below in **Table 3-7**.

Table 3-6: Summary of Appropriate Assessment Stage

Site	Feature	Adverse Effect on Integrity?
Caithness and Sutherland Peatlands SPA and Ramsar	Red-throated diver, breeding	No
Caithness and Sutherland Peatlands SPA and Ramsar	Golden plover, breeding	No
Caithness and Sutherland Peatlands SPA and Ramsar	Dunlin, breeding	No
Caithness and Sutherland Peatlands SPA	Hen harrier, breeding	No
Caithness and Sutherland Peatlands SPA	Golden eagle, breeding	No
Caithness and Sutherland Peatlands SPA	Short-eared owl, breeding	No
Caithness and Sutherland Peatlands SPA	Merlin, breeding	No
Caithness and Sutherland Peatlands SPA and Ramsar	Wigeon, breeding	No
Caithness and Sutherland Peatlands SPA and Ramsar	Common scoter, breeding	No
Caithness and Sutherland Peatlands SPA and Ramsar	Greenshank, breeding	No

N15
N20
N25
N30
N35
N40
N45
N50
N55
N60
N65
Caithness and Sutherland Peatlands SPA & Ramsar

- Tower Location
- Alignment Section A
- Special Arrangement
- Temporary Tower Compound Area
- Equipotential Zones (EPZs) (Pulling Locations)
- Temporary Access Track - Cut/Fill
- Temporary Access Track - Floating
- Permanent Access Track - Cut/Fill
- Permanent Access Track - Floating
- Special Protection Area (SPA)
- Ramsar



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SCALE: See Scale Bar	VERSION: A03
SIZE: A3	DRAWN: CI
PROJECT: 0652629	CHECKED: PW
DATE: 8/11/2025	APPROVED: KG

Figure 1
Spittal - Loch Buidhe - Beauly 400 kV OHL Connection
Caithness & Sutherland Peatlands SPA and Ramsar

ERM

Scottish & Southern Electricity Networks TRANSMISSION

PROJECTION: British National Grid

Path: \\uksprdgisfs01\Data\London\Projects\0652629 - SSE Beauly to Loch Buidhe\Maps\0720281 - SLBB - Designated Sites.aprx / 0720281 - SLBB - HRA - 06 - Caithness and Southerlands Peatlands SPA and Ramsar - A03